

**REVEALING INTANGIBLE ASSETS
AND ARCHETYPES
FOR ORGANISATIONAL CHANGE**

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requirements of the University of Greenwich
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DECLARATION

“I certify that this work has not been accepted in substance for any degree, and is not concurrently being submitted for any degree other than that of Doctor of Philosophy being studied at the University of Greenwich. I also declare that this work is the result of my own investigations except where otherwise identified by references and that I have not plagiarised the work of others”.

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Date: 26/06/2016

Date: 26/06/2016

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ABSTRACT

Organisational change is difficult to cope with, especially in the context of social complexity; for people see things differently, according to their assumptions, values, rationales or objectives. Adopting the complex adaptive character of human systems, this dissertation argues that non-linear change methodologies are more appropriate when dealing with cases of deep change or transition than traditional linear approaches. To this end, it undertakes the task to develop and test a new sensemaking tool, which will be able to reveal the intangible assets and archetypes in organisations or communities.

Its conceptual model is derived from the theories of complexity and archetypes and is consistent with their fundamental considerations. After being adequately contextualized, the developed tool-prototype is successfully implemented in three different cases; both its process and findings have been positively evaluated by the users and the information delivered can be also used by them as stimuli for self-assessment.

The results of the research validate the thesis and evolve the theoretical convergence of the theories of complexity and archetypes on a practical level. It is the first time that complex emergent methods have been combined with archetypal models, in order to create a sensemaking tool to be applied in transitional contexts and imprint key aspects of the collective perception and behaviour. Knowing such information, leaders can identify in a safer way where and how to move in order to reach the desired destination.

Furthermore, the research shows that the combination of hitherto barely-related or seemingly unconnected scientific domains (e.g. archetypes, geometry and network analysis or qualitative research and software development) can open new areas and routes in scientific knowledge and create new diagnostic tools.

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CHAPTER ONE

INTRODUCTION

Overview

The ability of an organisation to self-adapt to mutations in its environment is an advantage that is inherent, strategic and difficult to copy; yet the sense of threat against the system's balance that usually emerges creates anxiety and fear, reluctance and refusal to change. This dissertation is grounded in an examination of the effectiveness of such organisational change dynamics in the context of social complexity.

The literature review discusses the crucial factors that could facilitate or impede the success of a deep change in an organisation or community and enable leadership¹ to make the right decisions so as to deal more effectively with the challenge faced. It also indicates some false fundamental assumptions, due to which the mainstream linear – analytical tools fail to make sense and fail to assess the tacit issues and aspects of the organisational and community life; moreover, it depicts the usual pitfalls of the deterministic logic of planned change.

Adopting the complex adaptive character of human systems, the dissertation advocates a non-linear approach and its methodologies as more appropriate when dealing with complex and transitional contexts. More specifically, it suggests that the combination of archetypal models, complex emergent techniques and simple geometric schemes and templates can lead to the creation of new sense making tools that could be able to assess the collective capacity and maturity in complex and transitional contexts. Based on these, the research undertakes the goal to design, develop, test and evaluate such a tool, which can reveal the intangible assets and archetypes of a given organisation or community.

Outline of the field

It is generally agreed that our era is increasingly characterized by complexity, fuzziness and instability. The focus of attention in organisations has shifted to less tangible assets, such as the intellectual capital, good will, and core competencies. Items of value like innovation, knowledge, licenses and patents, brand image, customer satisfaction, ability for synergy, and adaptability to change comprise precious and substantial parts of a business enterprise or an organisation related to market, technology, customers and staff. But they cannot be held or stored and, most important, they remain difficult to recognize and measure,

¹ In this thesis, the term *leadership* means: to step ahead, to cross the threshold, to influence others through own paradigm and thus, to drive change; it is kind of the art of creation. *Leader* is the person (not the role) who enacts (perform) the art of leadership.

for: a) they consist of mainly human relationships and competencies, b) no objective measures or uniform standards exist for all cases, and c) any indicators are subject to one's perspective and interpretations (Sveiby, 2000).

The identification of the intangible assets and, moreover, their assessment relates to – if not depends on – some implicit factors that constitute the way people perceive reality. But the world cannot be perceived in a single way by all; instead, the same event can create various interpretations and conflicting reactions to different people. This occurs because humans make sense, interpret and interact with their environment through certain filters that are created by their *mental models*. These are amalgams of images, stories, thoughts, beliefs and feelings based on personal and collective experience, interests and value systems, which shape and are shaped by *patterns of perception and behaviour* in a non-linear loop (Senge et al, 1994; Snowden, 2002a).

Many contemporary theorists and practitioners (Wheatley, 1992; Goldstein, 1994; Capra, 1996; Stacey, 1999; Dimitrov, 2005; Mindell, 2000; Olson and Eoyang, 2001; Snowden, 2002a; Kurtz and Snowden, 2003; Senge et al, 2004; Kahane, 2004; Brown 2010; Scharmer, 2007) argue in favor of the above and pay particular attention to whatever is tacit, personal and subliminal, such as values, basic assumptions, ethics, fears and future expectations. These facets are considered to reflect the variety of ways in which the world is interpreted and relate to the reactions created by its stimuli. Strategic goals, such as investing on one or another particular intangible asset (e.g. brand image, innovation or knowledge) are interpreted according to the various stakeholders' viewpoints, rationales, objectives, values, interests or needs. In other words, whatever is intangible possesses qualities and variables, which are personal and involve a kind of first-person access (Varela and Shear, 1999).

Yet, this point is usually ignored by many leaders, managers, policy planners and change agents who are accustomed to the mainstream management practice and the established way of doing things. They fail to comprehend that they cannot plan or act in an *empty context*, as usually we assume in a deeper level, because human society is full of diverse, strong and competing ideas, voices and cultures; it is this fullness that creates the complexity of the problems (Kahane, 2004; 2010). They fail to comprehend that the vision they create about the future usually reflects their own personal mental patterns, neglecting or even excluding aspects that don't fit their own assumptions. And eventually, they prioritize ineffectively, or even in a wrong way, among alternative or contradictory ideas, plans, goals, and intangible assets.

At that point and in order to ‘make the others understand’ some leaders usually fall into the trap of the imposition of power and meaning, which usually generates and feeds a strong negativism, leading the initiative to deviate, ‘get stuck’ or fail. And as we know by experience, policy failures often magnify the existing problem rather than resolve it. This recurring pattern results in a downward spiral and a sense of powerlessness and anxiety among governments, organisations and individuals (Ballas and Tsoukas, 1998; Peat, 2008).

The problem gets bigger when a leader tries to introduce or invest on an intangible asset, of which the underlying patterns are incompatible to the deeper characteristics of the organisation or community². This is of crucial importance especially in transition or turbulent times, when people turn to their deeper beliefs to hang on. The multiplicity of meanings that is created eventually leads some stakeholders to feel that a particular change initiative, even the most necessary one, is going too fast or beyond consensus; so they express doubts or hold back (Holder, 2003; Tsoukas and Papoulias, 2005; Michiotis, 2010; Michiotis et al, 2010). Failing to acknowledge the social complexity and trying to impose power through a deterministic logic is what eventually creates ‘tough problems’; most times it is the attempted ‘solution’ that creates the real problem (Watzlawick et al, 1974).

Therefore, *the main issue raised from the above with regards to the organisational or social change is how they can be more effective in the context of social complexity.*

The research context

A pressing example of these observations can be identified in microcosm in the on-going reformation in Greek public sector and local government that aims not just at a simple restructuring but at a large-scale change. After the dramatic recognition of the Greek Crisis five years ago, the time seemed proper for Greeks to challenge deeper the collective way of perceiving and doing things, to challenge the historical beliefs and symbols. It was – or at least it should be - a *third-order change* in Tsoukas’ terms (Tsoukas and Papoulias, 2005), asking from leaders, administrative staff, policy planners and social stakeholders to shift their practices. It required the transmutation of the dominant patterns of bureaucracy, apathy and non-participation into something new and creative. Nevertheless, systemic crises often give birth to unpredictable events, which derive from the sense of a nearby dead end.

² Hereafter called ‘*system*’ for phrasal simplification reasons.

However, the plan of restructuring the Greek economy seemed to have serious problems and for various analysts was almost unavoidably likely to fail. Strong doubts and objections were recently raised officially about the way it was initially created and applied (IMF, 2013). There was no clear and objective idea of how the new desired pattern should look like or a commonly agreed plan of how it would be created. It is evident *now* that the experts, mainly outsiders, who designed it in the first place, lacked some crucial information regarding the potential and the inabilities of the Greek political, administrative and financial system. They also neglected to pay attention to some of the society's deeper characteristics. It is also clear that the domestic policy planners and change agents did not spend time and energy for the development of a wider consensus to the 'solution' created (Michiotis and Cronin, 2011b).

This ongoing situation provided the context for applying this research, which focused on the reformation in Local Government and the privatisation of public enterprises. The main objectives of the reformation in Local Government³ were: i) to provide high-level services, related to the citizens' needs and the standards of a modern European state and ii) to make better use of the available resources and plan on a larger scale.⁴ For this, most of the previously existing municipalities and communities were merged into smaller new entities that had to adopt innovative procedures on transparency, quality, incorporating accountability and public consultation, as a basis of their operation (Gazette of the Greek Government, 2010; Institute for Local Government, 2007). Yet, despite the broad consensus for the goals and the tolerance for the starting-period problems, the experience after four years is rather negative. This is due to the complexity of such initiatives; the differentiated origins, mental models, standards of living and expectations among the residents; the different starting points and organisational cultures of the merging organisations that had been developed for years; and the different visions, attitudes and practices of the local leaders and other key-players (Michiotis, 2010).

On the other hand, the privatisation of the public sector was characterized as well by certain patterns that impeded its success: its leadership was characterized by a parental and single-vision attitude and was modified almost every two years when there was a new CEO; stakeholders had rarely contributed to the essence of the reform aims; the labour unions challenged the laboratory-designed new prototypes; and the results of these initiatives were never evaluated properly (Mouzelis and Kazakos, 2005). All these led to delays, serious

³ The reform is named after *Kallikrates*, the ancient Greek architect who co-designed Parthenon.

⁴ Under the same concept, a similar reform has been designed for merging some other services of public sector as well, such as public hospitals, schools etc.

deviations from the milestones and goals and to reactions that proved to be unmanageable and, as a result, a sense of depreciation that disputed all intentions was created and reasonable doubts were raised by potential investors and stakeholders.

Nowadays, both of these cases still seem stumbling, stuck or at stake; they both prove that in transitional contexts the mainstream approach is not effective.

Rationale

As an organisation or a community moves away from stability and order towards transition, it becomes crucial for its leaders to make the right decisions. They have to obtain a more inclusive picture, in order to avoid such crucial, recurrent and sometimes irreversible mistakes; they need to know the deeper factors that influence and shape the system's culture and the substantial similarities and differences among the various stakeholders' viewpoints. For this, they need new kind of information that will help them decide which of the existing intangible assets and priorities should be strengthened, which ones should be restricted and which new ones should be introduced. Finally, they need to make sense of the level of readiness for or resistance to change within their organisation or community. These will help them choose and prioritize on a safer basis among contradictory ideas and alternative plans (Matthews, 2002; Snowden and Boone, 2007).

However, as it will be shown further on, the mainstream linear analytical logic and tools that are usually employed to assess the value of intangible assets cannot be of great help. Focusing mainly on one or two of the aspects that comprise the complexity of the intangibles, which is the favored of the expert's lens or the leader's authority (such as finance, IT, market), they miss its interdependence with the others; not to mention the prevailing rationalistic assumption, the missing details of the context, the researcher's own biases and language, etc. As more than one reality exists in social issues and more than one interpretation of the content, horizon, means, necessary resources and people to lead the change, neither the accurate status can be defined nor the solution pathway can be accurately prescribed. In this way, the mainstream methods and tools fail to deliver sufficient knowledge regarding the crucial factors and probable pitfalls of the attempted change and the way they interweave. As an unavoidable consequence, policy planners, change agents and leaders are led to wrong estimations, false plans and improper decisions (Tsoukas, 2005; Mitleton-Kelly, 2011; Michiotis et al, 2010).

Over the last twenty years, various interdisciplinary theories seem to outline a new paradigm, which is incommensurable with the old one. This derives from complexity and chaos theories, cognitive sciences, depth, archetypal and transpersonal psychology, quantum physics, biology and ancient philosophy. These theories have enriched our perspective to the world. Reality is not considered anymore as being 'out there', external to us, 'objective' or consisting of static structures and stable patterns; it is not a mechanical system that can be analyzed, predicted and controlled. Instead, organisations and societies are viewed as living and evolving systems - ecologies, with the emphasis to be shifted from objects to relationships, from quantity to quality, from substance to pattern, from prototypes to diversity (Bohm, 1980; Kauffman 1995; Capra, 1996; Lewin, 1999; Scharmer, 2007).

As humans possess some of the main characteristics of non-linear systems as inherent properties, these theories seem to explain better what is already known by experience regarding the collective behaviour of human systems, by which, for example, people perceive reality and relate, decide and act within their environment in a non-deterministic and non-rationalistic way; they have individual concerns and purposes beyond the organisational ones and make many unsupervised decisions every day; their behaviour creates repeating patterns; they are self-adapted; they self-organize, particularly at far-from-equilibrium conditions (Klein, 1998; Snowden, 2002a; 2007; Senge et al, 2004). In such view, people are co-creators through their language, interactions and emotions produced that can therefore enrich or limit the world itself (Maturana and Varela, 1987; Stacey, 1999). Moreover, organisations are considered as complex and unified systems that cannot be analyzed into components without falling into reductions or omitting their substantial interactions (Lichtenstein, 2000a; Snowden, 2002a). They can be understood better by looking for patterns within their complexity that describe potential evolutions of the system. The key in understanding them is to make sense of the whole, to see the entire image, which is visible only from distance.

As experience shows, the collective behaviour of a human system cannot be planned or predicted on a short-term basis; nor is homogeneously distributed in the domain the system exists. However, it is attracted by certain dynamic factors, which provide sufficient stability and diffusion for the system to operate. In human systems, such factors can be ideas, values, beliefs, desires or ethics and these regions can be recognizable behaviours of individuals or groups. Around these factors emergent patterns are formed (Goldstein, 1994; van Eenwyk, 1997; Kurtz and Snowden, 2003). Attractors represent both the cause and the result of this tendency; they are the influential factors, the regions that attract all nearby states, and the

created patterns; as long as a system remains under the influence of an attractor, its dynamics ‘stay in its basin’.

Archetypes share many characteristics with non-linear systems and various theorists have referred to them as strange attractors of the psyche, ordering or organizing principles that operate as probability fields and governing factors for a complex system’s behaviour. In that way, they can indicate feasible journeys of human behaviour in the landscape of management and social life (Van Eenwyk, 1997; Goertzel, 1999; Matthews, 2002). Being dynamic and emergent properties of the collective unconscious, archetypes can be employed to understand and deal with collective behaviour, for they can integrate ambiguity and paradox. Indeed, the more deeply one understands the archetypal characteristics of a system (or of one’s own life) and the influence they have on it, the more free one can be in dealing with them and thus, the more options of choice open up in one’s favor (Stevens, 1982; Pearson, 1998).

Archetypes can be proved very helpful for representing the intangible assets, as they both act as driving forces; they do not stand alone but interact with others; they attract or repel our attention and values; and they create ambiguous or controversial feelings, etc. Therefore, the intangibles could be represented, just like the archetypes, by contextualized items or issues that possess a strong symbolic meaning within a given system. Thus, we could reveal the assets that are currently active or in-potentia through their effects, meaning some emergent reactions of people created by the intangibles and related to them; as the way we understand archetypes through their manifestations.

For this the archetypal models could be of particular help. An archetypal model can be either a typology for the structure and content of a non-linear system or an attempt to model the *dynamics* of its behaviour (Card, 1996). In the first case, it informs of the system’s structure; its basic elements and the relationships between them. In a social or organisational context this *representation* could take the form of the key aspects, goals, priorities or players and the oppositional or collaborative forces among them. In the second case, an archetypal model refers to the life stages (of an individual, organisation or initiative) and the initiation rituals at the thresholds between them. At these thresholds new perception and behaviour patterns are shaped as the old role fades away or is shaken off and a new one emerges in turbulence (Roesler, 2006). While the structure and stages of archetypal models are pretty much alike over time and place, they do not operate in a mass or stereotypical way; they are neither statistical models nor deterministic ones (Card, 1996). They rather resemble a

theatrical play that is performed by different actors dressed in different costumes and speaking different language but keeps its plot. Instead, archetypal models allow different interpretations and deeply accept the individuals' right for free will and choice. Through their choices, the protagonists can either confirm an existing pathway or shape a new one. These decisions will be added to a knowledge-reservoir, full of experience, value and truth, verified over thousands of years. This leads to a more holistic perspective and facilitates the understanding of the system's complexity (Michiotis and Cronin, 2011b).

According to Jung (1968, 1940) and von Frantz (1974), the geometrical schemes are considered as images of the deepest archetypes. Across the ages, all the highly developed cultures of the world have used some geometric constructions as their symbols (e.g. the triangular pattern or the interlacing triangles, the cross, the cycle or square mandala, the snake that swallows its own tail, the sacred hoop) and many philosophers and scientists (e.g. Plato, Kepler, Fuller, Young) approached the powerful relationship between geometry and meaning. Recently, the geometry of thinking and meaning has been introduced into the organisational and business context. The geometrical metaphor has been extensively used in the articulation of identity and strategy; simple geometric forms and templates seem to help organisational leaders and strategists structure their thinking and planning (Judge, 2009; Keidel, 1994; 2010). When patterns are imprinted on geometric templates, making sense of complex behaviours and dynamics within a system is easier. Thus, the research has been led towards relating patterns, meaning and geometry, for the latter can enable conceptualisation, visualize emergent properties and explore relationships.

Main concept

In order to explore and imprint the dynamics of the collective behaviour in complex and transition cases, it is useful to consider the non-linear paradigm and particularly the combination of the complex emergent techniques, the archetypal models and the applications of the geometrical metaphor.

Moreover, instead of trying to assess the intangible assets, we could focus our attention on revealing: a) which of these assets are currently active or in-potential, b) which are compatible to the implicit factors (such as core values, qualities, skills, deficits, beliefs,) that create and maintain the collective perception and behaviour patterns of the system and c) which are the gaps of the collective experience when facing and dealing with challenges. We could view the intangible assets as challenges or needs that activate the system's *capacity*

(the sum of qualities, values, skills and inclinations inherent or obtained throughout its evolution) and test its *maturity* (the ability to recognize problems before trying to confront them and to consciously face them).

And as we all know, some challenges can activate the system's capacity that until then may exist in-potentia, while others do not. On the other hand, mapping these implicit factors when stimulated by the intangible assets shows in which way these driving forces and needs resonate within the system on a higher-order level. Yet, this map should be contextually expressed, meaning in real personas, real problems and mainly in a language easily understood by everyone in the system. In other words, the degree of coherence of the collective capacity and the intangible assets informs of the system's ability to make sense of itself and its environment and be adaptable. This will help leaders choose and prioritize on a safer basis among contradictory plans towards a compatible and thus feasible change.

Research goal

As aforementioned, the central issue raised from the above is: *how can organisational change be effective in the context of social complexity?* From this question, a double goal is set. Firstly, to research the usual patterns of higher-order change and suggest some crucial factors, which can facilitate or impede the success of such a change initiative. Secondly, to design and test a new sensemaking tool, which can be employed by organisations or communities to reveal their intangible assets and assess their collective capacity and maturity for a specific challenge they are facing.

More specifically, the sensemaking tool should be in position to deliver: a) the intangible assets that exist within a specific context, either manifested or in-potentia, b) the values, qualities, skills, holdbacks and fears that constitute its collective personality and outline the fields of its experience, c) the operational or social complexes of the above properties in the form of contextual archetypes, and d) the common ground and differences among the various stakeholders' viewpoints that indicate possible blind spots, shadow issues, gaps or even perils for the desired transition.

Thus, the **research questions** are shaped as follows:

1. *Is complexity more appropriate to reveal the key aspects of the collective perception and behaviour rather than the mainstream linear-deterministic approach in cases of higher-order change?*

The particular issues that should be mainly addressed here are:

- What is the importance of the intangible assets nowadays and which are the main difficulties in identifying and measuring them?
- Which are the main limitations of linear-analytical tools in assessing intangible assets and why traditional systems thinking have failed to meet them?
- How do people perceive and react to reality? How do the patterns of human perception, relation and behaviour work? Why are they important in cases of deep change?
- Which are the new notions and principles of the non-linear paradigm? How do they fit in human systems? What insights do they bring in management and social sciences?
- Which are the most critical points for the success of change initiatives? Which are the most common and significant failure factors? How does change happens in complex systems and chaotic situations? Which are the inner dynamics of change?
- Which are the basic theoretical frameworks and practical methodologies for mapping intangibles and dealing with change within the non-linear approach? How are they evaluated?
- How archetypes relate to strange attractors and how can they contribute in the organisational settings? Which are their applications in management and social sciences? Which are the limitations of the existing tools with business archetypes? How can the archetypal models be of help?
- How can geometry facilitate the emergence of meaning? How can emergent properties be represented through geometrical templates?

2. Is it feasible to develop, test and evaluate a new sensemaking tool that would be able to reveal such key-aspects, based on the combination of archetypal models, complex emergent techniques and simple geometric schemes and templates?

The secondary research questions that refer to the tool itself are:

- a. How should this tool be developed?*
- b. How should it be tested?*
- c. How should its effectiveness be assessed?*

Consequently, the particular issues raised by these questions are:

- Which are the design principles that the sense making tool should meet?
- Which will be its theoretical cornerstones and main assumptions?
- How will it be structured and applied? (components and steps of the process)
- How exactly will its deliverables be?
- Which should the principles for the validation of its effectiveness be?
- How will it match the context of the test-bed? (content)
- Which sampling techniques and criteria will be used for the testing?
- What particular organisation aspects should be addressed and how?
- How will the data collection be done?
- How will the data collected be processed, assessed and presented?
- How will the results be validated?

To address these questions, the extensive literature on sensemaking and change within organisations was comprehensively reviewed and a prototype new sensemaking tool developed suitable for facilitating effective organisational change in socially complex situations.

The tool was tested in the following **three cases**:

- A public organisation that was in a transition phase, facing a merger and acquisition process and in need to introduce a new organisational culture; the control groups were derived from the mid level management of the organisation.
- A number of local communities - societies that were facing a large-scale change (within a wider crisis) and their leaders had divergent visions for the future; the control groups represented different groups from the local community and social stakeholders.
- The Greek secondary education system that was interested in finding out the factors that help or impede the success of entrepreneurship education programs; the control groups were formed by pupils, teachers and administrative staff.

Structure of the dissertation

In the next two chapters the **Literature Review** is presented in six sections as following:

- a) In the first section, the human perception and behaviour ‘mechanism’ and the way people relate and interact are examined, along with the process and means of meaning creation and sensemaking, as well as the results from its collapse in organisations.
- b) Then, we examine how Intangibles and Change are perceived and managed by the mainstream worldview of Linearity and Determinism. In particular, the limitations of linear analytic diagnostic tools in assessing whatever tacit and intangible, as well as the pitfalls of the deterministic logic of planned change are discussed.
- c) In the third section the implications of the emerging non-linear paradigm for organisations and societies are discussed. Furthermore, some of the most known models and tools derived from it and used in the context of organisational and social complexity are critically presented.
- d) Next, the review introduces us to the world of Archetypes and depicts their organisational applications. It also discusses the advantages of using archetypal models as knowledge depositories in complex or transitional contexts.
- e) In the fifth section the contribution of geometric metaphor for the representation of meaning is examined and the requirements for the design and application of a sensemaking tool are presented.
- f) Finally, after taking into consideration the conclusions of the review and the existing gaps in literature, the Conceptual Model of the new sensemaking tool is presented.

In the fourth chapter the **Research Methodology** is presented and analyzed in phases, stages and tasks. The four phases in which the research is carried out are:

- a) *Field and secondary research*: through interviews with proper persons and review of adequate material, reports, etc, it is aimed to make sense of the context and needs of each test-bed, in order to contextualize the tool, define the issues and sample better each case.
- b) *Development of the tool*: is about evolving the conceptual tool into a tool-prototype and from there to contextualized versions, based on the information delivered for each case in the previous phase.

- c) *Testing of the tool*: implementation of the contextualized tool in three different and independent cases, as previously mentioned.
- d) *Evaluation of the tool*: assessment of the collected data and validation of its results for each case.

In the fifth chapter the process and the milestones of the **Development of the Tool** are presented along with the specification of its characteristics as a research instrument. Based on the conceptual model, a number of initial trials lead to its refinement and final definition of its features and eventually to the creation of a tool-prototype. This, in order to be tested, gets contextualized according to the needs of each context.

In the sixth chapter the **Implementation** process of the tool, along with the **Results** of each of the three case studies are presented and analysed.

Finally, in the seventh chapter a **Discussion** is made on: a) the phase of the design and development of the tool, b) on its application phase, c) on the delivered results and their validity, and d) on the tool itself as a sensemaking and research instrument. The chapter ends with the **Conclusions** and future research suggestions.

CHAPTER TWO

LINEARITY vs. NON-LINEARITY

The literature review covers six sections: a) Sensemaking, b) Intangibles, Change and Linearity, c) Organisations and Non-Linearity, d) The world of Archetypes, e) Sensemaking tools Development, and f) Conceptual Model of the new tool. In this chapter I consider the first three of these:

Sensemaking: The review starts with the discussion of the way people perceive and react to reality's stimuli and relate each other; this is an essential background for what is examined in the next sections. Then I particularly discuss the process of sensemaking in organisational and social contexts and the consequences from its collapse.

Intangibles, Change and Linearity: Initially, the strategic importance of intangible assets nowadays, the major difficulties in identifying and measuring them and the higher-order-change consequences that result from their introduction in organisations are examined. Then the inadequacy of the linear and deterministic paradigm to cope with them is discussed. For this, I consider the fundamental limitations of the mainstream tools to identify and assess intangibles and the pitfalls of planned change when dealing with the alignment of the organisational culture with externally imposed goals.

Organisations and Non-Linearity: Here, I outline the emerging non-linear paradigm and discuss the principles and real life applications of the theories of Complexity and Chaos. Moreover, some of the most known models, methods and tools of this paradigm that are used for making sense of human, organisational and social complexity are presented and their limitations are discussed.

This completes the body of theory I am drawing to answer the first research question, which examines the appropriateness of the non-linear theories for organisational change in the frame of social complexity.

2.1 SENSEMAKING

This introductory section aims to outline the perceptual and relational background of social complexity; meaning the frame, within which people make sense of reality and interact with their environment – especially in organisational contexts - in order to create meaning and deal with life or work challenges in a more efficient way.

For this, we first examine the way human perception and behaviour is shaped. More specifically, we discuss: a) the implicit factors that influence how people see, interpret and react to the stimuli of their environment; b) the ways people are engaged in complex responsive relations, they interact with each another, c) how their perception and behaviour patterns are created so as to operate as filters and assumptions, mental models and worldviews are eventually build ; and d) how these patterns come full circle: attention, perception, relation action, and then attention again.

We then proceed to discuss meaning creation and sensemaking, by examining in particular: a) the difference between them; b) the two fundamental and complementary ways of meaning creation and sharing (i.e. logos and mythos); c) the process of sensemaking in terms of organizing; d) some of the most usual and effective means for sensemaking and meaning creation (i.e. narrative, myths, metaphors, symbols); and d) some challenging implications of sensemaking theory and practice and some of the lessons learned from its failure in organisational and social contexts. We particularly focus on policy making, organisational communication, knowledge sharing, risk prevention and crisis situations.

The examination of these issues is considered to be essential because it explains the main difficulties in managing the intangibles and the major limitations of the linear analytic tools that attempt to assess them; intangibles and linearity constitute the topics of the next section.

2.1.1 Human perception and relation

a) Patterns of perception and behaviour

When people face reality, characterize situations, evaluate alternatives, make choices and take actions, they use their own judgment, feeling, practical knowledge or intuition rather than follow some externally set rationalistic criteria (Klein, 1998; Kurtz and Snowden, 2003). In particular, whatever is intangible possesses qualities and variables that are personal and involve a kind of first-person access (Varela and Shear, 1999). Indeed, the more tacit

and intangible an issue or a factor is the more ambiguous it appears, but at the same time it is very real and powerful for the person involved in or affected by it.

This is because humans make sense of and interact with the surrounding world through certain mental filters that strongly relate to the value systems, their needs and interests and their social environment. This natural and repetitive practice forms patterns, which operate like perception filters, helping people interpret reality and position themselves as regards with it. People have built the capacity to do so through their personal and collective life and work experience, education and wider cultivation, as well as on current needs, expectations and even mood. (Senge et al, 1994; Kurtz and Snowden, 2003).

This perception system enables people to find balance in the surrounding complex world; otherwise the latter would appear chaotic. The knowledge, experience, ideas and vocabulary contained are not only their own, other people's 'voices' are also included. These are the 'voices' of people we have met in various phases of their lives, in vivo or in books, with whom they are in a kind of dialogue, consciously or unconsciously. They have influenced, helped, irritated, hurt or loved us and certainly they have contributed to or impeded our development (Mindell, 1982; 2000).

Senge et al (1994) argue that these filters are created by what they have called *mental models*, which contain images, assumptions, and stories, created, enacted and carried in human minds. They refer to themselves and every aspect of the world. These models form and are formed by perception patterns; models and patterns are linked in a non-linear loop. It is one's beliefs that affect which data one chooses to observe; what one sees is usually bounded up with what one already knows and with what one believes in. Therefore these mental filters and models affect one's 'seeing', something difficult for one to 'see'. In the words of the noted physicist David Bohm: "normally our thoughts have us, rather than we have them" (Senge et al, 2004, p. 29).

Senge et al (2004) use the *ladder of inference* metaphor (Figure 2.1) to explain how this happens. The ladder consists of seven steps, which, in order to their occurrence, are the following: observe and retain data; select among the observed data; colorize the data, make sense of them and construct meaning; make assumptions, based on the just given meaning; draw conclusions; adopt beliefs about the world; and take actions according to these beliefs.

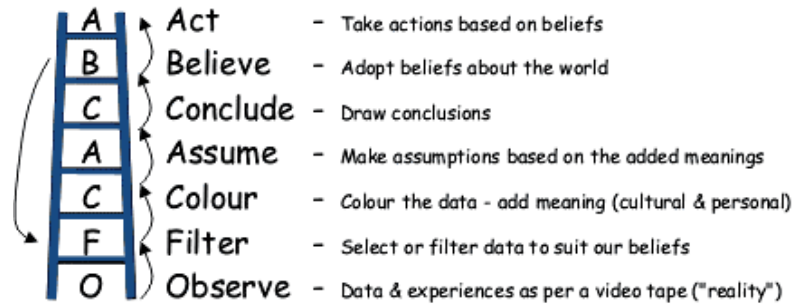


Figure 2.1: The ladder of inference (adopted from Senge et al, 1994)

However, between the second and the sixth step, there is a reflective loop; beliefs are linked to filters and thus affect the input selected. New data that does not fit are excluded. As one focuses elsewhere, they cannot be observed nor retained in memory later. This process can be formatted as follows: *our beliefs are the truth - the truth is obvious - our beliefs are based on real data - the data we select are the real data* (Senge et al, 1994, p. 242). Therefore, the only new stimulus (knowledge, fact or evidence) that makes sense is usually the one related to an already existing pattern.

If new data cannot be affiliated with any known pattern, it will not be understood. In this case, there are three alternative options: a) to skip it, b) to examine it and either accept (embody) it or abort it, or c) to react negatively to it, which is quite a common practice. The latter has been identified by Jungian psychology as a product of psychological projection; the conflict perceived in the world around us is a reflection of a conflict that exists within ourselves, between our consciousness and the unconscious (Van Eenwyk, 1997). As he characteristically notes: “the mind sees only what it looks for and looks only what it has in mind” (ibid, p. 87).

Actually, viewing human perception and behavior through a psychological lens, Jungians (Stevens, 1982; Pearson, 1998; McDowell, 2000) seem to agree that human experience is structured on and around some principles; they call these archetypes. These ordering principles determine how we perceive and experience the world, influence our understanding of the laws of nature and therefore profoundly govern our behavior. Archetypes can be viewed as ways of both perception and (non-cognitive) action patterns; thus, they resemble mirror neurons (Hogenson, 2009). Indeed, they are so powerful that it could be argued that the archetypes live us instead of us living archetypes (Pascal, 1992). This is another analogy, this time with Bohm’s previously mentioned aphorism on thoughts.

With regard to the organizational context, Buckle (2003) points out that there are repeating collective patterns of unconscious behavior; being guided by archetypes or order parameters,

they are purposively oriented. As it will be shown in section 2.3, another name for these order parameters is chaotic *strange attractors*, with which *archetypes* share many characteristics. A strange attractor shapes the possible range of behaviors possible in a complex system, according to the conditions affecting it and describes the tendency of the system to cluster its collective behavior around a set of acceptable values (Goldstein, 2000).

Regarding the issue of predictability in human life and actions, Snowden (2002a) notes that people create contexts, perform rituals and seek for order and predictability, just to make sure they feel safe in their daily life and safe to make future plans. But on the other hand, while an individual's actions might be in general predictable, they can never be precisely predictable. Thus, the mass behavior of a human system cannot be predicted, due to the various complex factors that influence whether and when its members will follow (or not) the simple rules that exist between them (Kurtz and Snowden, 2003). As Stacey (2003) notes, if human actions were driven by deterministic laws or rules, we could never learn anything, and there could be no human choice or human freedom.

The biologists Humberto Maturana and Francisco Varela (1980; 1987) claimed that the world is the one that people have knowledge of. It is built out of their perceptions; so, there are as many realities as people perceive; not a unique external and objective reality. The same event can create different interpretations and conflicting reactions to each one. For the observer is not apart from the phenomena he/she observes but instead he participates in the unfolding of the world; not as passive observer, but as co-creator. In the words of the neurobiologist Walter Freeman (Robertson, 2009, p. 7), "instead of minds shaping themselves to their sensory inputs from the world, minds shape sense impressions according to their innate categories". In a way, this brings us close to the concept of archetypes as inherent patterns, something that will be discussed in details in the next chapter of this review.

Extending the boundaries of human perception, the quantum physicist David Bohm (1980) suggested that nature and reality include both a manifested level (*explicate order*), including what is explicit, visible and known through science, and a subtler unmanifested one (*implicate order*), which exists beyond one's daily perception and depends on the state of one's consciousness. In the latter all parts exist as embodiments of the whole, full of potentiality, where individuals can enter when engaged in something meaningful and attuned to one another. Adding to that, Jaworski (1996) notes that to see oneself as part of the unfolding is to see oneself in relationship to everything in the world.

As was mentioned earlier, the perception patterns work in a deeper level, implicit and unsaid, guiding people's actions and behavior. Not only do they affect human perception but they also deeply influence one's decisions, which, in many cases, is a first fit-pattern matching with previous experience - filling the gaps. Decisions are then rationalized in an acceptable way to the society individuals belong to (Snowden, 2002a). Thus, the behavior and actions of individuals are influenced by the interpretive and relational schemata they use; that of their own and that shared organizationally. This becomes more complex, as people are able to simultaneously create and sustain - and without any second thoughts - different identities, depending on their role within a group or a context. Moreover, they are able to adjust themselves to the demands of each situation or role (either due to pleasure or obligation) by switching (in a most natural way) between these personal, social or professional roles and behaviors (Snowden, 2002a). For example, a business conversation can be interrupted by a personal phone call or by an athletic or artistic issue of common interest; or vice versa.

b) Patterns of relation and interaction

Being exposed to so many roles and identities, as well as to a cultural and ideological pluralism, Western people feel that the dominant myth of individualism and the barriers that separate self from others are seriously challenged (Gergen, 1991). This makes the self more complex and more saturated, leading Gergen to claim that "there is no self and no meaningful action without dependency" (Gergen, 1994, p. 216), claiming that "in the beginning is the relationship" (Gergen, 2009, p. 29).

The issue of relationships is fundamental for Stacey too. Stacey and colleagues (Stacey et al, 2000; Stacey, 2001) have argued that what we experience as reality is continuously under construction *in the living present*, with continuity and novelty endlessly emerging. They have used the term "complex responsive processes of relating" to describe the patterns of interaction that occur within organizations between people, such as the acts of communication and dialogue, relations of power and the interplay between their choices. Discourse and narrative in general are the main means for this kind of relationships, as they are full of information and have the capacity to generate novelty. Actually, according to Bruner (1990), the self could be viewed as a narrator. Being in dialogue with stories and 'voices' of his/her own and the others', he/she connects notions and constructs personal meaning that is then addressed to others. Through this relation with them, the self-narrator organizes one's own experience and co-creates the sense of identity.

These relations of asymmetrical power possess a dynamic character; some are ephemeral and swift, while others are slower but perhaps more long lasting (Mowles et al, 2008). Human interactions weave together forming patterns of meaning and relating, which can be reinforced, gradually evolved or shift suddenly to another pattern (Suchman, 2002). In any case, it is through them that mutual influence and impact occurs among people. When they are respectful, genuine care emerges, which is an action, not a thing; one is then careful and cares for one's work, fellow workers, organization or community (Putnam, 2000). In this way, relation leads to action.

As time goes by, the perception patterns turn to labeling systems, which are self-confirmed by personal experience and thus, conservative biases are built in individual perspectives. As experience builds up, people tend to make a great investment in such labeling systems, so more biases are being built; these give us confidence (Snowden, 2002b). Stereotypes and prejudices (most of the times subconsciously) then affect the way people relate and interact, make decisions and take actions. Perhaps this is why it is too hard to actually listen to different voices or tolerate contrary opinions. Indeed, "the more we are aware of our prejudices, the more we can give attention to the context in which we are doing that seeing, the more unbiased the information we are able to take in" (Peat, 2008, p. 82). Therefore, only if we shift our pattern of attending reality, our perception pattern can shift. To do so, Scharmer (2007) suggests a shift from a habitual (superficial) or factual (judgmental) kind of listening to an empathic (from the heart) and then to a generative one. The latter, letting the old patterns go (related to old identity), makes space for the emerging one to manifest.

It seems like patterns come full circle: attention, perception, relation and action; and then attention again. I consider this circle as very important for revealing, making sense and managing the intangible assets in current organizations, as well as the factors that influence them.

2.1.2 Meaning creation and Sensemaking

a) Logos, mythos and meaning creation

Meaning creation (or meaning making) is the ability to integrate challenging or ambiguous situations into a framework of personal meaning using conscious reflection. It correlates with psychological help and helps people in optimal functioning by linking work meaning to meaning of life (Maslow, 1968; Rogers, 1961; Sheck, 1992). Meaning affects frameworks, which affect meaning; e.g. more shared meanings lead to more elaborated

frameworks, which lead to further shared meanings. Yet, when attention is paid to the one, the other becomes ignored and this unbalance is followed by efforts to correct it, which lead to a new unbalance and so on. For example, when people pay attention to organisational framework, social relations (out of which meaning emerges, as we will see further below) become ignored, so people seek for meaning and ignore frameworks temporarily; when meaning becomes clearer, the attention returns to frameworks, in order for the (new) meaning to become incorporated (Weick, 1993).

Regarding organisational change, meaning creation helps people understand the content of the change and its impact on their personal values and goals. It is less automatic and immediate than sensemaking, which has to proceed as an interpretation process in order for meaning making to take place; sensemaking is an emergent process, while meaning making is a conscious reflection. Sensemaking seeks to rebuild the path which led somewhere in order to understand, while meaning making is a journey towards an existential significance of some events (Demerouti, Schreurs et al, 2009, Ancona 2012; Dransart, 2013).

Two of the main ways people create meaning are logos and mythos. Although radically different in their world-views and typologies, logos and mythos perform the same operation: they interpret the world by creating representations of it and for that they use more or less the same tool, language (Tselikas, 2009).

Logos (meaning reason, ratio) attempts to describe and analyze the everyday world by supplying information about it and how it works in a linear timeline moving forward only. It employs abstract categories, concepts, and principal hypotheses in a non-contradiction basis; everything is something and not another as well. It is a written culture of empirical methods that follows a logical, critical and linear-analytical kind of thinking; it focuses on observable facts and well argued proofs and seeks for an objective, literal and universal truth. The world of things is value-neutral and causality is featured in a quest to discover new laws that will be used by humans in order to predict and control the nature and (their) future (Bruner, 1986; LaFave, 2007).

On the other hand, **mythos** attempts to penetrate deeper into the essence and the meaning of human existence by revealing (hidden) transpersonal patterns and thus enabling insights to emerge; for that it indicates life's paradoxes and contradictions and employs metaphors and particular events of human experience in time and place to be used as guides through alternative probabilities. It focuses on relationships, intentions and feelings, aiming to share a subjective and metaphorical truth. Mythos is a narrative-based mode of knowing passed from one generation to another through an oral culture of collective memory and rituals, and

following a holistic, poetic, intuitive, and non-linear kind of thinking; time is cyclic or spiral and unhistorical and a thing can be simultaneously both “x” and “not-x” (Bruner, 1986; LaFave, 2007).

Therefore, logos and mythos should be seen as two complementary and irreducible to one another ways in which humans try to understand the world and acquire knowledge of it. They should be seen as ecology, for they are both important, as two poles of experience, two pathways in the search of meaning, two modes of knowing and, most of all, because they work best together. A well-formed argument convinces of its truth, while a good story of its lifelikeness. Any attempt for hegemony of the one pole over the other and any effort to reduce or ignore the one at the expense of the other inevitably will fail to capture the rich diversity of thought; (Bruner, 1986).

Thus, I suggest that we could override the *logos-mythos* dyad (polarity) by converting it into a creative triad: *mythos-logos-meaning*; through creative relationships, mythos and logos form the new meaning, which corresponds to the new prototype. The area of the triangle could be then seen as the shared meaning to be generated and served by the three nodes; for meaning is what motivates most humans who want to find it in their life and work. This concept can be represented by the aid of a geometrical triangle.

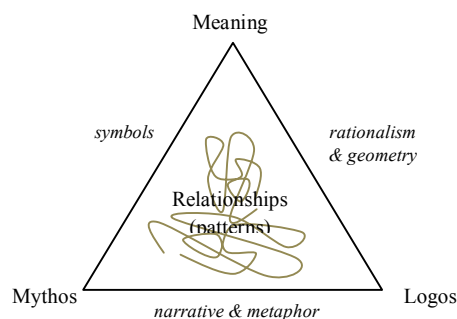


Figure 2.2: Mythos, Logos, Meaning and human Relationships

b) Sensemaking and organizing

For Karl Weick, the ‘father of sensemaking’⁷, the term refers to the process through which we structure what is unknown by placing stimuli into some kind of framework that helps us comprehend, understand, explain, attribute, extrapolate and predict. Through conversations and narrative, people create and maintain an intersubjective world. This helps

⁷ There are four major perspectives on sensemaking: Weick focuses on organisational activity, the collective meaning of which is then internalized; Dervin on individual’s situation and internalized experience; Klein on individual’s mental model applied to an external context or activity; and Russell on collective location that interprets external data. Snowden stands somehow in the middle of this 2X2 matrix (collective-individual, internal-external) considering sensemaking a knowledge production activity towards a shared understanding of a problem (Jones, 2015). With regards to the need of the current research we will refer to the first and last of the above theorists.

them move from the simple to the complex and back again, as new information is collected and new actions are taken, both of which are identified, labeled and classified, and thus the complex becomes simple again, but on a higher level (order) of understanding. It resembles the construction of a representation (map) of a changing world, testing it with others and refining or abandoning it depending on its credibility. In this way, sense making is the process of social construction that rationalizes what people are doing and a key leadership capability that permits them have a better idea of what is going on in their environments (Weick, 1995; Balogun and Johnson, 2004; Weick et al, 2005; Maitils and Sonenshein, 2009; Ancona, 2012).

Weick (1995) articulated sensemaking as a coherent framework for perception, cognition, action, and memory, a process that has seven properties; it is: a) *grounded on identity construction* (how one understands oneself while dealing with a situation, what and who one represents); b) *retrospective* (it unfolds by moving from experience into memory and then into meaningful patterns and thus challenges contingency or strategic planning as misleading if decoupled from reflection and history); c) *enactive of sensible environments* (people create their environments as those create them); d) *social* (depends on one's socialisation, meaning where he/she grew up, what was taught, where he/she lives, who interacts with); e) *ongoing* (it neither starts fresh nor stops cleanly, it is a perpetual emergent meaning and awareness, for people remember past events with the same emotional tone as they currently feel and reconstruct them in the present as explanations); f) *driven by plausibility* (it does not need to be accurate or complete, just sufficient and plausible in order to enable action-in-context); and g) *focused on and by extracted cues* (people tend to see simple, familiar things - rather than to process them – and thus develop a larger sense of what is going on) (Weick, 1995; McNamara, 2015). This last feature underlines the need to pay attention to the ways people (and ourselves) pay attention to situations. Adding to this very point, Scharmer (2007) argues that the way we pay attention to a situation, individually and collectively, determines the path the system takes and how this path emerges.

Sensemaking is a significant process of organizing that takes place when complexity, ambiguity and uncertainty are high. Sensemaking and organisation constitute one another; one has to grasp each to understand the other, as people organize to make sense of inputs and enact this sense back to the organisation, in order to make it more orderly (Tsoukas and Chia, 2002; Weick et al, 2005). It starts with chaos, an undifferentiated flux of impressions

originated by a million things that go on⁸ (Chia, 2000). It starts with the actions of noticing and bracketing, when someone asks “what is this about?” for something occurred or affecting the work but which, so far, has not been recognized autonomously, it has no name⁹ (Magala, 1997). Mental models, as earlier described, help the members of the organisation in this naming through bracketing and thus, a new meaning is invented and the organisational life gets simplified. Labeling and categorizing through words, phrases and images generate common ground for management, coordination or distribution and suggest stabilized and plausible activities. Through such communication, an approximate story is created and from that a pathway is shaped towards the next action (Weick et al, 2005; Weick, 2010)¹⁰.

In the previous paragraphs we saw how people make sense and create meaning through their relationships. We will now proceed to discuss some of the main means for sensemaking and meaning sharing in organisational context; namely dialogue, narrative, storytelling and metaphor.

c) Means for sensemaking and meaning sharing

In dialogue, meaning is a flow towards coherence between or among people who listen and respond to each other unless it is somehow blocked. Indeed, dialogue is the exploration of the creative perception of meaning, by thinking together and feeling together. As meaning cannot be imposed the best one could do is to avoid any kind of expectation or direction, for it has to find its own way (Bohm et al, 1991). Yet, the methodology of Dialogue (Isaacs, 1999) that has been developed based on Bohm’s encounters significant problems of acceptance in most of the business world, as well as in social contexts, due to the mainstream debating or power imposition attitude.

⁸ The stage of non-differentiation is also encountered in Jungian theory and in the Alchemic tradition, addressed to the first stage of the ‘individuation process’ and the ‘prima materia’ respectively. In this stage, where everything is in-potential and has no qualities, it is the act of making a distinction that separates qualities; making a distinction is the birth of consciousness (Robertson, 2009).

⁹ Kambas (personal communication, June 2009) suggests a relevant concept: mythos informs on the historical process before us and by us; by observing the patterns of the process, it reveals its dynamics that lead the system to a new level; the dynamics are expressed as condensates of the patterns observed. There, at the new level, mythos is in need of something further in order to make sense of its own existence in this new level; it needs logos. So, it “calls” for logos to give a new structure and a new name to mythos and therefore to make it understand itself. In this metamorphosis process Logos is God; it acts to give a name to the new level that is unfolded. Logos is the Creator (Kambas, 2009). This concept is often applied in our lives: in transition periods a person, organisation or even society is in need of an expert or leader (psychotherapist, consultant, politician) who will explain in words (logos) what is happening. The subject already feels (knows) this but yet cannot understand (make sense of it) clearly; furthermore, the expert or leader should name what needs to be done and create a structure for it.

¹⁰ Weick (2010) suggests a 3-sentence vocabulary of sensemaking: disorder + confusion = trouble; trouble + thinking = sensemaking; probing for plausible stories that explain trouble = enacted sensemaking.

Stories, myths, metaphors, icons and symbols are primary means for making sense that generate creativity, transfer learning or trigger change or heal. Denning (2005) suggests a classification based on the objectives of organisational storytelling, which are: sparking actions, communicating who you are, transmitting values, fostering collaboration, branding, taming the grapevine, sharing knowledge and leading people into the future.

Narrative is the most common and simplest way to approach perception and behaviour patterns of other people, groups, organisations or even nations; people connect to each other by telling stories (Pearson, 1998) and it is through narrative that we understand the world (Movva, 2003). Myth, which is a special kind of story, interprets the world and illustrates moral values (Boje, 1997). In their myths, humans reveal their commonalities and through them comprehend their lives (Campbell & Moyers, 1988). The “myth is neither true nor false, but behind truth” (Owen, 1993, p. 10). Likewise, metaphors can reveal the complex and paradoxical character of different but coexisting aspects; they allow us to understand one element of experience in terms of another (Morgan, 1986).

Stories contain and diffuse information about problems faced (Denning, 2001); their language does not answer questions, but makes connections and reveals potential through experience (Smith, personal communication, June 2007). They show perception or behaviour patterns already existing or in potentia; they make sense, explain and energize (Weick, 1995). They express complex situations in a simple, clear and easy to remember way; if arising spontaneously, they can reveal values, principles, beliefs and practices, all elements of the organisation’s or community’s culture (Snowden, 1999, 2001). Yet, as Callahan (2004) indicates, there is a major difference between narrative and storytelling; narrative seeks to reveal, while storytelling is designed to persuade.

Nevertheless, narrative is an important means to reveal the stakeholders’ archetypes that are delivered as emergent properties of the discourse within a system. On the other hand, it can bridge the archetypes of different systems, through retelling the stories (anecdotes) of the first system but with the archetypes (protagonists) of the second; or new stories with the existing archetypes. Thus, through getting familiar to the other system’s cultural elements (issues and archetypes) fears and misunderstandings are reduced or at least get more real (Snowden, 2001). Stories provide insight into the life of an organisation (Boyer, 1997), defending the established practices as the only way to function effectively (Hughes, 1995) and therefore, most of the times are stereotypical (Gabriel, 2000). Stories are used for framing and reframing reality and developing a shared vision that is easy to understand and

remember (Forster et al, 1999); these stories are inspired by leaders but they are also used by them (Gabriel, 2005). Actually, our understanding of an organisation and its properties is always based on and framed by the stories we construct and retell about it; these are stories with plot and characters meaningful within the particular context. This narrativity of ours - and especially when we are aware of it - creates a second order of complexity regarding the way we organize our thinking about the organisation (Tsoukas and Hatch, 2001).

Yet, there are certain limitations in their use for depicting the organisational culture. The process of gathering anecdotes and processing them in order to extract archetypes from them (as building blocks of a contextual reality) takes time and effort and demands significant availability of time on behalf of the examined human system. This difficulty, combined with the 'fast forward' business attitude limits the possibilities of using stories as a basis for the development of a diagnostic tool.

Finally, of particular importance is metaphor due to its extended uses in sensemaking, teaching, and coaching, which can be clustered in three categories. Firstly, metaphor can function on a conscious level for creative understanding and sensemaking through a conscious - but not necessarily rational – process. Secondly, it can affect on an emotional level, by appealing to individual's feeling and generating experiential meaning; this is frequent in marketing or in employees' engagement. And thirdly, it can enable understanding of the unconscious mind and thus, it can trigger behavioural changes (Ozel and Hinz, 2001). What is interesting here is that some widely known or uniquely understood metaphors could be used as archetypal stories or could represent the elements of an archetypal model; for metaphors (just like archetypes) operate on a symbolic level too.

d) Challenging implications for complex contexts

The above make sensemaking central to organisational activities and the discursive abilities of mid-level staff a crucial skill that should be combined with the specific knowledge of their duties. With middle managers, sensemaking becomes strategic, as they should be able to knowledgably craft and share a meaningful message to many directions and different receptors; being located at a central place in the organisational flow, they have to influence seniors, customers, peers and subordinates, each time in a different language and style. For this, they have to know what to say, to whom they are talking, how to relate and bridge with others and how to address them in a proper and meaningful way, while at the same time to keep their differentiated power and status. While *performing the conversation*

demands a skilled way, in their case, the ‘craft’ of sensemaking lies in the knowledge of *setting the scene* (Rouleau and Balogun, 2010).

Moving beyond the organisational context, Paull (Paull et al, 2013) explains how sensemaking has been used by researchers as a diagnostic tool in the analysis of qualitative data; especially while exploring individuals’ or groups’ behaviour in unusual or complex contexts. There, the detection of patterns or anomalies leads them to the “what is going on here?” reaction and then to deeper interpretation of data and, possibly, other important findings.

Furthermore, examining sensemaking from a policy maker’s perspective, Milne (2015) indicates that the main obstacle for politicians and policy makers is that they are looking to reduce uncertainty (despite the fact that complexity and social psychology suggest they cannot) and seek to clearly define problems in advance and then to proceed to immediate actions. This makes them judge data before fully make sense of their patterns and their meaning and in this way, they are led even to reframe the data and return to a traditional top-down policy making. Therefore, Milne underlines the importance of sensemaking methods and tools to familiarize policy makers with the *probe – make sense – react* concept and to inform adaptation policy. In this indirect way, policy makers can be taught how to engage with stakeholders in discussions or how to work collaboratively across organisational departments on common issues that affect them all.

The enacted property of sensemaking has certain implications for managing change or crisis situations. The more one sees of a situation, the higher the possibility that he/she will see what change is needed to be done. If one cannot see anything, one does nothing because there is nothing in need to be done. Thus, capacity affects perception, which is essential in crisis prevention. Assumptions are also crucial in such cases. For example, the assumption of unimportance can activate management cost-cutting and worker indifference in a mutually reinforcing and self-confirming vicious dangerous circle. On the other hand, the assumption of commitment or ideology (as a coherent set of beliefs) can provide easy explanations and produce or maintain blind spots (Weick, 1988). In crisis cases, there is a dual problem: first, not to notice something out of place, unusual or unexpected (problem of blindness) and second, not to have any concepts to connect with these anomalies (problem of emptiness) (Weick, 2010); the second problem is obviously much more dangerous.

The use of stories can also bring in the organisational or political context some traps and perils. For example an anti-story may arise, expressing the counter reaction to an official

story that does not reflect the reality of the audience's experiences (Snowden, 2000; 2001). Alternatively, a story may be so seductive and vivid, that the listeners can be distracted from the real purpose of the telling; to be told from a single perspective; or not to be linked to a specific storyteller, so in that case it will be difficult to spread (Sole and Wilson, 2002). Nevertheless, as Pearson (1998) indicates, we understand our lives by telling our stories about who we are, what happened to us, what we want now, what we can or cannot do in the future; in this way we make our lives meaningful.

All in all, stories, myths, icons, metaphors, symbols and rituals are all primary means by which signification occurs; they can model, generate creativity, transfer learning, trigger behavioural change or heal. They can support sense making, create emotions and reach the unconscious and bring about change in action patterns (Otzal and Hinz, 2001).

The examination of the perceptual and behavioural background of social complexity and the other sensemaking issues aforementioned allows us now to proceed to the next section and explain the main difficulties in managing the intangibles and the major limitations of the linear analytic tools.

2.2 INTANGIBLES, CHANGE AND LINEARITY

The second section of the literature review aims to document the inadequacy of the linear – deterministic paradigm when dealing with intangible assets and when facing a significant or deep change in organisations and communities. Thus, this section consists of three parts.

First, we examine the intangibles: a) their role and increasing importance in the emerging knowledge economy, both in private and public sector; b) their complex characteristics and the non-linear character of their development; c) the major difficulties encountered in identifying and properly measuring them; and d) the two most crucial factors (competency gap and readiness for change) that are required for setting and implementing an intangible as a strategic goal. As the latter constitutes a major challenge for the dominant interpretive scheme within an organisational or social context, we are led to introduce the concept of the order of change, which will be used in the third section, where we will particularly examine cases of higher-order change.

Then we examine more closely the reasons that the linear deterministic approach and its tools are inadequate when dealing with intangibles and furthermore with complex issues. Afterwards, we unfold the evolutionary link between cybernetics, systems engineering and the early period of systems thinking and we discuss the illusory sense of some critical assumptions of linearity: the perception of a fragmented world, the dictum of measurement, the necessity of control, the rational choice assumption, and the problem solving - defect correction concept. Then we particularly examine some significant limitations of linear analytic diagnostic tools in assessing anything tacit and intangible, such as the personal qualities and skills and the collective capacity or maturity for change. Finally, we review the typical pathway of planned change, which is found proper for lower-order cases but not in the ones of higher-order change. There significant interweaving challenges are encountered and four categories of them are discussed, along with their consequent pitfalls. This section ends up with a brief outline of the emerging non-linear paradigm that seems to respond better than the mechanistic worldview and its linear-analytic tools in complex and transitional contexts.

2.2.1. Intangible assets and higher-order change

a) Significance and characteristics of intangible assets

Since the 1990s, the intangible assets of a business company or an organisation have attracted a rapidly increasing interest from managers, shareholders and leaders. This led to

their extraordinary development and an increasing difference between the monetary (book) value of a company and its market or stock market value. Within the context of the emerging knowledge economy, this difference accumulated significant profits or costs to companies, investors, institutions, governments and the society (Sveiby, 2000; Marti, 2007).

Issues like reputation, trademarks and trade secrets, customer loyalty and relations, patents, licenses and copyrights, technology, innovation, organisation systems and employees' skills, values, knowledge and experience are widely considered as sources of competitive advantage and value for a business. Public administration, being a service, is itself an intangible as well. Among the numerous intangibles of the public sector one can indicate education, healthcare, social care, cultural and historical heritage, environmental commitment and natural beauty, public space aesthetics, organisation of sporting games or cultural events, etc. Nevertheless, there is also IT infrastructure for the public, organisation systems and technology in public services, pricing policy for opening public spaces for private events, staff's skills, knowledge and adaptability, transparency and accountability, and the degree of people's participation and satisfaction. Developing the value of such issues and protecting them from depreciation is central in cases of strategic reorientation, restructuring or merger in either private or public sector entities (Mar-Molinero and Serrano-Cinca, 2001; Tormo-Carbo et al, 2014).

The intangible assets and especially the intellectual capital have some characteristics that differentiate them from the tangibles. Among them, Kaplan and Norton (2004) focus on three specifically. First, they create value not by themselves but combined with other assets; for example, education and IT. Second, they seldom affect financial performance directly but their impact is understood through complex chains of cause and effect, while the impact of a new tangible asset is immediate; for example, training aims to improve quality, which may lead to customer satisfaction and loyalty, which probably improves sales and thus, the investment in training is paid off. Third, they must be closely aligned to the corporate strategy; if so they will create value, if not the value is poor for the money spent.

Beyond the above, there are several more characteristics that could lead us to consider not only knowledge and innovation, but most of the intangible assets as ecologies. These are: a) their complex and collective character, due to their interrelation and their dependence from the people who must interact and collaborate in order to realize them; b) their development process that is neither linear nor deterministic, as they are influenced by the dynamics of the informal organisation, the outcome of which is unpredictable and unable to be determined in

advance; and c) besides the value they bring in a company, they may also operate as human, structural or relational liabilities that usually are related to organisational deterioration (Caddy, 2000; Michiotis et al, 2010). Being considered as ecologies, they should be treated like ones. Managers and leaders should then pay attention and cultivate their roots rather than manage and harvest their fruits.

b) The measurement problem

Over recent years the intangible assets have been the object of significant research carried out by academics and practitioners; more than thirty concepts, models and methods have been developed for measuring intellectual capital (Marti, 2007; Sveiby, 2001). Among the main conceptual frameworks for the categorisation of the intellectual capital are those introduced by Sveiby (1997), Kaplan and Norton (1996) and Edvinson and Malone (1997). They all categorize the intangibles into groups of three: internal structure, external structure and competence of personnel; internal processes, customers and learning and growth perspectives; and organisational, customer and human capital respectively. Yet, intangible assets have proved too difficult to be identified and properly measured.

There are quite a few reasons for this, according to Sveiby (2000; 2001), among which we will mention two. The first difficulty is that because people do not like to be measured, their behaviour varies according to the purpose of the measurement. If measurement is for management control, employees often become defensive and find many ways to impede or prevent the measuring systems. If measurement is for the purpose of public relations, employees often become indifferent. However, if measurement is for learning, employees and managers can relax and participate actively; thus costs are revealed and values are explored creating opportunities otherwise hidden in traditional accounting. It is not difficult to recognize which is the cause, due to the different process in the design of metrics. In the case of learning, the process is participatory, creativity is allowed, dialogue is invited, there is a bottom-up approach instead of top-down commands, and the indicators are used by the ones who created them and their results are openly reported. But the real difficulty is not how to design measuring indicators but how to interpret them. As will be discussed in the following section on the new paradigm, this is subject to one's perspective and involves subjective judgment that makes necessary the construction of coherent framework first.

In addition to the measurement problem, Kaplan and Norton (2004) indicate two crucial factors that exist for the quantification and value of the intangible assets, which are the strategic compatibility and readiness of the organisation to accomplish a specific intangible

that has been set as a strategic goal. In particular, they indicate the importance of the alignment of the organisational culture with corporate vision and the compatibility of staff competences with the strategic objectives. Indeed, in order a strategy to accomplish the goals that are set and successfully adjust the organisation to its environment, it has to be supported by its structures and aligned with its archetype (Hadiyanto, 2015).

Kaplan and Norton suggest that the objects of such an assessment should be: a) the degree of alignment of the company's current capabilities with the ones needed for the leadership vision (*competency gap*) and b) the readiness of the company's leadership and employees to undergo the necessary changes in the existing culture. He argues these are extremely important in order the leadership to decide towards which intangible a company should invest. To Kaplan and Norton, the most real and revolutionary opportunity in measuring the intellectual capital lies in studying and assessing how well company's people, systems, and culture are prepared to carry out its strategy.

c) *Higher order change*

However, strategic goals, plans and initiatives obtain different meanings among the stakeholders of a system and are interpreted according to their different worldviews, the perception filters they use and the interests and needs they defend. Although change is an inherent characteristic of human systems and a strategic advantage, when it is imposed in a hierarchical way rarely suits the deepest characteristics and the long-term needs of an organisation or society. This happens naturally because of the sense of threat for the system's autonomy, integrity, and values (Wheatley, 1992; Goldstein, 1994; Olson and Eoyang, 2001). Change interrupts well-practiced patterns of behaviour and requires people or groups to re-enact their working environments, which usually introduces ambiguity, confusion and a feeling of disorientation. As we know, threat and fear are associated with rigidity; when something seems scary affecting many people, they turn to their deepest stereotypes to hang on to and a strong negativism is generated. The same mechanisms that deal with fear can hamper sensemaking (Maitlis and Sonenshein, 2010).

In such cases, even the most necessary change initiative is often perceived by the concerned stakeholders as 'going too fast' and beyond consensus. While everybody talks about the need for change, a seemingly irrational polarisation and resistance to change is created under a veil of conformism and single-side arguments (Michiotis et al, 2010). This is why shared meaning plays a key-role in such conditions, especially when it refers to commitment, identity and expectations. Yet, most times, middle managers and front-line

employees are left to construct their own meanings of change, which diverge from that of top managers (Maitlis and Sonenshein, 2010). Therefore, knowing the existing gaps in meaning making among the key-players and stakeholders becomes of crucial importance to prioritize correctly among the desired intangibles and introduce first the proper one; the most compatible to the deeper characteristics of the context.

The degree of such phenomena depends on the extent and depth of change that Tsoukas and Papoulias (2005) call *order of change*. *First-order* change happens when the practical results do not cover the expectations of the stakeholders and operational strategy and tactics are modified. It concerns adjustment of the existing structure without changing the old rules and values or acquiring new knowledge; this kind of change is always reversible. If the problem is not solved in the previous level, the system is often forced to seek new perspectives and knowledge. *Second-order* change, therefore, deals with the modification of the organisational principles and values, while *third-order* change refers to the level of perception and symbolism of the wider environment and deals with society itself, its beliefs and history. In cases of second and third-order change a sense of a rather irreversible transformation is created and as a result, existing habits and values are at stake (see next Figure).

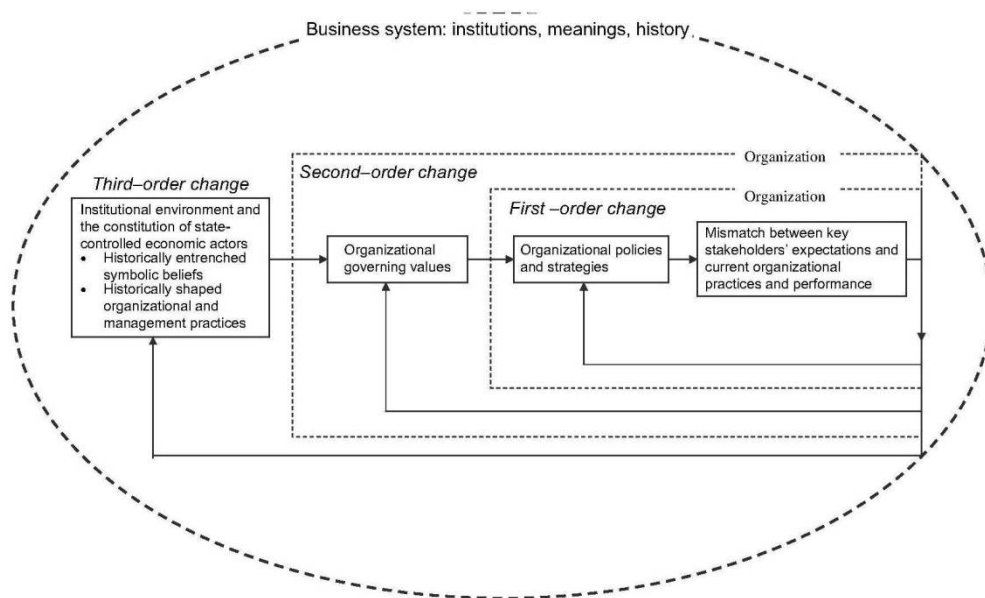


Figure 2.3 First, second and third order change (Tsoukas and Papoulias, 2005, p. 82)

Therefore, the attempt to align (change) the organisational culture with a corporate vision that includes an intangible asset in the strategic agenda of a business firm or a public entity

marks the beginning of a higher order change¹¹. In such case, leadership needs to know where stands and which way to go and for this, seeks for reliable diagnostic tools and ‘roadmaps’.

In the next paragraphs I will examine the main limitations of the mainstream linear analytic diagnostic tools for cases of higher order change on the one hand and the inadequacy of the deterministic planned-change logic on the other.

2.2.2. The limitations of linear – analytical tools to assess the intangibles

a) The Linear approach: from cybernetics to early systems thinking

The focus on the intangibles and the underlying purpose of acquiring control on them is nothing but new. After World War II, *cybernetics*, *systems dynamics* and *system engineering* aspired to understand, describe and combine the constructing components of a system and to optimize their relationships, in order the system to improve its functionality and become able to meet its goals (Ashby, 1956; von Bertalanffy, 1956; Forrester, 1994).

Later on, *systems thinking* (in its early period) and *soft systems methodologies* aimed to recognize the cycle that systems go through and design enduring solutions to their problems. For that, they focused on the influential interrelationships that exist within a system, as well as on the underlying structure or purpose that forms patterns of behaviour. They were aiming to face problems by designing enduring solutions or by dissolving them (Ackoff, 1974; Checkland, 1981; Senge, 1990; Foerster, 1994).

Luhman’s theory of Social Systems (Luhman, 1995) extended the cybernetic contribution of Foerster towards *socio-cybernetics* relating it with the social world (Paetau, 2013). On the other hand he attributed radical generalisation of Maturana’s concepts of autopoiesis and emergence and suggested as core elements of his theory the notions of *meaning*, *communication* and *interaction* (Medd, 2002; Seidl, 2004; Clarke, 2011). On the other hand, as Van Lier (2013) indicates, Luhman’s concepts seem complementary to Weick’s; they both assume that reality is constructed from and through communication and interaction. Yet, the first on the process of (systems’) communication, while the second on how the receiver makes sense and interprets the received information. Furthermore, of particular importance is Luhman’s concept of *structural couplings*, which seems to provide interesting explanation of the self-referential attitude of bureaucracies and professional clans, especially

¹¹ ‘Higher order’ refers to *second* or *third* order; in such cases change is about organisational principles and values or society’s beliefs, perception, symbolism and history.

in crisis; in such cases, ‘subsystems’ think and behave based on their own stereotypes and communicate or interact each other mainly at their borderline.

All these *systems theories* contributed a great value in areas of ordered and constructed (artificial) systems, such as logistics, inventory, accounting, software development etc. Their methods were based strictly on rationalism and followed a purely analytical logic, while their tools were oriented to deliver hard quantitative data. This was matching exactly the demand of the business world for results and the need of the society for planning a better and safe future. Thus, during the second half of the twentieth century, system theories have been established as the genuine representative of scientific thinking and practicing.

However, as life proved, these models, either ‘hard’ or ‘soft’, deterministic or probabilistic, exploratory or intervention-oriented, hierarchical or participatory, encountered some major problems in their attempt to get implemented in living systems. The main reasons for this failure derive from some false assumptions they had adopted, five of which will be briefly outlined below. These are the perception of a fragmented world, the dictum of measurement, the necessity of control, the assumption of the rational choice and the problem solving and defect correction concept.

- i. The fragmented perception considers the world made of parts (systems, components, elements) that can be separated and analyzed independently. Such an assumption can work in artificial systems, but it fails in nature and society for “microcosm is not simpler than macrocosm, as in the fractal structure of nature, the whole consists of wholes, only the scale changes” and “the life of a single individual is not simpler than the life of society considered as a whole” (Dimitrov, 2005, p. 186). Moreover, as fragmentation relates closely to rigidity, the different parts often do not communicate well but begin to act independently, without taking into account their wider environment. This behaviour of ‘mindless autonomy’ breaks away from the whole and acts independently appears irrational, if viewed in a more complete context (Peat, 2008, p. 80); it even resembles the way that cancer’s cells operate (Senge et al, 2004).
- ii. Drucker’s dictum of measurement¹² that derives from the fragmented vision, insists on seeing a world of things rather than relationships. The latter, however, are more fundamental than the former, far more crucial for the success or failure, impossible to be measured and far more difficult to be dealt with (Capra, 2002, Senge et al, 2004). Moreover, as Deming (1982) has argued that the issues that are of most importance in a

¹² ‘You can only manage what you can measure you do not measure’ (Cohen, 2007, p. 53).

long-term are unknown and cannot be measured in advance; however, successful management must nevertheless take account of them. Therefore, the problem is not measurement per se; it is the loss of balance between valuing what can be measured and what cannot (Senge et al, 1994).

- iii. The (illusory) sense for the necessity of control is a cornerstone of the mainstream management. When organisations and individuals feel that they lose control, their natural reaction is to become even more intransigent and exert even more control. It is known today that such a practice eventually leads to a spiral of control that is literally going out of control (Peat, 2008). Moreover, this assumption does not seem to work with issues such as knowledge and synergy, which can only be volunteered and cannot be conscripted by managers; however, the latter have been trained to manage conscripts, not volunteers (Snowden, 2002a).
- iv. The assumption of rational choice is that humans make their decisions based on cost-benefit criteria. However, it is known from experience that simple rules that can be applied between people cannot predict the collective behaviour of a human system. Furthermore, the reaction of an individual to new stimuli cannot be restricted according to predetermined heuristics or within a range of alternatives; this is due to the various degrees of freedom concerning the behaviour of its members (Kurtz and Snowden, 2003).
- v. Finally, the problem solving and the defect correction concept often lead to de-energizing the human factor by draining its vitality and creativity and ignoring issues related to the spirituality at the workplace (Holder, 2003). Becoming dependent on (actually becoming addicted to) solutions provided by best-practice manuals, troubleshooting guides or external experts, can result in major side-effects, such as the weakening of the organisation's ability to adapt to sudden and unpredictable events or changes, which in fact weakens its immune system.

b) Limitations of linear analytical methods and tools

Based on these assumptions, the linear – mechanistic approach developed some linear tools and applied them in a linear way often with a dogmatic attitude. In the following paragraphs we will discuss some of the most usual limitations encountered in using tools and methodologies that employ a linear – analytical logic and particularly the tools that aim to assess intangible assets, such as knowledge, innovation, risk, collective capacity or maturity,

even personal qualities. We have grouped what we consider to be the most significant limitations in the following three categories:

The first category of limitations is *the expert's lens and authority*. Traditional tools that assess alternative scenarios, capabilities or possible perils are based on the experience and culture of their designers and users. Whatever is considered to be possible, worthy or compatible to the prototype that *should* be implemented, is incorporated in the assessing criteria and the measuring algorithm. Likewise, the evaluation of the data collected is usually under the influence of the researcher's mental model or the management perspective: anything that does not fit in the dominant pattern(s) is ignored or underestimated.

No matter how correct (scientifically and politically) the expert or leader intent to be, their choices and actions will be most times personally and culturally bounded. Being part of the context, there is bias; their own. Being not, a critical information is missing. This information has to do with crucial folds of the context, which are often not explicitly mentioned, implied or even untold by the insiders and thus wrongly assessed by the outsiders. Such information usually lies in the anecdotal 'local' narrative that one has to collect and listen to. As Bach (2007) notes, managers must first learn to see, hear and think about human systems before they can hope to control them. Otherwise, no matter how detailed the analysis will be, a critical piece of information will be always missing (Briggs and Peat, 1999).

Related to this issue is the language, the assessment tools of which usually address to the population under research. Being quite often non-contextual and hard-to-understand, because of the scientific or abstract terminology they contain, the possibility of getting wrong answers is increased; this leads to serious misunderstandings or sensemaking gaps. However, the most important limitation generated by using unfamiliar or meaningless language is that a *power gap* between a detached authority and the public is underlined. The situation is aggravated by the different meanings that various people, stakeholders or parts ascribe to an abstract or complex issue (such as a vision, a goal or emotions), due to the different perspective or interest each of them has. In addition, the 'others' do not share the same feelings and behaviour regarding the research and they do not commit to its objective nor do they respect the scientific ethics to the desirable extent. Consequently, instead of getting plenty of 'true' answers and exact data, the experts are often misdirected to arbitrary conclusions, which confirm their own biases. This usually slips their attention, mostly

because of their ordinary but illusive assumption of the ‘best solution’, which exists for everything that is known or can be elaborated only by experts (Michiotis et al, 2010).

Thus, the representation of the system through data collection, the discovery of the ‘best solution’ and the commitment for applying it become sometimes (quite often frankly) meaningless words and promises without content. All these prevent them from seeing the whole picture and making sense of what is truly needed by the system examined.

The second category of limitations is the *linear and quantitative-oriented rationalism*. This characterizes these assessment tools and the knowledge systems that are built through the repeating cycles of assessing. These systems are based on two instruments: the indicators and the procedures. The former alert and the latter initiate action plans. As long as such plans are based on frequently enriched data and correct assumptions regarding the people’s reactions, they deliver useful results without problems or unpleasant surprises. Otherwise they inevitably lead to false estimations or expectations. All responsive actions that are prepared for emergent situations demand compliance with the logic or the rules. They are based on predetermined scenarios, cost-benefit criteria and best solutions to be followed by the system’s population, according to the circumstances. This is the assumption of *rational choice*.

The rationalistic logic however, is not always the same as *common sense*, which is much stronger and, as discussed earlier, has to do with shared patterns active in a given context. As earlier mentioned, people often decide and act in a non-rational way (Klein 1998; Snowden, 2002a). The reaction of an individual or a group to new stimuli cannot be restricted according to preset heuristics or within a range of alternatives; the simple rules applied between individuals cannot predict the collective behaviour of a human system (Kurtz and Snowden, 2003). This is emphasized when doubt, hesitation or mistrust are generated by a sense of threat for the individual’s or the system’s autonomy, integrity and values, especially during change periods (Goldstein, 1994) or due to the gaps of knowledge, habit or authority that exist within the system.

Furthermore, traditional tools (e.g. in risk management) take a quantitative approach, trying to define as many numerical indexes that relate to a specific topic in any way, as possible. Measurements, observations and quantitative interpretations are used to feed simulation models, mathematical approximations, and statistical tools with large amounts of data, in order to create new quantitative series of data, indexes and distributions that is regarded to be useful in decision-making. However, the complexity of mathematics involved

in all these cases often conceals the fact that they are all approximations, based on arbitrary analysis of data. Only if we disregard this arbitrary reliability, can we stay with the fact that many linear risk management assessments often rely solely on data manipulation (Vescoukis, personal communication, Nov 2009).

Relevant to this, many official indicators for measurement and comparative evaluation of innovation calculate and sum tangible assets, such as R&D expenses, number of patents, PhDs, or new end products. But they appear unable to catch the emergent and dynamic character of innovation or estimate accurately some major intangible issues, such as the interaction among agents and the appreciation one has for the other, the dynamics of their synergy or competition, and the intense mobility taking place between the systems. They fail to predict *brain drain* - *brain gain* phenomena, meaning how many highly trained professionals will leave their country and go to live and work somewhere else, where greater opportunities are offered (Michiotis et al, 2010).

The conventional logic seems to consider human systems to be inert masses and assumes a linear proportionality between efforts and results. But as we know from experience, organisations and communities are living, complex and unified systems that cannot be analyzed into manageable components without falling into reductions or omitting substantial interactions. Relationships and synergy are a good example; even if it is impossible to be measured and far difficult to be dealt with (Capra, 2002; Senge et al, 2004), they are fundamental in organisations and can act like catalysts, creating vast amount of energy out of 'nothing'. Conclusively, the dictum of measurement applies only to the machines and to the structured human interactions; for the latter need to be efficient, while humans need to be effective (Kurtz and Snowden, 2003).

The third limitation is the *non-participative and mental* character that many tools and procedures possess, which along with *social desirability* reasons threaten their reliability and effectiveness. The assessment procedure in most cases is conducted in a mental way, through a checklist, a test or a questionnaire. The subject of assessment, usually an individual rather than a group, has to *state* his/her own personal opinion or choose among multiple preset answers. There is normally an attempt, perhaps for reasons of doubtful 'scientific status', to maintain a portentous detached atmosphere, which sometimes 'feels' impersonal.

Due to such contradictions, the reliability of the results of linear analyses is questioned for the following four reasons (Michiotis et al, 2010):

- i) It is easy to understand that gaming is almost inevitable, as the ‘right’ answers in most structured questionnaires are usually too obvious, at least for clever or instructed people. Even if the interviewee would like to be sincere, the reality of power is present and symbolized by the setting of the assessment: the person alone against an impersonal authority that has the ability to measure everything and attribute it personally.
- ii) People tend to idealize themselves and provide politically correct answers (social desirability). Empirically speaking, when one has to choose the phrase or statement that characterizes him/her, one chooses what describes the personality he/she would like to have, not the real one. This can be overridden if the choice refers to unconscious assets.
- iii) According to the standard procedure, the interaction between individuals is limited, if there is any. This is a paradox: the subject is called to state alone what he does and how he operates together with others. This is perhaps the most important reason, as it is impossible then for the group dynamics to be captured. In this way, the assessment fails to ‘see’ the patterns of the collective behaviour. On the contrary, what is delivered by each individual is always stereotypical and puts the blame on the ‘others’.
- iv) The way the assessment is conducted impedes the actual participation of the individuals. They cannot change the questions, not even their sequence. If they have something more to say, they have to fit it in somewhere. Comments and answers in blank cells, where possibly lies the difference and therefore the information, are difficult to specify, so they are often disregarded. Then it should be no surprise that the results make little meaning or hold no real value for the participants when or if reported to them. This challenges the acceptance of the assessment itself, especially if the results are unpleasant. However, it should be mentioned that when the participants are allowed to interact and co-create the process the outcome is rarely challenged, as it is considered a collective product. Indeed, it facilitates reflection among them.

Conclusively, the experience obtained so far from the organisational and social life seems to justify this theoretical criticism. *Systems theories* (as an approach and as set of tools) could not assess in an objective, accurate and commonly agreed way what is considered to be tacit, subliminal or ambiguous and at the same time real and powerful. Fragmentation was a basic problem for that, because, according to Bohm, it makes divisions where there is a tight connection and sees separateness where there is wholeness. To “be an expert today” is “knowing a lot about a little” (Senge et al, 2004, p. 258).

Moreover, being oriented to future achievements and aiming to change or re-shape any present situation according to future goals and objectives, system thinkers missed the present for a future that never came. In this way, they became obsessed with prediction and scenarios. However, as their plans, strategies and visions were always changing, especially in politics and economics, they eventually lost their ability to distinguish between the present and the future that would never come (Dimitrov, 2005).

Although they hoped to find the ‘levers’ which could be pulled to bring about envisioned or predictable change (Mowles, Stacey and Griffin, 2008), their specific ‘truths’ (laws, rules) were proved not valid in human systems, because humans more or less are complex and self-adapt but in the next moment or in another context can be simplistic or chaotic (Kurtz and Snowden, 2003). Thus, the operation of the informal network that exists in every organisation or community cannot be standardized or predicted. Furthermore, it cannot be ignored or expelled, as through this web of informal relations is of particular importance it complements and it competes (at the same time) the formal structure and the standard procedures of the system.

Consequently, systems theories failed to keep its promise for a well-organized and ordered world, as they failed: a) to describe and predict the imponderable factors that influence human perception and behaviour in an objective, accurate and commonly agreed way and b) to judge them in an absolutely rational way, beyond power or conformism.

This dead-end was perhaps the catalyst for the substantial turn that occurred in system thinking; Jaworski (1996), Senge et al (2004), Kahane (2004), Scharmer (2007) and other system thinkers and practitioners of the Society for Organisation Learning (SoL) reworked their concepts in a less analytical direction towards a more holistic-spiritual approach.

2.2.3. Pitfalls of linearity and determinism in cases of higher order change

a) A typical pathway of planned change

Let us return to the point that the leadership of a company or public organisation decides to set a certain intangible asset as a new strategic value driver; this specific asset acts as driving force for interventions. If these interventions are compatible with the existing organisational culture (lower-order change), the intangible can be assimilated more or less easily. Yet, if they provoke a serious disturbance or a sense of threat to the dominant interpretive scheme and the established way of doing things seems inadequate to face the

situation, it is common and natural practice to ‘*call the experts to fix the problem*’. Let us call this ‘Stage 1’.

Experts follow a rather typical methodology in order to analyze the system and the situation. This is *linear* (it consists of specific steps that should be followed as a continuum), *analytical* (it splits the whole into parts and studies their content and relations, in order to extract conclusions about the whole), *rationalistic* and *rule-based* (it assumes that humans should behave rationally and follow the rules and the ‘best solution’ that are set by authorities or experts). They also employ some common-used tools, like: check-lists and catalogues (with things to do and others to avoid), sets of criteria (assessing variables like cost, risk, etc), standards often non-applicable or irrelevant of the local context, calculating algorithms usually too complicated (measuring anything it can be measured against preset criteria) and standards and structured questionnaires (often lengthy) (Michiotis et al, 2010). Through their lens and authority, the experts compile whatever is considered to be possible, worthy or compatible into a prototype, and then advocate this for adoption. The existing situation is then assessed against that prototype and alternative scenarios evaluated in terms of their ability to reach this target. This is ‘Stage 2’ of the change process.

After discussing, processing and eventually accepting (some of) the experts’ suggestions, the authority in the system (CEO, mayor, business owner, father or mother) will attempt to incorporate a relevant action plan into the daily operation of the system. This is usually done using information, training and certainly by exercising of power. This is ‘Stage 3’.

Such an approach seems to be the most appropriate way to deal with issues that comprise modifications of operational strategy, tactics and structure that correspond to the *first-order change* (Tsoukas and Papoulias, 2005). However, in cases of perception, values and symbols, this approach could be very detrimental, as people tend to resist when they feel silenced or threatened. This often leads to long ‘detours’ or even the cancellation of the initiative. Indeed, when we deal with a complex situation or an intractable problem, the result of the mainstream approach is typically far from the anticipated one. Although intractability means that there is always a rather crucial factor that escapes our awareness, we often conceive of the challenge as simple, so we assume that all it takes to resolve them is purposefulness or power (Kahane, 2010). These qualities, which are also employed to breakthrough in business, politics, technology or art, derive from two archetypal images for leadership: the achieving warrior and the powerful ruler (Pearson, 1991; 1998). Yet, on a deeper level, behind this assumption there is another one, more fundamental: *we assume that we act in an empty context*. Yet it is clear that human society is full of diverse, strong and

competing ideas, voices and cultures. It is this fullness that creates the complexity of the problems. Failing to acknowledge this complexity creates what Kahane (2004; 2010) calls *tough problems*, which can either get stuck or solved by force; but the ‘solution’ imposed cannot last for long.

Delving into the issue of the 2nd and 3rd order change, Tsoukas (2005) notes that as the problem emerges through the cyclic interactions between the parts involved, one can reach its depth not by seeking the causes but by making sense of the pattern through which it manifests; the pattern derives from the interactions of the system’s parts. He also notes that at many times the problem grows because a certain difficulty is dealt within the wrong way; eventually it is the attempted ‘solution’ that creates the real problem (Watzlawick et al, 1974).

From a practitioner’s view, Holder (2003) argues that change will be strongly resisted and likely to fail when most of an organisation’s members are content (the ‘good old methods’ still work fine) or in denial (despite the need of it, tradition is stronger). He outlines some of the interweaving factors that generate resistance to change efforts and lead to failure. The first is the failure of the members’ commitment to change and the lacking sense of ownership (participation) when programs are designed and driven by top management and consultants. This “experts’ syndrome” and the parental-intervening style of management fail to use the intelligence and knowledge of organisational stakeholders, in order to discover real opportunities and find the right way to capitalize on them. Thus, they employ dictation instead of participation, which turns to blaming (the management) and scape-goating (the consultants) when the naturally evolving distrust cannot be faced in other ways. The defect-correction concept and the focus on problem-solving that create a heroic – mythic mindset and evoke a linear step-by-step process, just as Hercules carried out his labours, are also relevant.

A further factor is what Holder calls the ‘true believer’ syndrome; he refers to change fundamentalists who seek to convert almost everything. They fail to address the ‘shadow’, the unconscious and often negative side of organisational change and the mourning associated with it, in this way two camps are created: true believers and non-believers. True believers exclude and disempower the others, sometimes by engaging in a ‘holy war’ against them. This generates defensive routines that lead the organisation to fail to *learn to learn* (Argyris, 1990; 1993). Eventually, these factors de-activate even those involved and drain every drop of organisational vitality and creativity.

b) Usually encountered challenges

On such occasions, some interweaving challenges can be encountered. Even a cursory examination of the myriads failed change projects suggests persistent themes: a) the power of the system's fundamental assumptions, b) the (in) ability of leadership to disrupt the dominant patterns, c) the twisting effect of the expert's lens and authority and d) the limitations of linear analytical tools.

The first challenge refers to the system itself; its dominant interpretive scheme and prevailing conceptions. As a result, existing habits and values are at stake. This amounts to a challenge to the organisational archetype (Brock, 2006). This kind of challenge usually emerges in cases of second or third-order change (modification of organisational values and values and collective perceptions and symbolisms respectively). The response to this challenge can vary. Sometimes, the assumptions remain untouched and make the system slip into what is known as the self-fulfilling prophecy¹³. Mason and Mitroff (1981) and Goldstein (1994) have pointed out the loop between the identity, the market and the strategy of an organisation and the perils emerging from that, especially in transition times. The assumptions that the organisation has created for itself (identity) and the environment in which it operates (market) are related in a non-linear basis and are mutually influenced; the one feeds the other. For example, companies with strong image of identity compose a stable market and the stability of the market reaffirms the strength of the companies. On the other hand, when a company that is symbol of the market collapses, the whole market is trembling; and then the identities of the companies get more vulnerable. However, this identity generates a wall that separates the organisation from new information about the market and itself. It leaves little space for alternative solutions when things are dramatically changing, as the beliefs on which the existing strategy is based remain unchallenged. For this reason, disrupting the self-referentiality of the system is crucial in order to respond successfully to change (Tsoukas and Papoulias, 2005).

The second challenge refers to leadership. Leaders regularly create a vision and employ various techniques, and a specific language, to make it known to the public. These techniques aim to make others understand and share this vision and thus contribute to its accomplishment. However, under the seeming variety of the outward appearance of the mission-vision statements, there is a sameness, which is recognized through the rather

13 This term coined by Merton (1968) refers to a loop created by an initial belief that provokes a behaviour eventually leading back to the original assumption. An incorrect estimation, interpretation or definition of a situation or the expectations of an individual or a system influence the behaviour and the actions taken towards the fulfillment of the initial conceptions; thus, the latter come true in a self-referential way.

limited vocabulary used. But more general experience suggests that, it is normally either too difficult or too late to change in a coordinated way in emergency conditions; at that time, one can only try to fix what can be fixed and rescue what can be rescued. It is a reactive rather than a proactive practice and attitude (Senge et al, 2004; Scharmer, 2007). Where crisis is not apparent, it is inertia that usually prevails among people (Chan Allen, 2001). Senge (Senge et al., 1999) has pointed-out some typical phrases that reveal such an inertia-driven resistance: “there is no time for this” or “it is a waste of time”, “this will not work here” or “it is irrelevant to us”.

On the other hand, as the leader is instrumental in the creation of the corporate vision, it is logical and natural to suppose that the means used to create and diffuse the vision are on a deeper level aligned with the inner-logic of the leader. The conventional diffusion practice follows the linear transmitter-recipient concept: people express needs and demands - leaders evaluate; then leaders decide – followers obey and apply. Although this seems coherent and practical, it is the underlying parental and heroic-like attitude (Holder, 2003) that makes it look like this. This attitude is familiar to us all and used by many of us. Thus, consciously or not, leaders try to impose meaning to stakeholders; the ‘right’ meaning. But eventually, this practice most times fails, especially in cases of second or third-order change. In such cases, even when new behaviours are tried out and seem to work well temporarily, they fail later. As Allen (2013) notes, quick fixes create self delusions and ‘bubbles’ that people prefer rather than unpleasant truths. Additionally, common practice includes hidden agendas and manipulation of opinion. All these lead to antagonism, demanding leaders to defend themselves against the others’ criticism and then counter attack. Being engaged in this kind of struggle for power within a generalized context of mistrust, leaders tend to reduce or even forget some other collective needs of the system that exist in parallel, such as knowledge, creativity and revitalisation (Michiotis, 2010). But most of all, they run out of energy, which finally makes them abandon their vision in practice (Goldstein, 1994).

Such implicit factors and collective assumptions and patterns are often neglected or underestimated by experts who intend to act as ‘objective outsiders’ even if they hardly can. This is the third challenge: the expert’s lens and authority. ‘Being an expert’ is usually interpreted (in the expert’s mind) as knowing better, instead of learning easier; this is a fundamental asset of the expert mental model. Experts do what they consider appropriate, based on *their* knowledge and experience; not on the others’. This is another form of self-referentiality; the expert discounts any information that is incompatible to his/her own perception of the world (Michiotis et al, 2010). In this case, he/she believes that the system

should operate in the ‘right way’ and for this reason he/she sets procedures that *should* be followed and standards that *should* be met.

However, behavioural issues cannot be treated as mechanical accessories. A bad atmosphere cannot be fixed nor can a bad attitude replaced automatically by a ‘better’ one, by ordering it to disappear or to be thrown away (Snowden, 2002a). Such attempts can energize the collective ‘shadow’ and generate a strong negativism (Bowles, 1991; Kociatkiewicz and Kostera, 2009). Actually, the greater the gap between the existing status and the change desired, the stronger the reaction to it (Peat, 2008). Indeed, the most crucial facets of the context are those that correspond to the deeper beliefs to which people try to hang on to in crises. Yet, these factors are rarely taken into account *before* making decisions and plans for change.

The last challenge refers to the traditional analytical methods and tools that do not seem to be of much help to the expert in this uncharted territory. Due to their linear mechanistic character and their deterministic assumptions, most traditional methods and tools fail to enable making sense of the tacit aspects of a system, either organisation or community, which usually remain hidden. Some of the most crucial issues of an intractable problem are often not explicitly mentioned to outsiders; they are implied or they even remain untold (Snowden, 2001). At other times, gaming in response to research questions is almost inevitable as the ‘right’ or desirable answers to a structured questionnaire are too obvious (Michiotis et al, 2010).

On the other hand, consultants’ judgment can hardly resist the influence of the dominant management perspective while the questions are set or meaning when and importance is attributed to the answers of open-ended questions. These factors eventually prevent them from seeing the whole picture and assess the real status and the (real) maturity for change. On other occasions, appealing proposals made by consultants and marketers dazzle the management, like the Sirens who enchanted the poor and unwise sailors in ancient times. All these prevent involved parties from seeing the roots of the problem and making sense of the real status and maturity for change. People can hardly see the reality they face; they are unable to ‘see’ the threats and the imperative to change (Senge et al, 2004). Thus, both experts and management are most usually prevented from making sense of what really exists and what is wanted. In such cases, the result is always the same: the organisation enters the adventure of mimesis, drawing away from what is emerging.

c) *Pitfalls*

But, in the same way as market and social forces diverge from official planning, there comes a time when the consequences appear, followed by what is called the ‘surprise factor’. Serious deviations appear due to erroneous estimations or unseen pitfalls and planned milestones and goals cannot be met (Michiotis, 2010). People who are expected to implement plans but have never been asked for their opinion or their contribution and are dispirited (Holder, 2003). Objections to the scope and the method arise that lead to doubts and disbelief regarding the plan and its efficacy (Senge, 1994). The synergy needed is a lost cause. As there is no time and space for generative dialogue, entrenchment and power struggles appear. Any further attempt to apply the ‘solution’ in these circumstances may lead to a destructive chaos.

This is when management usually decides to step in and impose control (Holder, 2003). In political contexts, leaders are asked by citizens to do the same. Chaos is traditionally seen by most of people as a negative sign or an enemy and, therefore, generates fear, which leads to the need of control, compatible with the dominant patterns of western managers: obsession with control, power, predictability and doing. This is a further expression of the heroic archetype (Pearson, 1991), which is deep rooted in western culture and which is derived from mythologies. In such cases, self-reflection and imagination are considered to be without value and success is judged not by the maturity of wisdom but by the acquisition of power and control. Yet, this occasionally leads to the fantasy of being in control. Being under psychological stress, anxiety and fear, leaders often limit their awareness to hard data overlooking the critical value of soft data and intuition and the fact that chaos may be also a natural and creative aspect of change.

At this point there is a crossroad. The person-in-charge may decide to *abort* the change initiative (Goldstein, 1994), by seeking safety in the traditional ways rather than revitalizing it. Downsizing (numbers, assets, people or dreams) may be a better choice than support innovation. If this does not work, war can be declared on the organisation instead of trying to understand what is happening and how to find new ways to develop commitment and create time-space for high involvement (Holder, 2003). Change then becomes old story; at least for a while, until the need returns, usually more aggressively and with an uglier face or tone. This can be described in terms of non-linearity as a system caught in a limit cycle, which will possibly lead to the exhaustion of the existing status (and its dominant attractor), until its gradual or sudden disappearance (Dimitrov, 2005).

However, the most important impact of this decision is perhaps a sense of frustration and a pattern of depreciation that questions apropos the results and disputes all intentions. In this way, aborting change operates like a thermostat, cancelling in advance any other future attempt (Michiotis, 2010). The second path is as frightening as chaos but far darker. It is the elimination, due to emergency reasons, of the existing polyphony and diversity and the establishment of a new order through reductionism. In historical and political terms it is known as *totalitarianism*. Yet, there is a third option that will be discussed in a following section.

Conclusively, the mainstream change methodologies of planned change work fine and deliver outcomes when dealing with cases of first-order change that are more or less expected. However, when dealing with issues of perception, values and symbols, the result of such methods is far from the anticipated one. They presume linear proportionality between efforts and results and consider organisations to be largely predictable inert masses, just as the mechanical systems are. Change is not viewed as a constant process but as a symptom. It is seen as an external threat to the balance of the system, which has to be confronted and managed through accurate status assessment, detailed planning with alternatives, steps to be followed, ‘levers’ to be pulled, and persistence in applying control (Lewin, 1951; Kanter, Stein et al., 1992; Kotter, 1996; Nadler and Nadler, 1998; Hiatt, 2006).

The lack of ‘local knowledge’ (meaning the crucial information on the deeper characteristics of the context where the intangible asset or such a strategic change is introduced, as responding to an external opportunity or threat) and the inability to detect it by using linear analytical tools lead the change initiatives to long ‘detours’ or even to the cancellation of their scope; it may even result in disaster.

2.2.4. The rise of a new paradigm

In Kuhnian (1970) terms, the linear - deterministic paradigm has guided management and social sciences into a crisis and a new extraordinary phase of science. Over the last twenty years, various interdisciplinary theories seem to outline a new paradigm, incommensurable with the old one. This derives from complexity and chaos theories, cognitive sciences, depth, archetypal and transpersonal psychology, quantum physics, biology and ancient philosophy and it will be presented in the next section.

During this pre-paradigmatic period, new theories enrich our perspective to the world. Reality is not considered anymore as being ‘out there’, external to us, ‘objective’ or

consisting of static structures and stable patterns; it is not a mechanical system that can be analyzed, predicted and controlled. Instead, organisations and societies are viewed as living and evolving systems - ecologies, with the emphasis to be shifted from objects to relationships, from quantity to quality, from substance to pattern, from cause and effect simplifications to uncertainty and unpredictability (Bohm, 1980; Kauffman 1995; Capra, 1996; Goldstein, 1997; Lewin, 1999; Lichtenstein, 2000a; Baets, 2008; Scharmer, 2007; Allen, 2013).

In such view, people are co-creators through their language, interactions and emotions produced that can therefore enrich or limit the world itself (Maturana and Varela, 1980; 1987; Stacey, 2001). These non-linear theories are transmuted to a new culture, as they relate more to what we do not know rather than to what we know for sure (Briggs and Peat, 1999). They aim to permit us see beyond ephemeral forms and opposites and reveal some profound relations that would confirm that psyche and matter are two different aspects of one and the same thing, both underlain by a transcendent and unitary existence (Jung and Pauli, 1955; Jung, 1953, CW 8, p. 417- 418). With the human factor coming at the center of attention in organisations, comes the consideration of its endless capacities, but also its unpredictability, paradoxes and contradictions, often unmanageable. This time, however, the scientific landscape has changed.

This ecological view extends to the issues of learning and change, trying to connect the parts of the whole in a global web of relations and co-actions (Capra, 2002). Although in ecologies there is always someone or something dominant, there is also space for different entities to exist; ecology without diversity is meaningless. For this, all viewpoints should be invited and represented, both central and marginal, for they carry different information, which is derived from the different framework and awareness level they possess (Mindell, 2000). People are invited to participate in the unfolding of the 'wholeness of nature', which can be seen as a continual interplay between two realities; the manifested and the one seeking to manifest (Bohm, 1980). Thus, the individuals, who are bearers of limitless potential, can open unlimited possibilities for creation, cognition and change in the world and become wiser using their experiences through ecology of learning (Dimitrov, 2005).

Within this extraordinary period, Chaos and Complexity Theories have applications in various fields, such as mathematics, astronomy, meteorology, chemistry, biology, geology, quantum physics, ecology, telecommunications, economy, social sciences, psychoanalysis and even music. Actually, Complexity includes various approaches and models that draw

from mathematical, physical and biological sciences. During recent decades a massive volume of papers and a growing number of theories, models and tools based on them have been produced. Based on Complexity and Chaos principles and using diverse methods, many scholars have started to examine a wide variety of phenomena that extend from physics to economics. Particularly in humanitarian sciences, new theories have been introduced in order to analyze and explain issues related to the dynamics of human behaviour, education, organisation and leadership (Mandelbrot, 1987; Kauffman 1995; Prigogine, 1984; Capra, 1996; Maturana and Varela, 1987; Cohen, 1999; Stacey, 1999; Dooley and Van de Nen, 1999; Millhiser and Solow, 2007; Nicolis and Nicolis, 2012).

Synopsizing, the mechanistic worldview that was dominant for centuries seems to be challenged by the inability of its linear-analytic tools to make sense and predict accurately the collective human behaviour or assess efficiently the intangible assets of a system; especially in cases of higher order change. While traditional science divides, separates and analyzes very well, Chaos theory and Complexity sciences try to unify and synthesize into an organic and indivisible wholeness the vast many manifestations that exist perfectly in universe, nature and all existential forms (Dimitrov, 2005). They try to study the interconnectedness, relationship and interaction of the complex dynamics and to understand the characteristics and laws of behaviour that are common in dynamic processes.

Thus, the following section of the review aims to shed some light on the way the principles of complexity and chaos theories can be useful in the area of management and social sciences. For that, insights, models and real life applications derived from these theories will be particularly discussed.

2.3 ORGANISATIONS AND NON-LINEARITY

The third section of this chapter examines the impact of the non-linear paradigm on the new management science and its adequacy for dealing with complex and transitional contexts. More specifically, we discuss: a) the main principles and fundamental properties of Complexity and Chaos theories and the way they become signified in human contexts, b) their implications in work and social life that change the way we see organisations and practice management, and c) some valuable insights for leadership theories regarding a leader's viewpoint, qualities and practices nowadays. We also indicate some of the main limitations of the new paradigm with regards to its application perspectives and briefly mention arguments of the critique of complexity on behalf of linearity.

Then, we examine and compare the concept and structure of three of the most widely known conceptual frameworks derived from complexity (Cynefin model, Theory-U, and Certainty-Agreement Matrix), in order to examine to which extent they could be used as signification templates in a new sensemaking tool. Furthermore, some of the most used complex emergent methodologies and tools are critically presented, in order to estimate the degree of their appropriateness for complex problems. Finally, we discuss the main concept and characteristics of an alternative approach of change, their strong and weak points, as well as the necessary facilitator's skills for methods used in such contexts. The above will enable us to indicate existing gaps and, furthermore, will contribute to the design of the new tool.

All in all, by concluding this chapter we will be able to discuss the first research question regarding the adequacy of Complexity in complex or far-from-equilibrium conditions and, on the other hand, set the frame for the second goal of the research; the development of a new sensemaking tool.

2.3.1 Implications of Non-Linearity for organisations and societies

a) Introduction to Complexity and Chaos theories

To begin with Chaos and Complexity, let Cohen and Stewart (1995, p. 2) give their own distinction between these notions. Chaos theory tells us that "simple laws and small number of non-linear interactions can have very complicated, indeed unpredictable, unmanageable consequences and produce complex effects". Complexity theory tells the opposite or rather complementary: "complex causes can produce simple effects, seen as behavioural patterns".

Chaos nowadays provides a convenient blanket-term for a range of theories and approaches that involve non-linear systems and similar fields; an umbrella term for the synthesis of continuous scientific discoveries (Fitzgerald, 2001; Peat, 2007; Robertson, 2009). By contrast, *Complexity* is not yet a single and unified theory but an interdisciplinary field of study embracing a wide variety of approaches or even an eclectic collection of concepts, premises and notions, borrowed from various scientific branches, chaos theory included (Cohen, 1999; Fitzgerald and Einjatten, 2002). Actually, Lichtenstein (2000a) has identified and outlined thirteen distinct approaches to complexity or fields of non-linear dynamics. On the other hand, Snowden (2006) has suggested a seven-part classification of the various approaches to complexity, among which, contextual (cognitive) complexity¹⁴, participative complexity¹⁵, and social constructivism¹⁶ are close to the field of the current research.

From a practitioner's viewpoint, Adam Kahane (2004) depicts the unpredictability of non-linearity; he indicates that complexity can refer: a) to interrelations and future results that are hard to grasp from firsthand experience when cause and effect are far apart in space and time (*dynamic* complexity); b) to different, even polarized, ways that people see things, according to their own assumptions, values, rationales or objectives (*social* complexity¹⁷); and c) to solutions that cannot be calculated in advance when situations unfold in unfamiliar and unpredictable ways (*generative* complexity).

This difficulty of people to understand and deal with unfamiliar, conflicting or unknown issues or situations creates the feeling of chaos; in common sense, it is a synonym of disorder, discord, confusion and utter mess, the absence or breakdown of all order. However,

¹⁴ *Contextual or cognitive complexity*: the context can determine whether the system is complex or not and if so, what type of complexity applies. It is mainly expressed by Snowden (2002a) who argues that people create and sustain different identities, depending on the role they have within a group or a context. What is important is the context of each situation and not the role that people hold or play, adjusting themselves to the demands of their outer or inner environment.

¹⁵ *Participative complexity*: Communicative interaction and power relating between living bodies and participation as a form of systemic self-organisation. It is mainly expressed by Stacey (Stacey et al, 2000) who focuses on the interweaving complex responsive processes between individuals that endlessly construct the 'living present'. Viewing individuals as the singular of interdependent people and organisations as their plural, he argues that everything the local agents do, including nothing, has an effect on the collective pattern that emerges over time; they form and are formed by the latter both at the same time, with no one to be in overall control of what is happening.

¹⁶ *Social constructivism*: Various post-modernist schools and relativists that argue that individual's learning happens within a group through and natural world has small or non-existent role in the construction of knowledge and truth within the group (Collins, 1981; Cottone, 2001).

¹⁷ *Social complexity*: a conceptual framework for the analysis of social phenomena having many parts and many possible arrangements of the relationships between these parts; in this framework, what is complex and what is simple is relative and may change with time (Waldrop, 1993).

it could be argued that Chaos is an order of infinitely higher degree, a pattern produced by an infinite amount of information or input. But it is neither a ‘thing’ that occurs in an organisation or a system nor the reality per se. Rather, it is a ‘lens’ for one to perceive organisational or social reality; a way for one to see, think, know and be in the world (Briggs and Peat, 1999; Fitzgerald and Einjatten, 2002).

The above mentioned complementarity of Complexity and Chaos is also derived from some common characteristics they have and a specific terminology that both theories share to describe the non-linear dynamics; e.g. self-organisation, attractors, far-from-equilibrium, patterns, emergence, fractals, feedback loops, bifurcations, autopoiesis, connectivity, interaction, cognition and adaptation. The metaphorical use of these terms has allowed the development of a new language that affected the way managers think about the problems they face (Lissack, 1997).

Yet, the early metaphorical descriptions of complexity and chaos terminology have certain limitations when applied in social sciences. Even if humans are self-adapted to their inner and outer environment and they self-organize (particularly at far-from-equilibrium conditions), it is not valid to apply natural sciences to human systems directly. For complex adaptive theory in the physical world is different from in human systems and cannot be reduced to mathematical models. On the other hand, complexity is a great source for analogies to be transferred to the sphere of human action and interaction in organisations, yet after been adequately interpreted (Mowles, Stacey and Griffin, 2008).

Therefore, it is useful to the scope of this research project to discuss the application of some of these properties on organisational and social life.

Let us start with the most widely known notion of Chaos theory; the *attractors*. We will do this by drawing on the work of some theorists and practitioners of non-linear dynamic systems (Goldstein, 1994; 1997; Olson and Eoyang, 2001; 2009; Dimitrov, 1998; 2005; Briggs and Peat, 1999; Fitzgerald and Einjatten, 2001; Peat, 2008; Robertson, 2009). *Attractors* represent both the cause and the result of the tendency of a system to capture its dynamic behaviour and gravitate it to iterative and relatively stable patterns. They are the influential factors, the regions that attract all nearby states, and the created patterns. They are the influential factors, the regions that attract all nearby states, and the created patterns; as long as a system remains under the influence of an attractor, its dynamics ‘stay in its basin’.

Chaos theory depicts three kinds of attractors: a) the *(fixed) point* or *stable* or *constant*, where the predictable activity of a system eventually settles and rests; b) the *periodic* or *limit*

cycle that is created when the system's behaviour is moving from one state (value or belief) to another at regular time intervals, without moving outside the limit of the attractor; and c) the *strange* attractor, which is the most difficult to interpret and predict; in such cases, nearby orbits come nearly together and then move away in unpredictable ways, so no trajectory ever joins with its starting point to form a limit cycle. An example of strange attractors in human life can be given by considering six 'things' that attract human activities towards achieving them: *power*, *knowledge* and *freedom* and experiencing *love*, *pleasure* and *longevity (survival)*. Moreover, the concept of strange attractor characterizes creativity, innovation and transformation processes taking place in organisations, as well as certain social phenomena such as the pursuit of success or money and the power of sex or drugs.

Fractals are the origin and result of the exact and endless copying of a major pattern (or practice) in many scales (Briggs and Peat, 1999). In a human system this could be seen in the repeating and reproducing models of behaviour that are the essence and the root of an organisation or community's mentality, attitude and practices. A fractal is the 'trademark' of a complex system and the reason and proof of its stability; it is the means one recognizes things and situations and the way one anticipates them to evolve.

But on the other hand, as complex systems operate (and human systems too) newer dynamic patterns can arise (emerge); e.g. the more you study, the more you discover new knowledge; the more you reflect or engage in dialogue, the more you discover new meaning (Dimitrov, 2005). *Emergence*¹⁸ is the "arising of novel and coherent properties, patterns, and structures" when the complex system is facing a new and challenging situation (Goldstein, 2000). New outcomes can come out of the usual interactions; new meanings, new qualities, new competencies, new patterns of behaviour. The emergence of the new pattern indicates that the whole system is greater than the sum of its parts or at least of the given understanding and expected outcome of its parts. Thus, as emergence comprises both creation and re-creation of forms or, in other words, both origin and transformation, it can be seen as complexity's anchor phenomenon; it is a transformative process to the same degree as transformation is an emergent one (Chiles et al, 2004).

¹⁸ The idea of *emergence* was introduced by the British philosopher G. H. Lewes who distinguished the *resultant* (that is either the sum or a difference of co-operant forces and is clearly traceable to its components) from the *emergent* effect (that arises from the combination of agents without displaying the agents in action and cannot be reduced to their sum or difference (Robertson, 2009).

Emergence occurs during *self-organisation*¹⁹ is an inherent and self-directed process in complex systems, not hierarchically imposed, which results from the use or reinforcement of random and unexpected events and appears when the system is subject of extraordinary conditions (Goldstein, 1994). Self-organisation means that the *agents* (the elements that constitute the complex system) interact based on simple rules but without an obvious or immediate hierarchy; without a single person absolutely in command or someone *really* planning or managing the situation. By organizing themselves without a leader and structuring themselves out of themselves, order is created out of chaos (Cranfield, 2015).

Self-organisation takes place when the system is *at-the-edge* or *far-from-equilibrium*, which is a transitional state or phase, where destructive or creative activity takes place among the system's agents who search to find an optimal balance and discover a new order. The *edge of chaos* can appear during a natural catastrophe or disaster, a major technology accident, an economic, political or moral crisis, etc or when facing unknown situations that cannot be dealt with the existing knowledge and practical experience. The introduction of a third-order organisational change is such a case, as it requires a metaphorical death of the previous status for the born of a new one²⁰.

In such cases, the outcome can be neither predicted in advance or in details nor can be ordered or determined by an elite group. This is because no action can be isolated and interlinked groups or networks of people act and react (operating as amplifiers) and thus, little changes occurring in one place can make a big difference elsewhere (*butterfly effect*); by changing themselves, they change their environment too (Cranfield, 2015). In such cases, *the context is more important than the content*; for example, the system is very sensitive on its *initial conditions* (the way to introduce or deal with a major organisational change or a political reform) and its *history* (the irreversibility of decisions or actions taken).

Nonlinear dynamical systems that are driven by self-organisation mechanisms are known as *complex adaptive systems* (CAS) (Prigogine and Stengers, 1984). These systems operating at far-from-equilibrium conditions may possess a multiplicity of attractors (stable states) and

¹⁹ The term was coined by British psychiatrist, neuroscientist and mathematician H. Ross Ashby in 1947 (Robertson, 2009)

²⁰ The life-likeness of the occurrence of emergence and self-organisation at-the-edge can be verified if we consider death literally; after all, death is the ultimate pattern-disruptor. In such cases, the previously known ways of relating between the family of the deceased and the people gathered (e.g. conversation issues or things they were doing together) become automatically meaningless (discontinuity). The family usually withdraws and the command passes to some close relatives or friends that usually find a way to co-operate without problems and carry-out the things needed to be done in a very natural and effective way (self-organisation). Sometimes, due to the applied discontinuity, new patterns emerge from the very core of people's relations (e.g. mutual understanding, forgiveness or quarrels due to the expression of repressed feelings).

thus their trajectory in time might not follow a unique path, but it could *bifurcate* in certain points exhibiting phenomena known as *catastrophes*. In human system research, a catastrophe implies a nonlinear abrupt shift in systems' behaviour, which could be at a collective or individual level (Guastello, 2002; Stamovlasis, 2006). This catastrophe is actually a qualitative change in the system's behaviour, which is an emergent phenomenon observed after a threshold value of a control variable, the *bifurcation variable*. An important point in the Catastrophe Theory (Guastello, 2002) is that these sudden changes from one behavioural attractor to the other can be described and predicted with a small number of variables and mainly with the protagonistic role of the bifurcation factor. The above have important practical implications for social and behavioural sciences, where a plethora of candidate variables are hypothesized to exist, affecting systems' behaviour.

All in all, in natural systems, the non-linear processes (as a whole) have the form of an evolutionary spiral driven by *autopoietic*²¹ forces, which enable the living organism to retain an identity despite growing and evolving; changes are subordinated to the preservation of identity and integrity (Robertson, 2009). These forces are at the same time cause and effect of activation, survival and self-knowledge in a constant cyclic threefold of creation, sustention, catastrophe that guides us through life. Such interesting analogies lead us to examine more closely the implications of non-linear theories in real life.

The implications of these principles and the emerging insights for the life of individuals, organisations and societies are considered to be very fundamental, essential and vital; some of them actually change the idea of the world we had so far. Some of these implications and insights are outlined below.

b) Implications for organisational and social life

From a complexity perspective, organisations are complex and unified systems that cannot be analyzed into components without falling into reductions or omitting their substantial interactions; they can be understood better by looking for patterns within their complexity that describe potential evolutions of the system. (Lichtenstein, 2000b; Snowden, 2002a; Matthews, 2002). Within their frame, changing human action takes place continuously creating patterns. While organisations are patterns of interaction between human beings that emerge from their plans, choices and actions, organisation is the making of form within the organisations, the unfolding of patterns (Tsoukas and Chia, 2002; Stacey, 2012).

²¹ A term coined by Maturana and Varela (1980)

All people in organisations have individual concerns and purposes beyond the organisational ones and everyday they make many unsupervised decisions, being connected in different ways. They perceive the surrounding reality and relate, decide and act within their environment not in a rationalistic way, but by using certain filters; these filters form and are formed by repeating patterns, which are active and dominant at that time (Klein, 1998; Snowden, 2002a; Senge et al, 2004). As people respond to each other and their intentions, decisions and choices impact the others, patterns are created; patterns of complex responsive processes such as of communication (conversation), power relationship or ideology-based judgment (Stacey, 2010).

As experience shows, the collective behaviour of any human system cannot be planned or predicted on a short-term basis (Kurtz and Snowden, 2003; Allen, 2013). As people continuously interact and everyone can influence these dynamics through his/her local participation, future is perpetually constructed (Stacey, 2010). They can either act as amplifier or as a limit cycle (Briggs and Peat, 1999). So, what happens to organisations is not just the outcome of a macro design of some elite or the decisions taken by powerful people in each organisation, it is rather what emerges from the many, many local interactions among the members of all the interdependent organisations and their local choices. Likewise, out of this active process of relating knowledge emerges an ephemeral outcome with no guaranteed answers (Stacey, 2012; Davis, 2015).

On the other hand, the collective behaviour is not homogeneously distributed. It is rather subject to some dynamic factors (attractors) by which they are attracted; it is around these factors that emergent patterns are formed creating regional clusters and these regions can be recognizable behaviours of individuals or groups. The behaviour patterns are the traces of some inherent factors, which provide sufficient stability and diffusion for the system to operate (Goldstein, 1994; van Eenwyk, 1997). In human systems, such factors can be ideas, values, beliefs, desires or ethics and can have many names: they are called strange attractors in complexity, archetypes in psychology, mental models in organisational theory and values in social sciences (Michiotis, 2006).

Furthermore, from a complexity perspective, there is not a single 'objective reality' but many different perceptions and interpretations of it, often conflicting and complementing, dependent on the observer. There are no 'neutral observers'; only by observing a system, one is affecting it (Jones, 2003). Therefore, defining a system is arbitrary, since the interconnectedness of its people is pervasive. Moreover, the assumption that we can always

make an objective version of past events and produce a neutral, true and comprehensive history of them is illusory (Peat, 2008).

Moreover, as organisational experience demonstrates, besides the legitimate system that consists of the official structure, tasks and routines, there is an informal network of human relationships, interactions and dynamics, known as the 'shadow system', which has only a few rules and constraints that are very powerful; everyone in an organisation participates in both systems (Nonaka, 2001). The shadow system balances the exaggerations and shortcomings of the formal, as it harbors a vast diversity of thought and approach, which is the prerequisite of creativity. Being organically generated, this network flows throughout the organisation and provides, to a significant degree, the capacity needed for accomplishing the organisational goals. From a complexity perspective, leaders should learn to listen to this shadow system rather than battle against it (Stacey, 1996), including actually, both measurable and non-measurable aspects of a system, such as hopes, emotions, dreams, ideas, talents, tensions, power struggles etc (Wheatley, 1992; Schurbach, 2006). If these facets are viewed as an indivisible reality that equally and inseparably values, then a more complete and comprehensive picture of the system will be enabled. It is by this perspective that assets, such as knowledge, innovation, adaptability to change, synergy and generally skills to deal with intractable and complex problems are now widely considered as cornerstones for the survival of businesses, organisations and even governments. (Senge, 1990; Goldstein, 1994; Nonaka and Takeuchi, 1995; Boisot, 1998; Mindell, 2000; Snowden, 2002a; Senge et al, 2004; Tsoukas, 2005; Dimitrov, 2005; Scharmer, 2007; Peat, 2008).

As humans seem to come with better results through mutual effort and synergy, relationships seem to be the crucial issue (Stacey et al, 2000). Actually, people who enjoy their work seem to make maximum of productivity and innovation and adapt easier to change. This is of particular importance when dealing with intangible assets, like knowledge and creativity, which can be only volunteered; not conscripted or controlled. However, most of the managers have been trained to command conscripts and not to work with volunteers (Snowden, 2002a). The essential for human groups is to be effective, while machines and standard interactions (as manufacturing processes or appreciation of rules) need to be efficient (Kurtz and Snowden, 2003). Nevertheless, the skills needed for cultivating synergy can be taught and developed by means of exercising them.

On the other hand, it is true that control is a cornerstone of the mainstream management and a fetish of the western world. Becoming even more intransigent and exerting more control is considered to be a 'natural' reaction (and best practice) when organisations and

individuals feel that they are losing control (Snowden, 2003). However, there is a growing understanding nowadays that such a practice eventually leads to a spiral of control that literally goes out of control and drains our creativity. So, it would be better if we could let our (western) drive to control go in favor of creating an environment for learning (Baets, 2008; Peat, 2008). Actually, Chaos tells us that in some cases, while we can perfectly control a system, the system can resist our attempt to redirect it. In such cases, it can settle back where it was or move in a totally new and unpredictable situation. The result of any initiative taken in a chaotic system is unpredictable and depends on the initial conditions and a myriad of subsequent non-linear interactions (Peat, 2008).

Experience also teaches us that there are no obvious solutions, simple to articulate and easy to implement, which would efficiently deal with complex and intractable problems. Meeting such challenges is not just a matter of intellect or hierarchy but of talking, thinking and acting together (Senge et al, 2004). Otherwise such ‘tough problems’ either get stuck or solved by force; but the solution imposed cannot last for long (Kahane, 2004). Indeed, while hierarchical structural thinking is vertical, the nature of the ‘wicked problems’ is mainly horizontal (Raisio et al, 2015). Therefore, when obvious and simple solutions are attempted in complex systems or when the perception of complex situations is oversimplified, unexpected and often disastrous side-effects appear and reverse the expected outcomes of planned interventions or imposed ‘solutions’. What initially appears to be an ideal plan, it can turn to be a major debt to be paid or may cause a total disruption. Policy planners should then listen to local people, seeking for the hidden complexities. Actually, all that we know about something is influenced by its relationship with other things (Lee, 2005); on the other hand, if we do not understand these connections we say “something is complex”, while for others it may be trivial or manageable (Fioretti, 2004). In other words, in order to deal with cognitive demands of organisational complexity, systems must be ‘seen’ and understood from the inside out, not from the outside in (Peat, 2008, pp. 36-41).

Therefore, the key in studying the specific part is to make sense of the whole, to see the entire image, which is visible only from distance; you cannot be a part of an issue and understand it at the same time (Stacey et al, 2000; Michiotis and Christodoulou, 2008). You have to leave aside your patterned behaviours when entering a system, in the same way you put your coat on a chair when entering a room (Scharmer, 2008).

This is what Chaos theory suggests: to embrace uncertainty and a-causality, make sense of the paradox and learn from it, rather than pushing it away seeking for power and control. It teaches us how to view mistakes not as problems but as possible bifurcations in

knowledge; a moment of truth that could lead to a new self-organized structure (Briggs and Peat, 1999; Baets, 2007; Mowles et al, 2008; Odolensky, 2010). Eventually, it teaches us that instead of pursuing a ‘happily ever after’ ending (which is the ultimate goal of linear thinking and determinism) we should rather understand that real stories never end but lead us to new challenges; for life and reality have an ever changing character (Allen, 2013).

But most important, Complexity and Chaos theories provide new viewpoints and generate insights for leadership, which are outlined in the next paragraph.

c) Insights for leadership

From a complex perspective (Surie and Hazy, 2006; Lichtenstein et al, 2006; Hazy, 2006; 2008; Lichtenstein and Plowman, 2009; Plowman and Duchon, 2007; 2008; Stacey, 2010; Psychogios and Garev, 2012), leadership is not assumed any more to emerge from an individual who simply empowers people or aligns and controls them to impose his/her vision and command. It is rather considered to be a system function or a product of system’s interactions that enables individuals to engage, adapt, innovate (even on lower hierarchical levels) and discover their collective identity through interaction with others and the adaptability to the environment.

Complex leadership enables mutual understanding among employees and dynamic interactions with middle managers. As a result, even lower level employees could participate and have effect on organisational innovation; their interaction is critical for the emergence of self organisation and the adaptability of the organisation. Therefore, it is important for the managers (especially of the mid level) to establish the proper conditions and cultivate a complex managerial attitude (Goldstein, 1994; Stacey, 2010; Psychogios and Garev, 2012).

Through such a viewpoint, the essence of leadership is to enable effectiveness rather than determine or guide it. To accomplish this, leaders change the rules and the means of the ‘game’ by interacting with and supporting the complex dynamics that exist not only within the organisation but also within its environment (niche). They do so by positioning their organisation cooperatively within the niche instead of destroying competition, for the failure to nurture a niche can be self-destructive (Marion and Uhl-Bien, 2007).

Besides viewing leadership as an emergent behavioural phenomenon or a product of relational interactions among agents (Lichtenstein et al, 2006), it can be also seen as a *meta-*

*capability*²² of the organisation that connects and organizes disparate agents into unity (Hazy, 2006; 2008). For the capacity for problem solving and innovation is widely distributed within an organisation and can be tapped by consciously and informally intervening on the existing interactions (Surie and Hazy, 2006). Thus, processing information about the organisation and its environment, leadership can then knowingly intervene on the organisation dynamics, in order to reconfigure and extend its capabilities (Hazy, 2006).

This meta-capability can be expressed in different ways, according to the needs of each context, for example by intervening on the existing choices, actions and communications towards the generation of a variety of capabilities and opportunity pathways; or by converging the existing dynamics towards the effectiveness of the selected decision; or even by redefining the field in order to harmonize and unify the generative and converging dynamics (Dooley, 1997; Surie and Hazy, 2006; Hazy, 2008; Goldstein, Hazy and Lichtenstein, 2010). The above expressions of leadership formulate different styles, appropriate for different contexts; e.g. the *generative* leadership that creates new possibilities, the *convergent* that drives decisions and actions towards models-in-use, and the *unifying* that harmonizes the oscillation between the previous two²³ (Hazy, 2006).

Complexity theorists offer various specific examples of ways to exercise complexity leadership; e.g.: by destabilizing the existing dynamics, encouraging innovation and making sense of change (Plowman et al, 2007; by signaling bold ideas about new phenomena instead of delineating small puzzles with predetermined outcomes (Kilduff et al, 2006); by managing the tension between long- and short-term objectives or/and between exploration and exploitation (Solow and Szmerekovsky, 2006); by influencing the relationships among the actors through communicative arts (Stacey, 2010); by exercising a participatory rather than directive leadership style, such as setting the scene and inviting in the real protagonists (Goldstein, 1999; Schreiber and Carley, 2006); or by drawing on metaphors from ancient philosophy and spiritual traditions, such as Plato, Heraclitus, Taoism, indigenous cultures, Shamanism, Alchemy, etc; indeed, the latest scientific understandings in quantum physics converge with ancient and spiritual wisdom (Senge et al, 2004; Dimitrov, 2005; Scharmer, 2007; Ruwhiu and Cathro, 2014).

²² Meta-capability is the capability to use other capabilities effectively; the organisation's ability to build, extrapolate and recombine capabilities to move in new directions and to enable both exploitation and adaptation (Hazy, 2004; 2010) <https://complexityleadership.wikispaces.com/Overview+of+Theories>.

²³ It is remarkable that these three categories follow the three-fold operator (Young, 1975) that is outlined in the section 2.3 when discussing archetypal models.

Yet, they all agree that understanding the inherent interdependence of people in and around organisations leads to accept human diversity as fundamental element for achieving the organisational goals. Actually, for the ancient Greek philosopher Heraclitus, it is through the co-existence of the opposites and blending the diversity that the greatest harmony is produced (Mashalidis, 2003, p. 25). For it is through the interrelation of different parts and sides that evolution occurs. Influenced by the Chinese thinking, Obolensky (2010) underlines the significance and the paradox of the harmonic co-existence of opposite states in leadership; e.g. the oligarchic and polyarchic assumption. Adding to the importance of a synthesis of the existing polarities, Smith and Elmes (2002) underline, from a Jungian point of view, the significance of removing the sense of separation between the inner and the outer life and the discovery of meaning in a life full of injustice, betrayal and overwhelming difficulty.

But you cannot be really interconnected and synthesize anything without accepting and trusting the person next to you who is different from you. And you cannot really trust another person without accepting him/her the way he/she is; not the way you would like him/her to be. And if you cannot trust anyone different, then you can hardly share anything and therefore you cannot co-evolve. For trust is the glue that holds the organisation and the society together, alive and functional (Peat, 2008). Trust is similar to the feedback loops in complex systems that make sure that one part is nested within another. However, trust is a paradox. On the one hand, we know its shadow side (that some people in a group will not act in the best interest of the others) and thus a culture of suspicion is growing in the society (O'Neil, 2002), questioning a propos the words, motives and actions of businesses, institutions and leaders. But on the other hand, people continue to carry on with their lives operating on the basis of trust between individuals, as they did in the past. Exercising trust involves a form of attachment between people in a non-linear way; the more people trust a system, the more they contribute and the more the system generates trust (Peat, 2008, pp. 116-122).

Yet, Dimitrov (2005) indicates that as long people differ in their capacity to understand and deal with dynamic complexity of life, sense and cope with emergent phenomena, and learn to connect with others, there will be leaders in societies and other people will seek for them. Although people take part in the creation of the web of interactions, they tend to seek for some exemplar persons (exemplar leaders) who will break the old patterns, articulate their visions and symbolize their dreams; and people imitate their symbols (Tsoukas, 2009).

But embracing complexity is not an easy task (Raisio et al, 2015). McKelvey (McKelvey et al, 2012) indicates three main problems that block the application of complexity in management: a) the dynamics of self organisation and emergence are not yet defined in a clear and widely accepted way; b) complexity's core concepts are converted into simple metaphors that are used to persuade managers and thus its principles are improperly applied; and c) the main European and American schools of thought within Complexity follow divergent approaches for explaining emergence.

However, perhaps the greatest limitation of non-linearity (and a peril in using it) is to speak its language or try to apply its methods in a linear attitude, meaning in ways that reflect the assumptions of design, predictability and control; it leads nowhere (Stacey, 2010). McMillan (2002) also doubts whether, in a deeper level, the shift in the design principles of modern organisations (e.g. flexibility vs. role clarity, integration vs. specialisation, speed vs. size, innovation vs. control, networks vs. centralisation, diversity vs. uniformity, etc) corresponds to a shift in the mental models of decision makers; or is it a superficial change arisen simply as a learning response to past weaknesses (Morgan, 1997). She notes that it is very difficult for the non-linear approach to support multi-layered structures that, in most cases, follow the notions of bureaucracy and hierarchy; for, as Senge (1992) has indicated, the Western people continue to think in linear ways and see the world from a linear perspective, just like when problems were static and simple; even if now things are extremely complicated or complex.

Interestingly, the linear - deterministic point of view is where quite a few critiques of the application of complexity theory on human and social issues converge. Some of them question whether organisations are complex adaptive systems able to produce novel forms of order (Houchin and MacLean, 2005), others claim that all the complexity effects can be generated within the traditional systems thinking framework (Mingers and White, 2010), while Magrassi (2013) argues that too many researchers have espoused complexity to fast, although complex methodologies are not actual tools proven applicable in many contexts. All in all, what they mean is that situations described as complex are merely not sufficiently understood yet, in order to be modeled linearly. In addition to these, it is the insufficient capacity of people to familiarize, make sense and apply in real life the concepts of letting go of control and embracing paradox beyond the human need for stability and clarity. Actually, we should not forget the Kuhnian truth that the real turn towards a new paradigm is beyond anything else a matter of faith; an intuitive faith that the new paradigm will confront new and unresolved problems, some of which might have never been stated before.

So the real difficulty here is first to understand and accept the limitations of our mentality and attitude and second to shift them, so to approach such situations differently. For as Goldstein (1994, p. 89) has paraphrased a biblical parable, “new crop wine should not be in old casks because it gets soured.” Further to this, Dimitrov and Woog (2005) have argued that eventually, the ultimate test for how well one understands complexity is the way one lives. If complexity is understood and implemented in vivo as an expression of its integrity (wholeness) and all-embracing ubiquity rather than complicatedness, then its essence will be revealed. Because Complexity and Chaos are inviting people to rethink the way they relate, get organized and synergize (Wheatley, 1992; Briggs and Peat, 1999).

Thus, keeping in mind, that Complexity is not a methodology or a set of tools but a way of thinking, a way of seeing the world (Mitleton-Kely, 2003), I now proceed to critically discuss some of the most known and used conceptual models and practical tools and techniques derived from non-linear theories.

2.3.2 Models, tools and techniques derived from Complexity

During the last decade, certain new models, methods and tools derived from complexity have been developed; they describe different contexts and types of problems faced in organisations when in complex situations or transitions. They aim to reveal and understand a system’s dominant patterns and thus to enable leaders and decision makers make sense of the situation faced and choose the proper way to react. As a result, individuals, groups, organisations and communities can enrich and possibly shift their views and therefore help themselves deal effectively with complex issues, such as strategy, change, decision making, knowledge, participation, conflict and negotiation. Most of these models and tools are based on the concepts of self-organisation, emergence and attraction, as well as the use of metaphor, dialogue and disruptive techniques to gather narrative data, from which they aim to elicit a system’s underlying elements and characteristics. In the following paragraphs, some of the most known conceptual frameworks and methods dealing with organisational and social complexity are examined, while the use of metaphor and stories have been already discussed in subsection 2.1.2.

a) The Cynefin model and the Cognitive Edge tools

Cynefin is a sense-making model that was developed by Kurtz and Snowden (2003); it is used to reveal the patterns and the particularities in a given context and unfold the components of complex, intractable or conflicting situations through conversation and

negotiation. In this way, it can help leaders or executives improve decision making and avoid important mistakes, which arise when their preferred management style is incompatible to a specific context or problem (Snowden, 2007). According to its creators (Kurtz and Snowden, 2003), Cynefin framework focuses mostly on “how people perceive and make sense of situations in order to make decisions, as perception and sense-making are fundamentally different in order versus un-order.” The model consists of five domains (Figure 2.4), which are: simple, complicated, complex, chaotic, and disorder.²⁴

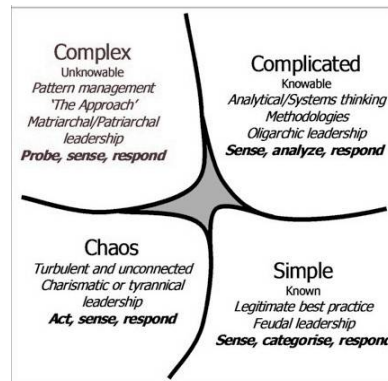


Figure 2.4: The Cynefin model (adopted from Kurtz and Snowden, 2003)

The *Simple* domain corresponds to what is explicit and widely known, structured and easily classified and controlled; here the cause is directly related to the effect based on simple rules and steady procedures. The *Complicated* domain is related to professional logic and requires terminology, data analysis and heuristics, based on which experts relate cause to effect. In the *Complex* domain informal or shadow relationships build networks of trust, experiences, values, interests and mutual commitments; here cause and effect are closely related and their patterns can be learned only over time, mainly through stories and myths. In the *Chaotic* domain / context no former knowledge, experience or rule can be applied; it is the ultimate generative and learning environment where discontinuity and innovation grow; it is the field of action and intuition. Finally, *Disorder* (as Snowden names the fifth domain) hosts whatever is unclear to which of the other four contexts fits; yet, it can also indicate where the system’s ‘shadow’ lies (knowledge/evolution opportunity) and in this way it can correspond to the *Void* of Theory-U. More details can be found in Appendix 1 (1.1.1).

²⁴ A note should be made here on the distinction between a complicated and a complex system. A complicated system is a hyperthesis of some linear deterministic ones and leads to controllable and predictable results. There, both the elements of the system and their connections are important and simple algorithms produce predictable responses, which are fully determined; e.g. the software programs, the manufacturing processes, the airplanes, the security systems etc. On the other hand, a complex adaptive system leads to novel, creative and emergent outcomes. Connections are far more critical than the individual agents (the components of the system) and simple rules result in complex and adaptive responses, which vary within a range, depending on the context; e.g. the human brain neurons, the staff of an organisation or the members of a community, etc. (Kurtz and Snowden, 2003; Jones and Hughes, 2003).

Some interesting techniques and tools that accompany the Cynefin model have been developed by its creator within the frame of *Cognitive Edge*, a potential combination of which is given in the following Figure, enabling us to depict a greater picture of the use of relevant methods. Initially, source narrative material is collected in large quantities through anecdote circles, naïve interviews or pre-hypothesis research workshops. Out of this material, by using a toolbox of emergent workshop techniques *sense-making items* (SMIs) are generated by each participant; they can be forces, characters, groups, factors, identities, events, situations, turning points, issues, problems, solutions, accidents, viewpoints and generally, whatever can be used to make sense of a situation.

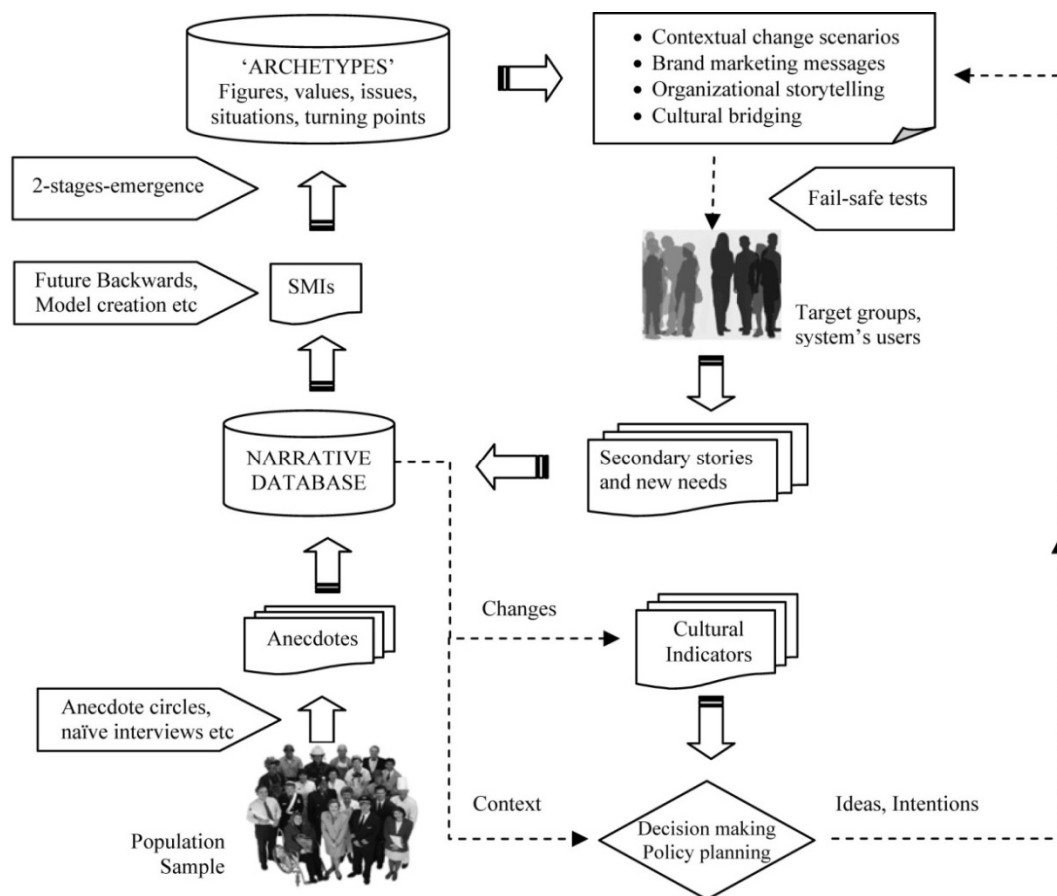


Figure 2.5: Cognitive Edge techniques and outcomes²⁵

Following, by using a technique called *two-stage emergence*, the participants cluster the SMIs in ways that make sense to them; then other groups process the outcome of the previous and this continues until the groups reach to a specific outcome that leaves most of them satisfied. Thus, collectively exchanged perspectives of the system are extracted from personal SMIs, via repeated clustering, deconstruction and patterning. In this way, archetypal personas are extracted from stories' characters, values from characters' behaviour

²⁵ All subsequent tables and figures are the author's unless stated otherwise

and themes from subjects; these can inform policy, strategy and direction. The output is fed to SenseMaker (a Narrative Database), which can index the content in various and meaningful ways and represent it back at a higher level of abstraction and meaning.

These can be used to facilitate scenario-creation on a safe-fail basis, by using again participatory and emergent techniques. Some of them are based on the Cynefin model (i.e. *Butterfly Stamping, Model Creation, etc*) with which participants unfold the components of complex, intractable or conflicting situations and place them through conversation and negotiation in the space of Cynefin domains. As the location is meaningful, the group not only makes sense of its collective patterns and develops a consensus of how to deal with such issues, but also informs on possible divergences from the assumptions and expectations of the management. Furthermore, through a technique named *Future Backwards* (also used for generating SMIs) pathways alternative to official scenarios can be delivered; the participants compare and contrast different aspirations for the future or point out multiple turning points.

b) Theory-U and its Toolbox

Theory-U is a framework - or rather a map - of an inner transformative journey. It is based on a concept called *presencing*, which signifies a heightened state of attention that allows individuals and groups to shift the inner place from which they function. It describes four different states of contexts within groups, organisations or communities, which may co-exist as patterns of social, organisational or personal practice, varying from habitual to more desirable ways of relation and operation.

As mentioned earlier, Scharmer (2007) argues that the same action results in radically different outcomes in a given context, depending on the structure of attention from which this activity is performed. Theory U identifies four such fields of attention, which result in four different ways of operating. Therefore, effective leaders should first understand the field (or inner space) from which we are operating. The four fields of attention correspond to four ways (levels) of listening, which are the following:

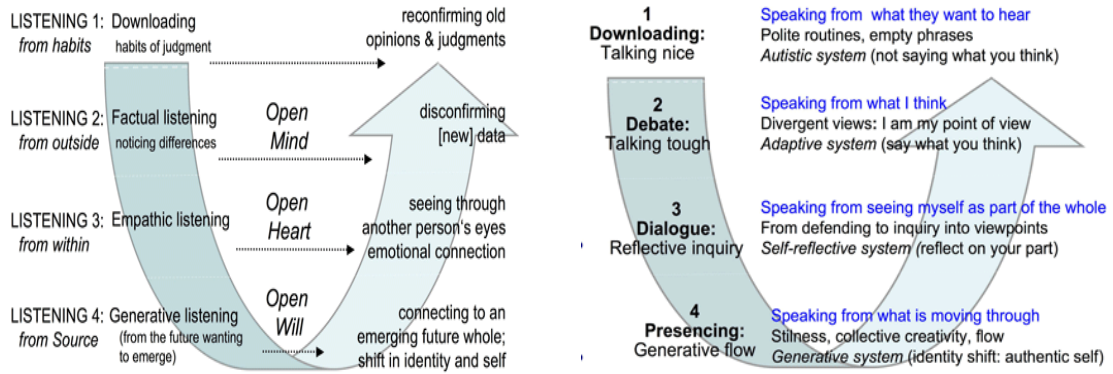


Figure 2.6: Types of listening, methods used and skills needed in Theory-U (adopted from Scharmer, 2007)

The concept of Theory-U is applied aided by some emergent techniques, which aim to explore the ‘other’ side or one’s ‘shadow’ side in an experiential way or to enable emergent fail-safe tests. Seven of these techniques (*Stakeholder Interviews, Sensing Journeys, Dialogue Interviews, Shadowing, Case Clinics, Journaling practice, and Prototyping*), along the phases of the U-journey they correspond, are briefly presented in Appendix 1 (1.1.2), according to the official site of the Presencing Institute (<https://www.presencing.com/tools>).



Figure 2.7: Theory-U toolbox (adopted from Scharmer, 2007)

c) *The Stacey Matrix and methodologies for the Zone of Complexity*

The *Agreement and Certainty Matrix* was developed by Stacey (2001) and is used to enable knowing and acting in conditions of uncertainty. The issue here is again to select the appropriate management decisions and actions in a complex system, based on the *degree of certainty* and *level of agreement* on the examined issue. We are *close to certainty* when cause and effect are assumed to be linked in a way already known from past experience and therefore, more or less determined; we are *far from certainty* when a unique or at least new situation is faced and the cause-and-effect linkage is not clear. On the other hand, the *degree of agreement* refers to the convergence or divergence of opinions for ‘what to be done’ issues. Consequently, the following zones are shaped: simple, complicated, complex and anarchy.

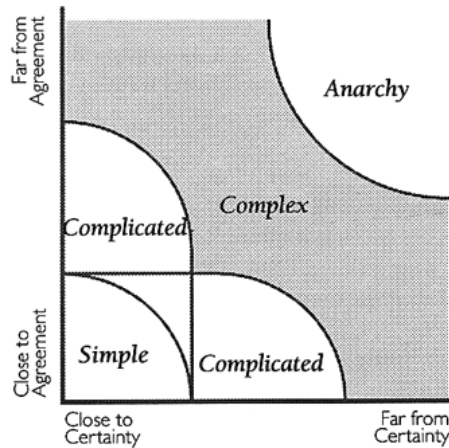


Figure 2.8: The Zone of complexity in Stacey Matrix (adopted from Stacey, 2001)

Dalmau and Tiddeman (2011) refer to three of these segments (the two complicated and the complex one) as *The Middle Ground* arguing that there the future is under construction in the minds of the players involved and is either partially or wholly unknowable. They consider face-to-face conversation (among ordinary people) as the most efficient way to resolve complex problems. Furthermore, along with Zimmerman (2001), they suggest some techniques and tools they consider relevant to the Zone of Complexity of Stacey Matrix, which are based on discussion and reflection.

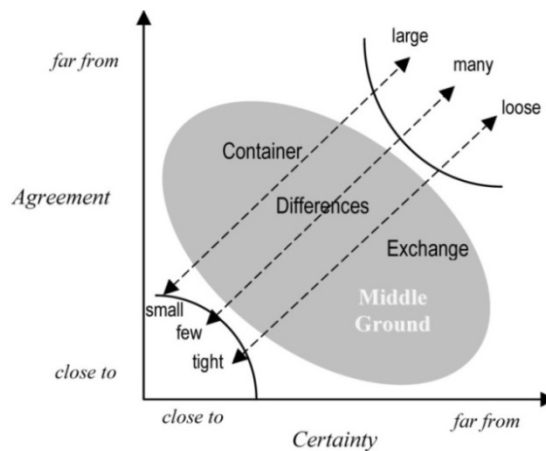


Figure 2.9: The Middle Ground and the CDE model in the Agreement and Certainty Matrix (Olson, 2010)

Among the complex emergent methodologies that are most known and widely accepted as most appropriate to be used in the Zone of Complexity are the following: *Dialogos* (Bohm et al, 1991; Isaacs, 1999), *Process Enneagram* (Dalmau and Tideman, 2011; Knowles, 2013; Blake, 2013), *Open Space Technology* (Owen, 1997), *Appreciative Inquiry* (Cooperrider and Whitney, 2005), *World Café* (Brown, 2010), *ProcessWork* and *WorldWork* (Mindell, 1982; 2000), and *Art of Hosting* (Groysberg and Slind, 2012; Quick and Sandford, 2014), which are outlined in Appendix 1 (1.1.3 – 1.1.8).

Furthermore, during the last decade, an increasing number of new tools were developed to be used in community research projects or aiming to help organisations and stakeholders deal with complex problems. Most of them are customized to the needs of the specific project they referred and consist of a blend of existing models, action research methods, emergent techniques and practical tools derived from personal experience. They usually focus on social or organisational change, as well as on the interfaces between public administration, local government, education, community consultation, elected leaders, and citizens. Among them, one could indicatively mention the *Social-eco system dance* model drawn from the experience of British community practitioners' and policy makers' interaction (Conn, 2011), and a diagnostic tool employed in South Australia for the needs of active citizenship education (Zivkovic, 2015).

d) Correspondences between the complex frameworks

Based on the above, some correspondences are suggested between Cynefin, Theory-U, and the Certainty-Agreement matrix, which refer to their levels, domains or zones, as well as to the methods they consider proper for use and the skills required for the contexts they apply. As it is suggested in Table 2.1, the one to one correspondence between the four levels of Theory-U and the four domains of the Cynefin model is based on the relevance their contexts and main characteristics have to the psychological function that is dominant in each case. Thus:

- On the Habitual level one is reacting to new stimuli using quick fixes derived from existing knowledge; in the Simple domain one follows known rules that seem to work with problems and stimuli that are familiar. In both cases past experience and practicality are the keys and the related function is the one based on senses.
- On the Factual level one has to redesign policies and for that has to use judgment and arguments; in the Complicated domain the expert uses rational thought and mental constructs as tools to deliver better solutions. Both cases relate to the thinking function.
- On the Empathic level values, and beliefs have to be reframed and for that rationalism is not enough but emotional connection with the 'others' has to be established through empathy; in the Complex domain one has to probe one's own mental models in order to feel the collective patterns. In both cases the dominant function is feeling that relates to emotions.
- On the Generative level one has to move forward and let go the old and let in the new; in the Chaotic domain the (existing or emerging) leader has to take the risk of action

before anything else. In both cases the key for decision and action is the will based on ‘guts’ and the dominant function is intuition.

- Finally, the domain of Disorder (if viewed as a Source, under the earlier suggested interpretation that of course lies beyond Snowden’s original definition) can be related to the Void that appears at the turning point of Theory-U, which corresponds to the source of commitment and energy.

Moreover, regarding the correspondence of the two frameworks with Stacey Matrix, a few comments should be added.

- i. The two Complicated zones of the Matrix (*Far from Agreement, Close to Certainty* and *Close to Agreement, Far from Certainty*) relate to the Cynefin’s complicated domain and the Dynamic type of Complexity (in Theory-U). This is based on the shared expert logic, abstract language, mental skills and analytical tools that are required in such contexts.
- ii. On the other hand, the Zone of Complexity is related to both Social and Generative Complexity and to both Complex and Chaotic domain of the Cynefin model, while the zone of Anarchy is related to Cynefin’s Disorder. The main reason for this suggestion is that the whole approach employed, as well as the techniques used and skills needed in the Zone of Complexity relate a lot with the ones suggested for the corresponding areas of the other frameworks. Moreover, the essential element of novelty is common in the Generative level, the Chaotic domain and the Zone of Complexity.
- iii. Finally, in both Disorder (Cynefin) and Anarchy (C-A Matrix), avoidance is identified as the most usual practice; however, if the problem will not be faced, both models warn for destructive consequences.

All the above are outlined in Table 2.1.

THEORY-U				CYNEFIN				CERTAINTY - AGREEMENT MARTIX			
Context	Types of listening	Method used	Skills needed	Domains	Context	Method used	Proper Tools & Skills	Context	Zones	Decision making	Method used
Simple	Habitual	Downloading	Business as Usual	Simple	Stable, Inertial	Sense-Classify-Respond	Simple Rules & Best Practice	Simple	Close to Cert. Close to Aggr.	Rational	Plan & control
Dynamic complexity	Factual	Debate	Open Mind	Complicated	Knowledge-Driven, Expert	Sense-Analyze-Respond	Algorithms & Terminology	Complicated	Close to Cert. Far from Aggr.	Political	Negotiation
									Far from Cert. Close to Aggr.	Judgmental	Systems thinking
Social complexity	Empathic	Dialogue	Open Heart	Complex	Relational, Informal	Probe-Sense-Respond	Narrative & Patterns	Complex	Zone of Complexity (Edge of chaos)	Unprogram-mable	Co-creating techniques
Generative complexity	Generative	Presencing	Open Will	Chaotic	Turbulent, Innovative	Act-Sense-Respond	Initiatives & Risk Taking				
N/A	(Void)	(Stillness)	(Connecting to the source)	Disorder	Ambiguous, Fuzzy	Avoidance	N/A	Anarchy	Far from Cert. Far from Aggr.	N/A	Avoidance or disintegration

Table 2.1 Correspondences between Theory-U, Cynefin model and the Certainty-Agreement matrix

e) *Evaluation of complex methodologies*

As methods that aim to facilitate emergence and unpredictability, these are difficult to evaluate without using the techniques in practice. Greater practice provides greater tacit understanding of the processes that is challenging to make explicit their strong and weak points, which are outlined further below. Moreover, it gives the opportunity to explore new ways to combine them or to test them on new occasions or fields. This allows crossing the threshold of their 'proper use', which adds on the facilitator's maturity. In this way, he/she can better understand what is needed for a tool to be not only usable but also useful.

The strong points of complex methodologies and techniques possess an agreeable, experiential and participative character, which is compatible with adult learning. They are able to combine rationalism, the cornerstone of the traditional management, with creativity by using poems, stories, paintings and artwork. They are also characterized by unpredictability through the use of random events and paradoxes, which makes them compatible with the conditions and activities of real life. On the other hand, pattern-based tools have some advantages over tools based on algorithms and techniques focused only on awareness; the former tend to neglect the hidden issues, while the latter cannot visualize clearly and beyond interpretation what is dominant. Such tools do not require any special knowledge or skills from participants in order to 'read' the pattern, which many times is literally obvious; they only require will and commitment in using them.

Most of these complexity-derived methods and tools are successfully used to reveal the deeper characteristics and patterns (both individual and collective) that affect the perception of reality and decision making. They limit the sense-making danger by creating a contextual and meaningful to the target groups' language. They communicate in a simple, friendly and easily reproductive way. They utilize collective knowledge, experience, and fantasy. And they succeed in developing a participative culture, which includes the acceptance of diversity.

From a managerial viewpoint, however, almost all of them have little to do with solving problems directly; they are more about changing the relationships people have with their problems and seeing the whole of them (Barry, 1997). Therefore, their impact is (rationally) expected to be mid or long term, something that is often considered inefficient by the majority of the conventionally trained decision makers. Being in need of quick results, the latter generally expect to 'see something concrete that works'.

Another significant limitation in many of these methods is their inability to relate the outcome of a process to something tangible which could help in ‘transferring the message’ to others. Indeed, when participants are asked to describe the process and its outcomes to people who were not present, they usually fail to do so effectively. Most of them –non-experienced facilitators included –describe simply how they felt, not what had actually happened or, even more, what was discovered. This is because most of these methods are interested in the emergence. Therefore, they do not possess any kind of stocking or referential means, like a depositor or a ‘spinal cord’, to collect and relate the emerged properties and the knowledge acquired during the process. But this inability keeps ‘ordinary’ people and mostly business people away from using them and impedes any further diffusion of the insights emerged.

This limitation is critical in some methods that aim to extract the structural elements from the original narrative that is always stereotypical and convert them to efficient storytelling that has an overwhelming emotional impact to larger audiences. Such a difficulty is evident, for example, in the previously mentioned *archetype extraction* technique that was developed by Cognitive Edge practitioners (Figure 2.5). The groups of participants have to endlessly process the outcome that other groups have created without reaching to a specific outcome that could leave most of them satisfied. What could be done there is to overlay the assemblies of each group. But for that a ‘spinal cord’ would be needed, which should be able to act as a referential base, with the help of which the participants should self-index and relate their own emerged properties. Otherwise, the outcome of each group or workshop is unavoidably processed by experts and outsiders, which – as already mentioned – creates problems rather than solve them.

Another type of limitation is the linear attitude within which sometimes are still executed or implemented, as this was earlier discussed (belief in the rational causality and choice, inability to handle ambiguity and paradox, perception of a fragmented world, etc). Moreover, un-skilled facilitators, under the burden of ‘tangible results’ that are expected to be delivered at the end of the process, focus on the guidelines rather than on the participants’ needs and mood; thus, they miss the atmosphere, which is essential part of the context at the given time. Feeling anxious when things do not proceed according to the plan, they sometimes try to excuse the ‘deviation’, even to force the output, rather than to reflect on what is happening and bring it to the attention of the group.

The same problem seems to appear when skilled facilitators and consultants use complicated tools, which promise accurate diagnoses that guarantee better ‘results’. This often leads to the confirmation of the core of the mechanical thinking that artifacts can resolve problems. Therefore, an alternative suggestion for using linear tools in a complex way instead of the opposite (Tait, 2010) becomes very interesting. As linear tools are better and easier understood by the people, they could be used to raise paradoxes and challenge the mainstream thinking and *then* complexity can be introduced; not before.

The strong relation (or orientation) of many complex methodologies to the specific characteristics of their target groups is also of high importance. This adherence usually has a dominant rationalistic attitude, mainly in business and political contexts, or of a ‘sentimental flood of anemic love’, in communities and spiritual contexts (Kahane, 2010). While it is obvious that addressing to one context using the ‘other’ approach is meaningless and often problematic, it usually skips our attention that using the ‘proper’ approach can lead to the conservation of the system’s blind spots. For example, most of the intellectual approaches tend to neglect the emotional energy that is freely available within the group. Thus, they almost push this emotional side further to the ‘shadow’, therefore reaching unconscious issues becomes harder.

On the one hand, methods that are addressed to communities and organisations’ leaders (to learn from them or to teach them) or sensitized individuals (such as team coaches, facilitators, trainers or consultants) seem to adopt a certain style and language designed to meet similar mental patterns. However, such terminology and process are often considered by the ‘ordinary’ employees or citizens (who are more in need of them) difficult to understand and follow. This communication problem makes the diffusion of the ‘message’ within the community or organisation even harder.

On the other hand, the methods shape a virtual ‘safe space’, in which one *has to be* ‘positive’ or ‘clever’ in order to follow the method; however, this illusive picture gets shattered when one returns to ‘real life’. Perhaps this happens due to their ‘fear’ towards negativity or incompetence, which come back in a scary and unmanageable way. Furthermore, it should be noted that a major consequence of such an unbalance (either intellectual or sentimental) is the fact that the participants sometimes ‘get addicted’ to the process. Not having learnt how to balance in real life they need support, which they seek in seminars, workshops and coaching sessions.

Another limitation is the unwillingness to change or skip some ‘rules of the game’ that appear to be strictly preset, even when the whole group seems to be willing to ‘move’ in a different way. The reluctance to unfold the method in a different way leads to a kind of ‘autism’ instead of enrichment. This unwillingness to challenge the purity of their process and terminology in different cultural contexts often traps the practitioners, mainly the juniors, to rigid rituals with poor vocabulary. Such kind of adherences can lead to the discard of a whole methodology due to the different meaning that a key element has within a given cultural setting or due to its incompatibility with the context. For example, the meaning, the process and the setting for dialogue or narrative elicitation in central or northern Europe and in Mediterranean are vastly different. Most of the Greeks confuse dialogue with debate; they also perceive the typical dialogue process, defined by Isaacs (1999), to be an *endless conversation*. However, they do engage in such activity while eating and drinking together in taverns; this is the right context for a convergence.

Nevertheless, such limitations are considered to be in relation to the early age of the emerging non-linear paradigm or, more accurately, to its pre-paradigmatic phase (Michiotis et al, 2010).

2.3.3 Non-linear methods for higher-order change

a) Reversing direction

Yet, the new paradigm and its theories and methodological tools are of great help in dealing with cases of higher-order change, as comprises the introduction of an intangible asset in the organisational culture. In order to discuss this, let us return for a while to the crossroad mentioned previously in subsection 2.2.3. By the aid of the Cynefin framework, we can visualize the steps of the mainstream approach as a circular pathway moving anti-clockwise (Michiotis and Cronin, 2011b), as shown in Figure 2.10:

(Stage 1) Problem in the old simplicity.

(Stage 2) Complicated solution provided by experts.

(Stage 3) Attempt for meaning imposition on human complexity.

(Stage 4) New functional order; or Destructive chaos; or Order through reductionism.

Now, let us examine the ‘third option’ that is still pending (Stage 4). A series of challenging questions could be then posed: What if do we choose *not* to follow the mainstream pathway? What if do we reverse the ‘direction’ and the whole concept of the intervention? What if do we decide to ‘step into chaos’, in a planned and organized way, to

dispute and disrupt the dominant patterns of the system, in order to allow the emergence of new ones?

Using the same template (Figure 2.11), the new pathway of actions, which seem to be taken in a reverse way, can be expressed as follows:

- (i) *Problem in the old simplicity.*
- (ii) *Enter chaos in order to disrupt the old assumptions and give birth to a new seed.*
- (iii) *Adjust the collective patterns and design procedures compatible to what has emerged.*
- (iv) *Establishment of a new functional order and stability.*

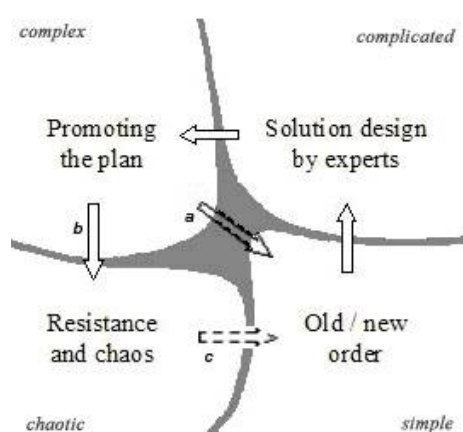


Figure 2.10: The mainstream approach of planned change

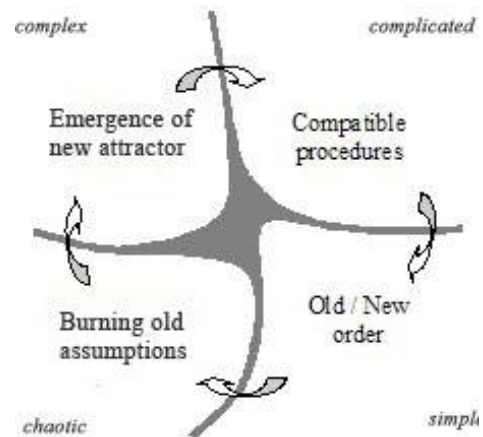


Figure 2.11: The alternative non-linear approach

(both adopted from Michiotis and Cronin, 2011b)

The decision to move in this alternative way resembles to crossing a threshold and stepping into an unknown territory, the *beginning of the adventure* (Campbell, 1949), at the end of which new knowledge and patterns are offered to the system as an elixir. This quest is typical for the birth of any new prototype (administrative, social or even scientific) that will substitute an older one; this is the destiny of all prototypes. The leader has to go beyond the known reality and the existing knowledge; for *problems* cannot be solved by using the same way of *thinking* that created them.

In such a far-from-equilibrium environment, the main task of a change leader (or the one responsible for the strategic direction) is *not* to foresee the future but just to shape the context ('set the scene') from which it will emerge. Then, he/she can invite the real protagonists (local agents) to improvise new solutions and observe the outcome; and accordingly fine tune the system. The organisational strategist becomes in this way organisational architect. (Goldstein, 1994; Anderson, 1999). To do this efficiently, he/she has to approach the underlying way in which the world is collectively perceived and experienced and make sense of the governing principles of the collective behaviour, the

profound rules of the game. Knowing the relationships and restrictions of the wider organisational or social context and acknowledging his/her role in it, the leader can either confirm an existing pathway or start shaping a new one. Moreover, he/she has to take a glimpse at the energy patterns of potential that can create unpredictability and serendipity. From a Jungian point of view, the leader has to enter into the world of archetypes, the world of unconscious, from where new meanings, forms and contexts emerge. The deeper one understands the archetypal elements (fundamental characteristics) of the system and their influence on its life, the freer he/she can be in dealing with them (Pearson, 1998; Tarnas, 2006).

What happens in this pathway of unorder, has been described by scholars and practitioners of the non-linear approach to change (Goldstein, 1994; Lichtenstein, 2000; Olson and Eoyang, 2001; Peat, 2008). The emergence of new attractor(s) can be prompted by moving the system away from its 'business as usual' status, where patterns of the past keep it trapped.

Thus, in the chaotic domain, the main objective is to burn the collectively established assumptions, for they have turned to useless illusions; actually, they are obstacles that impede a fresh view. This part of the process is very intensive and demanding and engages only a limited number of people who are willing to respond to the challenge. Scharmer (2007) and Kahane (2004; 2010) advocate new kinds of listening to overpass autistic non-listening and factual debating. They suggest that a change leader should move further, beyond empathic listening, and let the old identity go in order the new one to emerge (Senge et al, 2004; Kahane, 2004; 2010; Scharmer, 2007). Peat (2008) focuses our attention on the right time (for action) and on the subtle and minimal interventions. The latter, if linked to others, can create a wave of *gentle action*, consistent to the Chinese concept of wu-wei, the effortless doing. Yet, for some other methodologies, this part of the process is very intensive and demanding and engages only a limited number of people who are willing to respond to the challenge.

What was previously considered as opposite parts of a systemic crisis (loss of meaning and ethics) can be now synthesized into a new unity and order. For this to occur, three factors are crucial to co-exist: a) a carefully created 'container' that will sustain the process, b) some true differences without any pressure to homogenize into each other but to energize each other and c) a series of transformational exchanges of information and emotion (Olson and Eoyang, 2001). Lichtenstein (1997) seems to agree and points out that the creation of

critical relations and the appearance of a catalyst will facilitate passing the threshold and the emergence of a new order through self-organisation.

Anyhow, once the old assumptions have been disputed and new insights and ideas have been brought up, like a seed, the process can move to the next phase, at the complex domain. There, the created seed should get contextually signified in order to: a) get related to specific needs, issues and practical problems, b) match with values and patterns existing in the organisation or society, and c) be expressed in terms meaningful for the people. This phase of the process will not be a kind of ‘message broadcasting’ (propaganda). It will rather be a process of dialogue or consultation about the roots of the problem or crisis, the fundamental assumptions it is related with and the future perspectives. It will aim to enable consensus building and motivate people, in order to create the necessary energy that will sustain the change initiative. It will also enrich whatever was initially created (awareness, insights or ideas) through the collective experience and knowledge. At the end of this process a new attractor emerges.

b) Qualities and skills needed

This stage has to do with giving space and voice to the parts of the organisation or community that are usually reduced to silence. It has to do with the need of the population to discuss the reasons for changing archetypes and to further extend this conversation, in terms of the role that key-players and the population itself have played so far. Therefore, it has also to do with the leadership’s mature understanding of complexity and the consistency to complexity’s principles among which is self-organisation. It is of great importance not to skip or game this process, as this phase delivers the most crucial and meaningful information for experts and leaders, policy planners and decision makers. That is, the process reveals the underlying factors that influence and shape the system’s culture and the viewpoints of its parts. In other words, it sheds light on blind spots and recurring mistakes that characterize roles or structures. In this way, the tacit experience and knowledge and the valuable ideas, often growing where no one expects them, can be exploited. Moreover, understanding the substantial similarities and differences among the various viewpoints, these could be possibly bridged easier. This is what experts and leaders need to know, in order to design and implement a new effective model, simple to use and compatible to the evolving needs and the deeper characteristics of the system.

The weakest points of this approach appear mainly in the first two stages (‘stepping into the unknown’ and ‘opening the circle of dialogue’), both of which correspond to un-order

(Kurtz and Snowden, 2003). At these points some emerging questions and doubts about the outcome are raised that sometimes lead even to withdraw from the process. Such naturally occurring incidents simply reveal the lack of experience in such methods and the power of a certain attitude that dominates against others that are still weak or even absent. In order to create (mental) space for them, one has to relate what is already familiar with what is necessary to undergo. If so, then the members of the organisation or community can be more easily identify what is seeking to emerge and internalize the collective outcome more efficiently.

The role of the facilitator is crucial in this stage. Based on the suggestions made by complexity scholars and practitioners (Torbert, 1991; Goldstein, 1994; Lichtenstein, 1997; Mindell, 2000; Olson and Eoyang, 2001; Snowden, 2001; Smith and Elmes, 2002; Tambakis, 2003; Scharmer, 2007; Peat, 2008) there are some skills necessary so such a process can succeed that have to be cultivated through time.

‘Being present’ and making sense of the ‘time-spirits’ in a group is the first and perhaps the most important pre-requisite for working people, for it enables communication and exchange of essential information among the facilitator and the group. If treated properly, it enables building trust sooner than expected. To achieve this, one has to be authentic (accept one’s feelings and vulnerability).

Furthermore, he/she should pay attention to the subtle: unfinished phrases, ambiguous comments, unfitting remarks, bodily signals, actions that seem to impede the process, etc; in general, anything heard or seen that implies new information and meaning. In these cases, a secondary peril for them is to misuse his/her power by attempting to lead instead of guiding, which is expressed either as judgment or as imposition of meaning instead of enabling the emergence of the collective properties. These issues have to be invited in and unfolded; all ‘voices’ should be expressed and transformed into opportunities for reflection and learning.

After all, within the ‘grey zone of complexity’, there is no unique truth that can be set in advance; there is neither one right answer to a question nor one proper sequence of steps in a process. Instead, there are many knowledge bifurcations in-potentia, so he/she must allow new information and, through the use of paradox and contradictions, to challenge and enrich the fundamental assumptions of the group and its members. Particularly, he/she must try to unfold whatever seems irritating (for the facilitator or the group) because there lays crucial information about them.

Sometimes the facilitator has to ‘surrender to the field’ that is created by the group and the process itself, giving up the ‘authority’ of the process leader. This is very helpful in contexts where the facilitator’s authority or expertise is questioned a propos by the participants. In such cases ‘seducing’ the audience through pacing and guiding is perhaps the best practice.

All in all, here are some useful tips for an at-the-edge facilitator (Michiotis and Cronin, 2011b):

- a) Maintain a beginner’s mind: avoid judgment, rushed interpretation or personal biases, notice the bare bones of an idea or experience and stay open for the unexpected.
- b) Challenge conventional forms and roles, embrace diversity, paradox and tension, and unfold errors or anything that seems not to fit the usual pattern of thinking and doing things. These can be ‘moments of truth’ and potential bifurcations for a new flow and knowledge.
- c) Pursue the development of substantial ties among all members of the group, organisation or community, as they are parts of the same inseparable reality. These critical relations can be spread easily and fast and contribute to the creation of the critical mass needed for change.
- d) Trust the process and let the participants lead it towards where they need to, without worrying about one’s own authority or the outcome of the process. Actually, the greater or more amplified are the differences, the more effective will be the outcome.
- e) Be always aware of the need to let go your ‘armor’ (knowledge and skills, crafted through difficulties and labor), in order to evolve it.

Conclusively, methods like the ones earlier mentioned can help the system move towards far-from-equilibrium conditions, around which new patterns of perception and behaviour could start to shape and a new order is most likely to emerge. But what is critical here is that emergence needs penetrable but also stable boundaries that will rein and direct the flux of self-organisation, which releases the unconscious potential of the organisation and its leaders. It develops inherent possibilities of change, hidden in the organisation and thus, the change just occurs. And on the other hand, in order for the emerging concept to become attractor, it has to relate with real problems and issues of the organisational and social life.

As it was also discussed in subsection 2.3.2, many of the current complex emergent methods cannot structure the information they create, in order to describe where the system

stands and towards where to move, without losing any of its authenticity and emergent character. This is a gap because this kind of information could help a) the change agents facilitate the process easier, b) the participants go on without the sense of wasted cause and c) the leaders make easier sense which of the deeper characteristics of the system can be first aligned in order to meet the pursued intangible asset.

Synopsizing, because of human complexity, there are some situations in social life that cannot be explained and modeled sufficiently with cause and effect terms; yet, their truth and effects can be felt directly (at once, easily). But if we cannot understand them sufficiently, perhaps the problem lies elsewhere; on the way and the means we use to approach and study them. If the approach is based on a linear - deterministic attitude, the inability remains, as the history of systems thinking informs us; but if it is done in a complex attitude (keeping in mind all the above characteristics of humans and their social life), new information comes into light. On the other hand, the tools should be able to bear the human ambiguity, in order to capture and represent the whole picture; but no linear tool can deliver this. Such specifications are most likely to be met by the archetypes and the archetypal models, which are examined in the next chapter.

The above provide the data for answering the first research question and set the frame for the second goal of the current research; the development of a new sensemaking tool.

CHAPTER THREE

ARCHETYPES AND

SENSE MAKING TOOLS

In this chapter I extend the literature on the adequacy of the emerging non-linear paradigm to assess intangibles assets and guide higher order change, discussed in chapter 2, with a consideration of archetypes and sensemaking tools. This completes the body of theory I am drawing to answer both the research questions.

The world of archetypes: In the fourth section, the contribution of archetypes and archetypal models in capturing the complex dynamics of human life is discussed. At first, the theory of archetypes is outlined in order to examine their resemblance to the chaotic strange attractors and their correspondence to the intangible assets. Then, some applications of archetypes in organisational life are critically presented, along with the most known archetypal models and tools that could be of help in the design of a new sensemaking tool.

Sensemaking tools Development: In this section, I examine the main means for sensemaking, such as dialogue, narrative, storytelling and metaphor and the contribution of geometry in meaning creation and representation. Then, I outlined some specifications and main concepts for the design, development and validation of a sensemaking tool to be used in complex and transition environments.

The Conceptual model of the new Tool: After a brief synopsis of the knowledge obtained, we are led to the identification of existing gaps in the reveal and measurement of the intangible assets and organisational archetypes by the currently available methods and tools. Within this frame, the aim of the research is articulated. Finally, based on the above, the Conceptual Model of the new sensemaking tool is introduced by presenting its design principles, its structure and application process, its assessment criteria and deliverables and its validation principles.

3.1 THE WORLD OF ARCHETYPES

The first section of this chapter (the fourth of the literature review) aims to examine the contribution of archetypes and archetypal models in the identifying the collective dynamics of a complex context, both in terms of its intangibles and readiness for change. Initially, the basic characteristics and dynamics of the archetypes, along with examples of their images and patterns in social life will be briefly presented. Then, their resemblance to the chaotic strange attractors, as well as to the main concepts of other recent theories will be discussed, based on their shared characteristics and function.

Furthermore, after clarifying the differences between an archetype, a stereotype and a prototype, we will proceed to the examination and critical discussion of some widely known applications of archetypes in organisational life. Specifically, we will examine the origin, the concept, the scope and context addressed, the structure and content, as well as the strong and weak points of: a) Senge's system archetypes, b) three of the most used models and tools with archetypal figures (OTCI/PMAI, DAI, DNAI) and c) Snowden's contextual archetypes.

Then, the background of the archetypal models will be discussed (main types, characteristics and examples) in order to argue in favor of them to represent better the collective dynamics of human systems. Finally, some of the most widely known archetypal models (the four elements and the 12-fold models) that will be used as a basis for the development of the model of the sensemaking tool will be particularly examined.

3.1.1 Introduction to the archetypes

Although archetypes were made widely known by C.G. Jung, the word derives from the Greek noun *archetypon* that first Philo of Alexandria⁵² systematically used. The Greek roots of the composed word *archetypon* (*αρχέτυπον*) are: *arche* (*αρχή*) = beginning, principle, origin + *typos* (*τύπος*) = form, species, kind, imprint. Jung himself resembled his notion of archetypes to the Platonic concept of *Ideas*. According to Plato's *theory of Forms*, the many forms we see are not real but *mimic* the *real* Forms (or Ideas); the world we ordinarily perceive is just a shadow of the *eternal* Ideas⁵³ that are imprinted in the soul before the latter is born into the world. The Ideas cannot be perceived directly as they are abstract, pure

⁵² Philo of Alexandria (20 BCE – 50 CE) was a Hellenized Jew who was influenced by the doctrines of Pythagoras (on number symbolism), Plato (on the creation of the world) and Heraclitus (on strife as moving principle)

⁵³ As expressed in the *Allegory of the cave* in Plato's dialogue *Republic*.

mental forms, perfect mathematical objects; a-spatial and a-temporal blueprints of perfection; absolute changeless notion transcending the empirical, sensory world and yet giving its form and meaning (Cross, 1964; Kalfas, 1995). Therefore, they are collective, in the sense that they embody fundamental characteristics rather than specific peculiarities. They “serve as the fundamental reality informing every concrete particular. Something is precisely beautiful to the extent that the archetype of Beauty is present in it or, described from a different viewpoint, something is precisely beautiful to the extent that it participates in the archetype of Beauty” (Tarnas, 2006, p. 81). Therefore they can provide the invisible structure behind the details of ordinary life that allows us to recognize the generality behind a specific example.

a) Main properties and examples of archetypes

According to Jung, archetypes are emergent properties of the *collective unconscious*, which is a structural layer of human psyche, distinct from the *personal unconscious*. The personal unconscious belongs to the individual and is a fuzzy zone between its *ego* and the unconscious; it contains forgotten or unprocessed memories and issues expelled from consciousness, for they are personally inconvenient or socially unaccepted; this content can be recalled or visit us while in dreams or fantasies. On the other hand, the collective unconscious is a precedent and deeper part of psyche, its chthonic portion, through which the latter is attached to nature (Jung, 1953, CW 10, p. 53); it can operate along with or independently from the conscious mind.

Jung defined archetypes as primordial inherent patterns, common to all human beings, fractals of the psyche, emerging from the collective unconsciousness; axiomatic first principles, models, or paradigms that influence behaviour and experience profoundly. (Sharp, 1991). Hillman describes them as the deepest patterns of psychic functioning; roots of the soul governing; perspectives we have of ourselves and the world; axiomatic, self-evident images; immaterial potential of structure; recurring typicalities in history; paradigmatic thought and behaviour models; worldwide figures, rituals and relationships (Tarnas, 2006, p. 83).

Archetypes contain contradictions and ambiguity, as they possess both positive (light) and negative (dark) aspects (the latter referred to as the *shadow*), and thus, they unite opposites within themselves (Jung, 1940, 1968). No archetype can be reduced to a simple formula (Tarnas, 2006). The positive and negative characteristics of an archetype correspond to the ‘gifts’ it brings to us and its *shadow* that we usually cannot see. They are also related to a

primal need and fear (e.g. the *innocent* is not only a believer, but also a denier, aims at security and is afraid of being abandoned).

Their significance lies on the fact that the human experience is structured on and around these pre-existing principles (McDowell, 2000); they actually determine how we perceive and experience the world, influence our understanding of the laws of nature and therefore govern our behaviour profoundly. Being activated by the environment, they mediate experience and behaviour; and acting as organizing schemata, they transform the innate into personal (Stevens, 1982; 2015; Pearson, 1998). They are systems of readiness for action (Jung, 1953, CW 10, p. 53), ways of perception and (non-cognitive) action patterns, resembling to mirror neurons (Hogenson, 2009). They are so powerful that it could be argued that “the archetypes live us instead of us living archetypes”⁵⁴ (Pascal, 2000). In fact, archetypes arrange perceptions and experiences into complexes, by creating fields that attract them. Just like a magnet field, the patterns of which are revealed by the metal filings that are caught in it. Actually, the power of an archetype is revealed by what becomes ‘caught’ in it (van Eenwyk, 1997, p. 29).

Archetypes can manifest either on a personal level, as complexes, or collectively, as cultural elements and characteristics. On a personal level, the aspects of everyday life share the dynamics of the archetype, under the influence of which are coming, just like the metal filings follow the field of a magnet they are caught in. Thus, associations of everyday experiences are created around an archetype (which serves as the nuclear element), following its particular character, a kind of *light motif* or *feeling-tone*. These associations then constitute complexes that constellate around the archetype and become arranged by it as configurations that eventually become the structures of the psyche (van Eenwyk, 1997).

On a collective level, although universal, archetypes are expressed in different ways, according to the given personality or context (culture, setting and time in history). Therefore, archetypes resemble pathways opened by the collective experience, waiting for new travelers to walk them or channels to be filled through the individuals’ experiences. They can be also viewed as the ‘software of the psyche’, the content of which relies on us to be created (Pearson, 1998), an empty program requiring cultural content to be filled (Haule, 2004); as such, they allow for the periodic creation and dissolution of images and interpretations. Each age or era should contribute its own new interpretation of their content and effects (Jung, 1953, CW 9i, p. 267), like every river wends its way to the sea, as a spiritual goal toward which the whole nature of man strives (CW 8, p. 415). In this way, they could be viewed as

⁵⁴ This resembles the earlier mentioned Bohm’s phrase about thoughts.

deposits of the constantly repeating experiences of humanity (Harlow and Harlow, 1962; van Eenwyk, 1997).

While cutting off from our archetypal roots can lead to neuroses, making sense of what archetypes are like and how they operate (as inner potentialities) can enable us to gain access to unrealized potential (an unskilled positive side), help us successfully deal with problems and accomplish tasks (using all we can get from them) or restrain an single-sided or exaggerated characteristic of our personality (Pearson, 1998).

As the archetype is purely potential, it cannot be expressed by anything real. They can only be experienced and recognized through their effects, which are imprinted in diverse images and patterns that exist in myths, legends, fairy tales, symbols, religions, dreams, metaphors and generally narratives (Jacobi, 1974; von Frantz, 1975; Edinger, 1972). A usual mistake is made when we mix the archetype with its image. Identifying an archetype with a particular image, all its other aspects that may not be included in that image are missed (van Eenwyk, 1997).

Archetypal images can have an abstract or geometrical form (square, circle, wheel, etc or their combinations in symbols) or possess a figure of a real or a fantastic character, creature, plant, natural element or planet (e.g. mother, father, child, hero, god, fair lady, dwarf, giant, lion, dragon, tree, bush, fire, sea, river, sun, moon etc).

Some of the most common manifestations of *archetypal characters* are the following: the hero, the savior, the ruler (king), the outlaw, the helpers and the villains, the prince, the princess, the victim, the mentor, the companions, the scapegoat, the joker, the outcast, the earth mother, the temptress, the damsel in distress, the friendly beast etc. Some modern versions are: the cowboy, the detective, the gambler, the mad scientist, the nerd, the business woman, the lobbyist, the baby boomers, the Casanova, the guru, the environmentalist, the martyr, the saboteur, the journalist and many others.

Quite often such archetypal characters are personalized by actual people within a given context; that results in creating of historical figures, known for the role they represent rather than for whom they really are. Some examples of such *Icons* are: Lady Diane (princess), Napoleon (strategist), Spartacus or Che Guevara (rebels), Mother Theresa (altruist), Mahatma Gandhi or Nelson Mandela (liberators), Martin Luther King (scapegoat), Adolph Hitler (devil figure), Marilyn Monroe (temptress) etc.

For each archetype there is an archetypal myth (story) to be realized, within which a repeating pattern is unfolded. A pattern is archetypal when it is enduring (it comes again and

again in various pathways) and its structure follows the typical example within a given cultural context (Chan Allen, 2002). Each archetypal pattern has certain elements, which are: the *goal* the *characters* the *gift* and the *turning points* or *thresholds*. Such archetypal patterns usually refer to recurring situations, such as birth, adolescence, adulthood, maturation, death and rebirth, triumph and danger, etc. more details on archetypal images, situations and patterns can be found in Appendix 1 (1.2.1).

In any case, the archetypal pattern adds meaning to the exact data (facts) of a specific event, each time its story is told by someone; this kind of archetypal influence is stronger when the teller is in a state of crisis or shock, meaning in far-from-(rational)-equilibrium state. By enabling the creation and development of a meaningful motif in the individuals' lives, the archetypal patterns actually govern them, while in the same time provide people with a coherent frame for life experiences, especially the painful ones (Roesler, 2006). Yet, it should be added that despite their potential contribution towards wholeness, a more common manifestation of archetypes is towards extreme manifestation, as stereotypical caricatures. This is related to the degree of consciousness and will of each individual.

b) Archetypes as strange attractors and probability fields

Several theorists in various scientific fields have referred to the archetypes as strange attractors of the psyche, ordering or organizing principles, energy patterns of potential that can create unpredictability and raise entropy; each with its own parameters, but also with a jumbled myriad of contextual possibilities (Jacobi, 1974; Heinz, 1988; Rossi, 1989; May and Groder, 1989; Van Eenwyck, 1991; 1997; Card, 1996; Schueler, 1997; Goertzel, 1999 etc). Moreover, as Matthews (2002) indicates, the images of archetypes evolve over time through their inner and outer dynamics (Jung CW 9i, p. 50; 9ii, p. 279); the former refer to their own capability of self-adaptation and the latter to the fact that they are being influenced or contaminated by other archetypes.

Besides their dynamic and organizing nature, archetypes share some more characteristics with non-linear systems, such as the capability for evolution and emergence of new forms, the attraction of their behaviour around some factors (forces) that act as ordering principles, etc. As discussed in the previous chapter, many theorists and practitioners have identified similar properties and principles in the complex adaptive and chaotic systems (Goldstein, 1994; 1997; Kauffman, 1995; Briggs and Peat, 1999; Lichtenstein, 2000; Stacey, 2001; Fitzgerald and Eijnatten, 2001, Dimitrov, 1998; 2005; Lee, 2005).

By creating tensions between what is and what it could be, archetypes lead psyche to self-correcting and lead us into encounters, situations or relationships that increase our adaptive capacities (van Eenwyk, 1997). The tension of the opposites is the building principle of the structure and the operation of the psyche (and of the nature as well). Through their mechanism (symbols) stimulate mind to greater self-organisation; symbols first generate chaos and then build higher-order symmetry (ibid, p. 114).

The dynamics of symbols in the psyche correspond to the dynamics of chaos in the world of matter. Symbols possess some more non-linear characteristics, such as their fractal character (they are ‘thing-in-itself’, irreducible and unable to be clarified in isolation), the dependence from initial conditions (how their experience turns out depends on where it begins), and the iteration (they participate in regularly repeated rituals, which represent the creative acts of gods and allow humankind to revitalize itself). But most of all, they are act as agents (catalysts) of change in our lives by reversing entropy, unlock inaccessible domains, open up the ego repeatedly in order to integrate the new potential and eventually transform perspectives (van Eenwyk, 1997).

Adopting the concept that archetypes represent psychic probability (Jung, 1953, CW 8, p. 964; Matthews, 2002) argues that they can be considered as ‘loosely defined rules of a game’ (that vary according to circumstances of time and place), operating as probability fields (like a basin of attraction) and bringing in surprise, uncertainty and novelty. Likewise, McDowell (2002) claims that the archetypes are pre-existing possibilities, evolving as a component of a higher-order dynamic system; the latter is understood as an eco-system, within which the co- evolution occurs, thus manifesting the pre-existing landscape of possibilities. In the same way, human personality exists and develops within the inter-subjective field of other personalities, self-organizing in complexes around archetypes.

Furthermore, just like the agents of a complex system, archetypes are only relatively isolated from one another; usually many archetypes are present in a given situation and interact with each other, being influenced by them in a network of relations (von Franz, 1975). Moreover, as the individual psyche or the collective soul (in an organisation or a community) are self-regulating, they strive for balance in the given situation or system (Pearson, 1998). Dolan and Garcia (2002), depicting relevant characteristics, correspond the chaotic strange attractors to the human values in organisations and social systems, while Judge (1993) relates those to archetypes, as they all manifest in an intangible way through the interpretations of behaviour’s principles.

c) *Broadening the concept*

Besides the parallelism of archetypes with complex adaptive systems, another parallel can be found with quantum physics. Both archetypes and elementary particles share the quality of being irrepresentable but being visualized by their effects. Jung in collaboration with W. Pauli⁵⁵ broadened the initial concept of *ordering factor* to the one of *probability law* and postulated (Jung and Pauli, 1955) the existence of a cosmic order that does not relate to our choice, distinct from the world of phenomena and corresponds to a broadened notion of archetypes. Working together for more than two decades, they formulated the *Archetypal Hypothesis* (Jung, 1953, CW 8, p. 417- 418), as a result of which the term of *Unus Mundus*⁵⁶ was introduced to describe the transcendent and unitary existence, which underlies the duality of mind (*psyche*) and matter (*physis*). When operating in the realm of psyche, archetypes are the dynamical organizers of images and ideas; when operating in the realm of physis, they are the patterning principles of matter and energy. Moreover, when the *same* archetypes operate simultaneously in both realms, they give rise to *synchronistic* phenomena of acausal but meaningful coincidences (Peat, 1987; Ponte et al, 2013).

The concepts of synchronicity, non-locality and a-causality, which exist as well in complexity and quantum ontology, have attracted the attention of scientists from other disciplines (Peat, 1987; Baets, 2007; 2008). The latter have argued that instead of causality, the networked economy is rather ruled by synchronicity and yet, managerial thinking is still ‘Newtonian’, based on a fixed space-time frame. He also indicated that the uncertainty principle of Heisenberg corresponds to what today is called effect of *contextuality* in measurement and that indeed the organizing principle in networks could be something like resonance. Moreover, drawing on the *Enacted cognitive psychology* (Varela, 1982) and Sheldrake’s collaboration with Bohm on *morphogenetic fields* and *implicate order* (Sheldrake and Bohm, 1982), he suggested that instead of talking about causality in management, we could talk about coincidence (synchronicity). Furthermore, the already expanded concept of archetypes could be also related to the key-elements of Spiral Dynamics *memes* (Taborga, 2011).

Conclusively, the knowledge and insights derived from the parallel examination of these scientific domains and the analogies that will emerge could help us improve our understanding of the behaviour of human systems on the one hand and develop efficient models, methods and tools on the other hand.

⁵⁵ Wolfgang E. Pauli was an Austrian-Swiss theoretical physicist, with many important contributions primarily in the field of quantum mechanics; he received the Nobel Prize in Physics.

⁵⁶ More details in Appendix 1 (1.2.2).

3.1.2 Organisational archetypes

Besides psychology, archetypes have nowadays a wide range of real life applications in organisational life, marketing, economics, political science, coaching, family therapy, ecology, even biology. Almost in each of these fields, the term *archetype* has a different meaning and purpose, either as a concept or as an element of relevant models. But before examining these applications, it is worth clarifying three terms that are usually encountered but often confused; these are the archetype, the prototype and the stereotype.

a) *Archetypes, prototypes and stereotypes*

Based on lexicological definitions and the remarks of Scherer (1992), Jetter (1994), Bratanova (2004), and Brenner (2003), who examined *all* three aspects in different areas, such as architecture, psychology or folk art, prototypes and stereotypes can be distinguished from archetypes.

A *prototype* is the first of a given development that will soon become generalized or a pioneer from a forthcoming trend; it is a standard example to be followed and is applied only to things or procedures. As a term, *prototype* is often confused with the *archetype* by system thinkers and designers. However, a prototype is rather positive or neutral, it functions in a non-contradictory way and is always been imposed (by engineers, specialists or rulers), while an archetype contains its opposite and is ambiguous and inherent. This is why a prototype is not always easy to get applied or functional: as it is constructed and operated by people of different knowledge, skills and attitudes, the most important obstacle to adoption is the gap between the (organisational, cultural or other) stereotypes of its creators and operators.

On the other hand, a *stereotype* is a fixed set of characteristics, a typical and already generalized case, a logical oversimplification or a simplified belief, opinion or conception; it is applied by convention to certain kinds of (other) people and it can often form the basis of prejudice, strengthening or sharpening existing differences between cultures and emotions. It has usually a negative and destructive result. A stereotype is an unvaried repetition without personal quality, requiring agreement or conformity to its fixed form or rigid pattern. As Snowden (2002b) indicates, *archetypes* represent a cultural *community* (easily recognized when looking into them) and enable one to communicate with others, while the *stereotype* is a way of labeling or classifying an *individual* or a *group*, in order to limit or prescribe one's capability and response.

In conclusion, archetypes provide a framework with which people can make assumptions, scan environments and create meaning; yet, they may reduce to pre-existing frameworks of information, assumptions and responses (Shadraconis, 2013). In other words, while their nature enables them to produce many forms, some of them evolve and transform, while others remain stable and become stereotypes (fixed viewpoints). Moreover, every prototype eventually ends up as a stereotype, due to its repeating use and the passage of time that lets for new needs to be emerged. As a stereotype then, it seeks for its renewal, through the establishment of a new prototype.

The challenge for a stereotype is the ‘other’ (interpretation), for an archetype is to make sense and unite its diverse forms (expressions) and for a (new) prototype is to find the (proper) way to substitute the older (stereotype); the researcher claims that the latter can be enabled via addressing to the underlying archetypes.

b) The use of archetypes in organisational and business context

Particularly within the organisational context, ‘archetypes’ have been used to typify and quantify what is intangible, in order to provide a comprehensive view of the overall culture of the brands and organisations, as well as to enable transitions. Archetypes have also been used to try to meet the demand of the business world for the simplification of strategic messages to the key essentials only.

As earlier mentioned, archetypes can be corresponded to human values. Likewise, organisational archetypes are indicative of the existing assumptions and values within an organisation and its evolving (or stable) culture (Taborga, 2011). Organisational heroes become protagonists of patterns and plots dominant in the particular context and their stories can touch and inspire people and engage them into their daily duties, while in parallel can help the outsiders understand the existing culture. Or their dark side can create ironic representations that inform us of the collective shadow. Actually, leadership archetypes are powerful tools when fit the context and accompanied with accountability. Therefore, a morally sustainable leadership should be aware of both light and dark sides of the multifaceted archetype of the ‘king’, symbol of the leader (Kostera, 2012; Kociatkiewicz and Kostera, 2012; Kooskora and Isok, 2014; Stevens, 2015).

The use of archetypal figures and stories extends more than to depict organisational roles. They can demonstrate different ideals or ways, which different persons or businesses can follow towards success. For example, the ‘entrepreneurial man’, the social entrepreneur and the Hansel and Gretel story can refer to neoliberalism / individualism, social reform and

downsizing respectively. But the point is that each time the interpretation of the archetype is locally and temporally defined (Brown et al, 2013; Gadolfini, 2013). Therefore, once a business relates itself with a specific archetype, a major issue is how to express and visualize it to its customers (Gentzsch, 2015), which brings us to another wide range of archetypes' applications: marketing.

Being closer to the creation of meaning than its oversimplified reproduction, archetypes are of particular importance for marketing professionals because they help them respond efficiently to challenges such as: How to follow the trend without losing the heart of the company? How can we survive in this tough competition? How to address many groups – many cultures without violating the fundamental essence of the firm? How can we sell responsibly?

The knowledge of archetypes helps marketers to create firms that endure, are able to evolve and change the needs of the market, inspire customers' loyalty and thus excel; and all these in a truly responsible and authentic way. The best firms are those related to products associated with an archetypal meaning or fulfilling archetypal human needs. If committed to an archetype, the brand is more likely to distinguish itself from the competitors or to endure crisis periods, for the consumer stays loyal to the archetype he recognizes and follows.

However, the mainstream marketing trend is to reduce archetypes to stereotypes, allowing the 'message' to be recognized and grasped quickly by the consumer. In this way, the advertisement is easier to produce, but it communicates only the lowest levels of the archetypes (caricatures) that are related to the brand or the product (Pearson, 2003). Therefore, it fails to strengthen the loyalty of its consumers or to penetrate to new target groups by making a difference. Yet, becoming conscious of the dominant archetypes in a brand mixture - meaning the way an individual is invited to fulfill the abovementioned needs - enables the firm to answer the core question (why buying this product / service? what is its purpose?) in a convincing and mostly efficient way.

In the following sections, some organisational applications of archetypes will be presented and discussed.

c) System and design archetypes

During his early period in systems thinking, Senge (1990) introduced the *system archetypes*, as generic structures, which embody the key to learning to see structures in our personal or organisational lives. They were guiding structures and resulting behaviour patterns that are meant to control events and help leaders recognize the cycles that systems

go through and predict what is about to come. For that he suggested ten exemplary cases and introduced a relevant toolbox, which can be found in Appendix 1 (1.2.3). A depiction of the manner in which System Archetypes evolve relationships is provided in the following figure through arrows and loops, the symbol of system thinking.

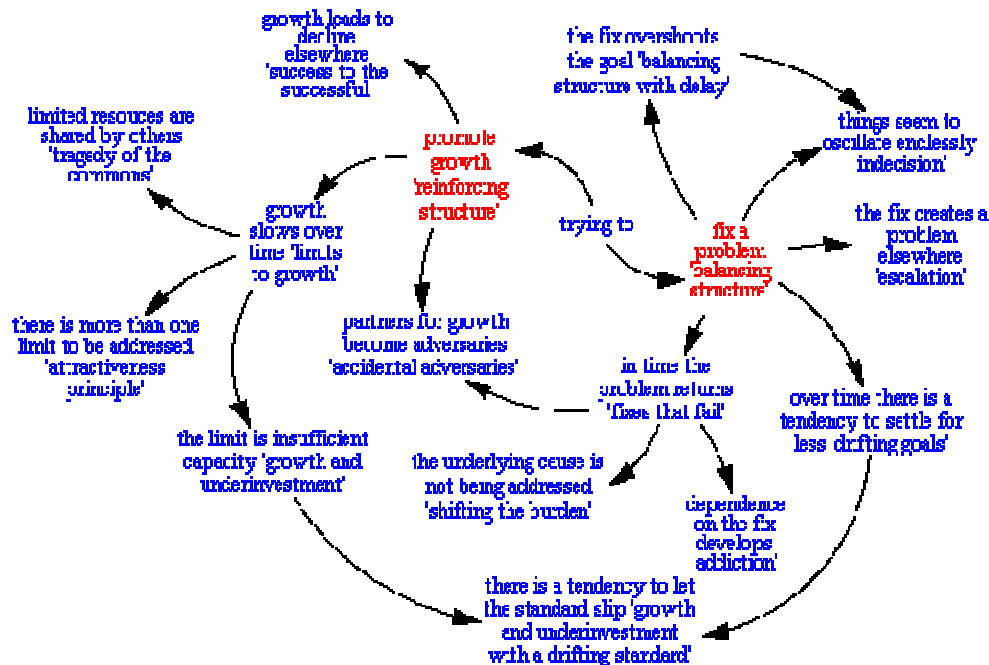


Figure 3.1: System Archetypes evolving relationships (adapted from <http://www.systems-thinking.org/>)

On the other hand, Greenwood and Hinings (1993, 1999) introduced the concept of *design archetype* as “a common set of structures and systems of decision making that reflects a single interpretation scheme”, which “shapes prevailing conceptions of what an organisation should be doing, of how it should be doing it and how it should be judged” (Greenwood and Hinings 1993). They claim that the structure and practices in an organisation both influence and get shaped by the deeper and values and beliefs that are shared among its members. They suggested that large-scale, frame-breaking change involves the movement from one archetype to another. Using this concept, they tried to understand the inner mechanism of change, initially in professional organisations, where they distinguished the incremental change within the institutionalized (dominant) archetype from the movement from one archetype to another (Brock, 2006).

But these concepts of ‘archetypes’ have not delivered the expected results, mainly for reasons related to the core characteristics of linear and experts’ thinking, as discussed earlier in subsection 2.2.2. Some of the most characteristic reasons for the gradual erosion of this concept have been:

- the practitioners’ attempts to create and impose integrated models based on the ‘right’ meaning or scope,

- the underlying aspect of rational causality that ignores the pattern-based character of the human perception and behaviour,
- the lack of respect for the informal relations and the disregard of the power gap within the system and
- the dehumanizing of the implicit interactions and participation, considering them as systems per se.

Regarding the difficulties encountered at interventions based on system archetypes, Lane (1998) mentions that among organisation members there was ambiguous judgment whether a new pattern constituted an archetype or not, as well as different interpretations of those generic structures. Fong-Hao Liu and Wen-Jhong Li (2004) add that the strongest point of system archetypes was to deal mostly with explicit problems rather than dealing with implicit ones. The exaggeration in using systemic arrows, boxes and graphs to describe procedures and situations, while parallel narrative was absent, indicates this tendency. Yet, perhaps the real limitation of system archetypes was the intellectual character of system thinking, because many managers do not seem to share the very core phrase of systems thinkers: “we don’t need better solutions; we need better thinking about problems”⁵⁷; eventually it seems that they seek for good solutions and leave the ‘better thinking’ for the consultants. This is something that any new sensemaking tool should take into consideration.

d) Models with archetypal figures

Recently, some management models employing archetypal figures have been developed, mainly in the areas of organisational behaviour, personal development and marketing. They have incorporated many years of experience in their structural elements, which consist of specific archetypal figures. While Senge was interested in procedural and situational archetypes, these models focus mainly on figures and ‘spirits’ that are mostly encountered in organisations or communities.

Although those figures cannot exist in real life in such a pure, extreme degree, they represent the whole spectrum of human characteristics and experience in their principles, each of which symbolizes a package of endeavors, traits and identities; together they compose the total sum of human impulse and drive (Smith, personal communication, June 2007). Three of them are briefly presented below, while more details are given in Appendix 1 (1.2.4 – 1.2.6).

⁵⁷ A phrase attributed to Russell Ackoff (2010).

Carol Pearson (Pearson, 2003) developed *OTCI* (Organisational Team Culture Indicator) that is a model-and-a-tool with archetypes to be used in organisational contexts. The model consists of twelve archetypal figures, each of which has a bright and a dark side, different levels of realisation, lessons to be learned and traps to be overcome/ be avoided. The archetypes' names are compatible with the western business and organisational language, but not necessarily with the various people's cultural patterns; this could possibly lead to a danger of stereotypical use in such contexts. The model also suggests some usual (dominant) pathways for organisational development, which are provided by some questionnaires as diagnostic tools. Yet, the latter possess a linear logic and are subsequently subject to the perils mentioned in the second chapter.

What is interesting here is that Pearson suggested that these archetypes can be categorized based on a 3X4 matrix. On the one hand they relate to four archetypal human needs: a) safety and control; b) belonging and enjoyment; c) Mastery and results; d) learning and self-actualisation. And on the other, they correspond directly to the three major phases of one's life: a) Socialisation (understanding how to fit in the world as it is known), b) Transformation (discovering the potential that lies within and making it become real), and c) Restabilisation (taking full responsibility of one's pathway). The model can be then represented as both a 3 X 4 matrix and a mandala.

Stage / Motivation	Stability/ Control	Belonging/ Enjoyment	Results/ Mastery	Learning/ Identity
Socialisation	Caregiver	Everyone	Hero	Innocent
Transformation	Creator	Lover	Outlaw	Explorer
Restabilisation	Ruler	Jester	Magician	Sage

Table 3.1: OTCI - PMAI archetypes as a 3 X 4 matrix (adopted from <http://www.bsu.edu/classes/magrath/205resources/pearson/pearson.html>)

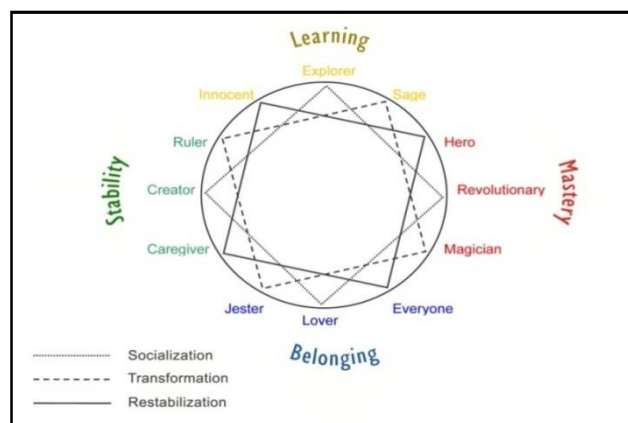


Figure 3.2: OTCI archetypes as a mandala

Bernie Neville and Tim Dalmau (Neville and Dalmau, 2006) developed a 16-fold model that is based on the Olympian Gods and heroes. Instead of classifying abstract objects or use factor analysis, the model employs a set of images that have proved influential for European culture for more than 3.000 years; the Olympian gods. These classic images and the relevant narrative are ‘translated’ into short descriptions of specific attitudes and behaviours (e.g. *Aphrodite*: beauty and pleasure, admire and desire; *Apollo*: rationality, clarity, meaning; *Ares*: challenge, energy, activity etc), which are expressed in a rather neutralized way, as each of these entities possesses both positive and negative aspects, according to the way it is filtered (interpreted) by each person.

DNAI was created as an educational and consulting tool and is questionnaire type. The consultants, after studying the documents of the organisation and conducting interviews with both managers and clients, form groups of employees based on departmental criteria. The participants are asked to answer a 32-statement questionnaire, rating agreement with each statement on a 0-5 scale, according to their ideas of the current workplace and once more for the desired future. With each of the 16 items four descriptors are presented and separately rated, providing a total score range of 0-20 for each archetypal figure. Based on this score they represent the existing organisational culture (actual) and compare it to the desired one (ideal). The model has been tested in Australian organisations with very interesting results, as it was very easy for the participants to make sense of the values of each archetypal figure.

Finally, William Torbert and David Rooke (Torbert, 1999; Rooke and Torbert, 2005) based their model on the assumption that leaders are differentiated not by their personality or style, but by way they react when their strength or security is challenged. Thus, they designed a model that introduced several archetypal figures, such as: opportunist, diplomat, achiever, magician, etc. They set the characteristics and strengths of each one and related them to the organisational context they best fit; e.g. investments, incorporation, productivity, and collaboration correspondingly) as well as to the challenges they best meet. It should be noted that most of the figures are related to the stages of a transformation methodology, known as Developmental Action Inquiry, which is used to indicate the existing action logic(s) within a given organisation. However, some of these elements have been added to or removed from the different versions of the model over time.

The main limitation of the tools discussed above is that, although as models they are very insightful, as tools they leave limited space for emergent properties on behalf of the participants. Moreover, as the classification of the qualities of ‘archetypes’ is in most cases

preset and non-contextual, their terminology needs to be adopted by the users in its right meaning and thus, their implementation could be impeded by their non-correspondence of the preset types to the organisational reality. Therefore, well-experienced facilitators are needed for the process that should first have to make sense of the context. Furthermore, some of these instruments are focused mainly on the 'positive' or the 'right' expression of an archetypal way of being or operating. In this way, there will be always the peril of gaming or over-simplification of the 'dark side' of the organisation or community. But most of all, these models can hardly deliver the complex, ambiguous and contradictory character of the real archetypes and the humans.

e) Contextual archetypes

On the other hand, Snowden (2001; 2002b) insists that the organisational archetypes should be contextual and not universal. He emphasizes that the 'archetypes' he deals with are non-Jungian but strictly contextual, emergent properties of the discourse within an organisation at all levels of it. Although he focuses mostly on archetypal *characters*, he also deals with *situations*, *values* and *themes*. He argues that such 'archetypes' can be used as a means for taping tacit knowledge, understanding customers, representing the existing culture, or even bringing two different ones, designing role plays or lessons-learnt programs. Thus, they can be of help in cases of merger and acquisition.

For that, within the framework of Cognitive Edge, a methodology for archetype extraction has been developed, supported by specialized software (Sense Maker), a narrative and archetypes database. As was previously mentioned, the Cognitive Edge approach employs narrative collection techniques from anthropology and involves participant-defined sense-making (see also Figure 2.5). The narrative gathered is processed through a method called *two-stage emergence*. There, collective aspects of the system are extracted from personal sense-making items (SMIs), via repeating clustering and patterning. In this way, archetypal personas are extracted from stories' characters, values from characters' behaviour and themes from subjects; these can inform policy, strategy and direction.

The main advantage of the approach is that the narrative gathered is processed by the participants themselves and not by outsiders, interpreting in a language of experts. This ensures the authentic and contextual character of the outcome. Yet, its main limitations are important:

- The process often gets stuck in endless rounds of processing, as people are often in the attitude to correct others rather to learn from their different viewpoints. This gets harder

when people, as a group, face the interventions made to their initial output from the other groups.

- There is an intense mobility for patterns disruption, which creates a feeling of lack of meaning, as it leaves no space and time for reflection on the output of other groups.
- It is difficult to relate the findings of one case to another, as they are purely contextual. This seems to be a problem in comparing the archetypes of different settings or groups of the same system or of the same setting or group in different time periods.

It seems that an interesting response to the above mentioned limitations could be the use of the archetypal models, due to the stability of their structures and stages, along with the diversity of their content. Some of the most widely known will be discussed in the following section.

3.1.3 Archetypal models

During the last two decades, an increasing amount of research has been dedicated to a detailed study and test of a wide variety of complex adaptive systems in domains other than humans, such as in fluid dynamics, combustion chemistry, biochemistry, meteorology etc. This research aims to design dynamic models, named *archetypal*, which would fairly represent the behaviour of phenomena in these domains (Card, 1996).

When used in human systems, the archetypal models aim to provide paradigms for human behaviour and supply meaning and value to individuals, organisations and societies. Operating as a 'compass' easy to understand and use, they help them confront the ultimate issues of their personal or collective life. This is what all archetypal stories and myths do since the beginning in every society (Eliade, 1996; Campbell, 1949) and for that they will draw our attention in the following paragraphs.

a) Basic characteristics and types

An archetypal model comprises certain 'images' through which people are connected with the collective unconsciousness, as well as patterns of behaviour that repeat over and over, even if the details are different in each case. Like a theatrical play that keeps the story, while the protagonists, the costumes and (perhaps) the language change each time it is played in a new location. As long its plot and characters make sense to all, the message is received. Likewise, each time an archetypal story or image is told, thought or represented it adds meaning to the exact data (facts) of a specific event; especially when the teller or the

spectator are in-far-from-(rational)-equilibrium state and closer to the collective unconscious.

Therefore, an archetypal story and model has to meet at least three requirements (Roesler, 2006):

- to possess patterns that endure in time and follow a typical example within a given context, while in parallel enable implicit meaning to be added to specific facts,
- to permit a holistic approach beyond factual analysis, looking for beliefs, values and ideas, not only structures and data, thus the synthesis of contradictions and diversity is enabled, and
- to provide space for complementary interpretations, in order to be able to make the best of powerful metaphors and insights that will be employed.

Moreover, the elements it consists of, should make sense to *all*, more or less in a *common* way within a specific context; the goal, its protagonist and the other characters, its plot and the turning points and its ‘treasure’ should be drawn from the system’s collective memory, either conscious or unconscious.

Although its structure and stages are pretty much alike over time and place, the archetypal model does not operate in a mass or stereotypical way; it is neither a statistical nor a deterministic model. Instead, it allows different interpretations and deeply accepts the individuals’ right for free will and choice. Through their choices, the ‘heroes’ can either confirm an existing pathway or shape a new one. These decisions are added to a knowledge-reservoir, full of experience, value and truth, verified over thousands of years.

A most usual and significant danger in understanding the core character of such a model is to consider that it is based on a rather predetermined pathway, either simplistic (the user is obliged to accomplish tasks in a linear way) or complicated (the user has to follow tree-like alternatives that lead to calculated scoring based on preset algorithms). This is the way that most of such models or games are designed, but in their case poor space is left for human intervention. Furthermore, there is no room to ‘stock’ and share the ideas and the experience emerged during each time it was run.

Instead, it is necessary to try to see it more as a dynamic *pattern* (e.g. a map of a fairy tale), on which alternative *choices* can be discussed and made, either the expected ones or others unexpected, thus verifying or enriching the existing matrix of probability rules. In such a way, the archetypal model will operate as a ‘compass’, enabling the navigation of the

individual or the system through transition times. Therefore, its users should be aware of these traps of linear (Aristotelian) thinking.

Moreover, they should cultivate skills in order to avoid them. Such skills include: the absence of judgment, rushed interpretation or bias; the ability to tolerate fuzziness, non-attach to authenticity or control and synthesize opposite notions; the ability to acknowledge and seek for the invisible but substantial ties among people; and finally, to give space and time for the emergence of patterns corresponding to the (archetypal) laws that rule the system's behaviour (Michiotis and Cronin, 2011b).

This is closer to a holistic perspective and facilitates the understanding of the system's complexity. Thus, the model can operate as a dynamic guiding map or a matrix of probability rules, indicating which pattern is feasible or possible and which is out of the beaten track or difficult to succeed (Pearson, 1998; Matthews, 2002).

An archetypal model can be either descriptive or transformative; sometimes both. In the first case, it is a typology for the structure and content of a non-linear system or an attempt to model the dynamics of its behaviour; it informs of the system's basic elements and the relationships between them. In a social or organisational context this representation could take the form of the key players and the oppositional or collaborative forces among them or it could represent the system's inherent qualities that are active or waiting to be activated in a given time.

In the second case, it refers to the life stages and the initiation rituals at the thresholds between these. It is about the maturation process of individuals through society and resembles an inner road map, made by people who have already travelled in those areas (Campbell & Moyers, 1988). At the thresholds of such models new perception and behaviour patterns are shaped as the old role fades away or is shaken off and a new one emerges through pain and turbulence.

Some of the most widely and commonly used archetypal models are the *Four Elements*, the *Hero's Journey* template⁵⁸, the *Olympian gods* and the *Zodiac Circle*. In the following paragraphs, after a brief synopsis of the Four Elements, some typical examples of 12-fold archetypal models will be discussed.

⁵⁸ More details in Appendix 1 (1.2.7)

b) The Four Elements

The discovery of the four elements is generally credited to Empedocles, a fifth century BC Greek philosopher. He considered them as principles, calling them *roots* rather than elements. Many philosophers (Heraclitus, Pythagoras, Aristotle, Neo-Platonists, and Gnosticisms etc) have used this set of archetypal elements and developed sets of principles and relations between them. Kingsley (1994; 1995) provides information on this basic framework (called *Tetrasomia* or Doctrine of the Four Elements), underlying many spiritual traditions. During the Medieval Times and the Renaissance the classic 4-fold system was related to Hippocrates' four temperaments of human personality (sanguine, choleric, melancholic and phlegmatic).

Jungian psychology (Jung, 1939) views the Elements (just like the polytheistic Gods) as archetypes, since they are structures in the collective unconscious, universal (present in all people) and beyond complete descriptive analysis (they are rather experienced than understood). The elements were related⁵⁹ to the four psychological functions⁵⁹ as follows: *sensation* relates to *earth*, *feeling* to *water*, *thinking* to *air/wind*, and *intuition* to *fire*.

The Four Elements model can be used as framework because it represents different aspects of reality, which have been added to the initial literal meaning by being used for many years as a means to categorize and understand human attitude and behaviour in analogy to the nature. In this way, it can be used as a metaphor as well (Hamlyn, 1983; University of Tennessee, 1998). The qualities related to each of the four elements are the following:

- *Earth* symbolizes practical sense, safety and stability, differences, order, inertia, resistance to change, rigidity, gravity, division, classification and taxonomy, value to data, facts and results, as well as to material forms and structures in which the 'real world' (as perceived by the five senses) manifests, the guarding attitude etc.
- *Water* symbolizes relation, connection, penetration, cohesion, complementarity, mediation, flexibility, formative forces, movement, embeddedness of the flow, emotions, inner life and motives, collectivity, depth, unconscious, passions and sensitivity, mutual manifestation, the healing attitude, etc.

⁵⁹ Jung had also positioned the four functions on a cross but in a differently way than that of the Ancient Greeks. Thinking/air was put versus feeling/water, as he claimed that they both perceive reality world in a rational – judgmental way, while sensation/earth was put versus intuition/fire, as they both perceive reality in a non rational, non- judgmental way. The fifth element (aether) was related to Self, the ultimate archetype in the Individuation process.

- *Air* symbolizes whatever is invisible and intangible, a world where thoughts and ideas are freely transmitted, diffusion, expansion, communication, levity, mental models, concepts, new insights, absence of any form, randomness, independence, borderless, reversal, polarity, possibility of manifestation of something new, the visioning attitude etc.
- *Fire* symbolizes will, warmth, radiation and light, action, dynamism, energy, enthusiasm, impulse, creativity, transformation, wholeness, separation without isolation, expanding without dissolving, bridging the outer to the inner, connectedness to potential resources, subtle realities that seek to manifest, the warrior attitude etc.

Moreover, the four elements framework can be an easily used basis for interpreting almost any conceptual 4-fold model, which analyzes or describes the possible situations of a system, phenomenon (Young, 1976). In fact, it can be a control variable for assessing whether a model is balanced or not. The stages of any kind of human activity can be also represented by the four elements as metaphors: to arouse and start something can be represented by the fire metaphor; to nourish it through water; to make it known by air; and to materialize and control it by earth.

Viewed in a different way (sequence), the elements metaphor can also describe many other human processes, such as the process of asking a question or trying to understand something new (Miller, 2008):

- to focus on and make sense of individual / initial facts ‘is’ earth,
- to try to understand their relation, in order to reveal patterns, ‘is’ water,
- to understand the tensions of ‘empty’ spaces in the pattern, drawing need for resolution (and thus highlighting the limitations of the facts) ‘is’ air; and
- to understand the meaning behind the facts and raise the question ‘is’ fire.

While the Elements in isolation are a descriptive system, when in rotation constitute a guide for transformation. The transition from one element to another is made on a peripheral (circular) basis; according to Empedocles, Heraclitus and Aristotle, earth gives way to water, water to air, air to fire and fire back to earth again. This rotation forms a higher-order cyclic pattern, which has to do with the formation of a vortex and the emergence of the fifth element (quintessence) out of it.

c) *Twelve-fold models*

Twelve-fold is a very familiar pattern worldwide that makes sense effortlessly. As we will see further below, its universality is confirmed by the numerous 12-fold models that are encountered in different cultural and religious contexts. Among them is the well known

model of Olympian Gods, consisting of twelve ambiguous characters representing archetypal qualities and can be classified in:

- Six couples of gods and goddesses (*Zeus-Hera, Poseidon-Demeter, Hermes-Athena, Hephaestus-Hestia, Apollo-Artemis/Diana, and Ares/Mars-Aphrodite*), corresponding to complementary masculine and feminine archetypes or
- Four groups of three, corresponding to archetypes of creation (*poiesis*), animation (*empsychosis*), transformation (*harmonisation*) and guarding (*vigilance*).

The same 3 X 4 structure (3 paths X 4 elements) has been adapted by a model introduced by Hazrat Inayat Khan of the Sufism tradition (Centre for Counseling and Psychotherapy Education [CCPE], 2006). According to Khan, there are three roads to spiritual attainment, which, although coming from quite a different point, meet in the end at one junction. The three pathways refer to:

- The *Master*: symbolizes the active and expressive way of power and accomplishment; the path is full of struggles and material and spiritual attainments (the greater the struggle, the greater the power); effects are produced through the rule of hammer, which is used to protect individuals and the world from external threats.
- The *Saint*: symbolizes the passive and receptive way of tolerance, patience, devotion and sacrifice; being merciful and often resigned, leads a life of service to comfort individuals, following a path of gentleness, love, and beauty, but also of self-denial.
- The *Prophet*: the middle path symbolizes the balance and synthesis on a higher order of the other two; he is warrior and peacemaker, master and servant, teacher and pupil at the same time; he is a message bearer (receiver and giver), making this happen by his presence.

The 12 Sufi archetypes can be presented in the form of the following 3X4 matrix, while a more detailed presentation of the qualities of each archetype are given in Appendix 1 (1.2.8).

<i>Paths /</i> Elements	AIR (mind)	FIRE (energy)	WATER (emotion)	EARTH (will)
<i>Master</i> (Expressive)	Scientist- Planner	Achiever	Creator - Artist	Guardian- Sustainer
<i>Prophet</i> (Balanced)	Priest - Spokesman	Knight	Friend - Partner	King - Queen
<i>Saint</i> (Receptive)	Oracle - Researcher	Dervish	Disciple (Follower)	Counselor - Healer

Table 3.2: The 12 Sufis archetypes

Beyond the Olympian gods, Judge (2011) mentions many more 12-fold models, among which are the following:

- *12 Dii Consentes* (Rome): Juno, Vesta, Minerva, Ceres, Diana, Venus, Mars, Mercury, Jupiter, Neptune, Vulcan, Apollo
- *12 Apostles*: Peter, Andrew, James the Greater, James the Lesser, John, Philip, Bartholomew, Matthew, Thomas, Thaddeus, Simon, and Judas Iscariot (or, subsequently, Matthias)
- *12 Imams in Shi'a Islam*: divinely ordained leaders which are a focus of the mystical belief of the Twelvers
- *12 Knights of the Round Table*: Lancelot du Lac, Bors de Ganis, Gawaine, Bedivere, Geraint, Kay, Gareth, Lamorak, Galahad, Percivale, Tristan, Gaheris (George Trevelyan, *Twelve Seats At The Round Table*, 1976)
- *12 Zodiacal signs* according to different traditions (Chinese, Indian, Western)
- *12 Labours of Hercules*
- *12 Tribes of Israel*, notably as speculatively discussed separately (Generic Reframing of the 12 Tribes of Israel, 2009)
- *12 Jyotirlingas* (epitome of God Shiva) in Hindu Shaivism
- *12 sons of Odin*, as the principal Norse god
- *12 sons of the biblical Jacob*, who were the progenitors of the 12 Tribes of Israel
- *12 Orders of Angels* in Christian angelic hierarchy:
- *12-fold Path* of Amritayana Buddhism
- *12 conditions* of dependent arising of enlightenment in Buddhism
- *12 Elementals* of the Sepher Yetzirah
- *12 Principles* of the Baha'i Faith and Anabaptism and
- *12-sphere* closest packing of spheres around a nuclear sphere in Buckminster Fuller *Synergetics*.

Yet, perhaps the most known 12-fold system with archetypes is the *Zodiac Circle*. Symbols always refer to *living realities* that cannot be expressed in any other way; they are used to express what words cannot (Arroyo, 1978). Astrology is a well-known symbolic language, with its roots to date back to the 3rd millennium BC. Since then it has played an important role in the formation of culture, religions, traditions and various disciplines and applications throughout history. Its key factor was/is the desire (and promise) for predictive and divinatory knowledge. Zodiac symbolizes a concentric arrangement of contradictory but reconcilable elements. Like a mandala, it symbolizes the potential of integration, the archetype of the Self (Perry, 2013).

The Zodiac model is constructed on the following building-elements:

- The twelve *Signs* that are usually perceived as personality archetypes, correspond to the way in which each person (or system) expresses its vital energy, under the influence of an external stimulus.
- The *Planets* that correspond to external forces or trends; e.g. identity (Sun), communication (Mercury), competition (Mars), expansion (Jupiter), limitation (Crone), etc and indicate relevant challenges.
- The twelve *Houses* that correspond to the fields of life experience that one seeks to get expressed.
- The *Aspects* that correspond to possible combinations of the above. For example, although dangerous, an unfavorable aspect provides opportunities to understand and learn, while a favorable provides comfort but can also limit awareness.

The twelve signs or stages can be classified as:

- Six *polarities*, comprising crosswise signs with complementary qualities,
- Four *triangles*, consisting of signs of the same element (*fire, earth, air, water*) and
- Three *crosses*, including signs of the same type: a) *impulsive* (centrifugal, able to begin, create), b) *stable* (centripetal, inertial and able to maintain) and c) *mutable* (subject to change, and thus to balance or destroy).

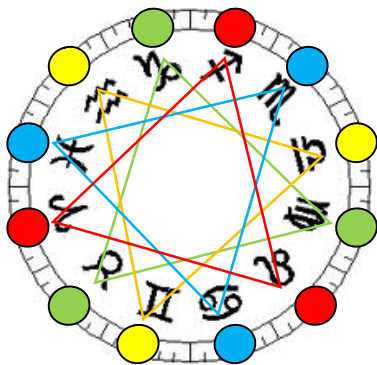


Figure 3.3: Four triangles (fire-earth-air-water)

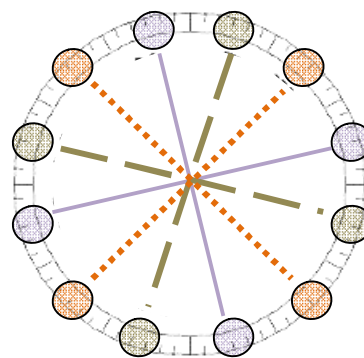


Figure 3.4: Three squares (impulsive-stable-mutable)

The Zodiac can also be seen as a *pathway*, from one stage to another, representing an archetypal journey towards consciousness (individuation) through life trials. Starting from one ‘sign’ and rotating, one can *interpret* the qualities and competencies, related to each stage, into *abstract* notions of various situations. Or one may focus on stages of the transformation pathway, such as the initial impulse, the struggle for establishment, the balance with the environment or the deconstruction of the old forms, in favor of new ones to

be born. Thus, one's interpretations may refer to personality qualities, competencies, pathway steps, fields of activities, etc. As long as one can choose among alternatives, the model remains archetypal. As long as the subject becomes aware of the lessons learnt in 'previous' stages, it can work better with the 'next' ones; thus it goes through the circle once more, but in another level, forming a learning spiral.

In his work, Arthur Young, the designer of Bell Helicopter's first helicopter, has attempted to generalize insights from the control of the flight of a helicopter to what he metaphorically framed as 'psychopter'. In his book *The Geometry of Meaning* (Young, 1976) he introduced the *Measure Formula* model a 3 x 4 matrix, containing twelve physical qualities that were grouped in three classes related to relationships, acts and states, as well as in four different classes related to action, reaction, observation and control. These twelve elements are also placed on the nodes of a regular dodecagon that is inscribed on a circle. The construction of the model is based on the concept of the four-fold and the three-fold operators.

12 Measure Formulae		
<i>Actions</i>	<i>States</i>	<i>Relationships</i>
Position	Moment	Power
Velocity	Momentum	Inertia
Acceleration	Force	Action
Control	Mass control	Work

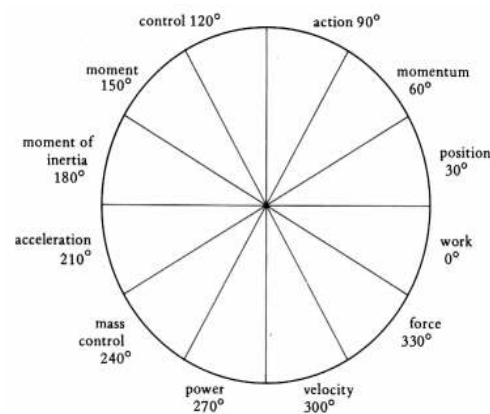


Table 3.3: The Measure Formula (matrix)

Figure 3.5: The Measure Formula (mandala)

(both adopted from Young, 1976)

The four-fold operator is a *descriptive* one that is used to analyze concepts and forms in their fundamental components. It informs of the possible modes of operation and relates to the structure and space. Expressions of the four-fold operator are the four natural elements (air, water, fire and earth), the four psychological operations (thinking, feeling, intuition and sensation), the four personality types or temperaments (sanguine, choleric phlegmatic and melancholic), the four seasons of the year, the four points of horizon etc.

On the other hand, the three-fold operator is a *transformative* one. It indicates the pathway of evolution, the natural way that life goes on (i.e. birth-maturity-death, past-present-future, stimulus-reaction-result, potentiality-actuality-maturity, create-sustain-destroy etc) or even the transcendence of a polarity (i.e. positive-negative-imaginary, black-white-rainbow etc). According to Young, when the four-fold and the three-fold operator are

combined and applied to the ontology of human existence, a new twelve-fold operator is created. This can describe all possible situations of the outer world and sense and categorize (relate with) all data deriving from it. He reached this concept after he noted some similarities between science (physics and mathematics), psychology (personality types), philosophy (Aristotle's causes) and archetypal models (four elements and astrology).

Noting the memorable popular configuration of the Zodiac model, he tried to correspond the tradition pattern with the components of the learning/action cycles, in order to provide a circular (mnemonic) encoding in terms of their psychological implications. His model (Measure Formula) can be used as a multifaceted container, of which the elements correspond to the vocabulary of strategic change management.

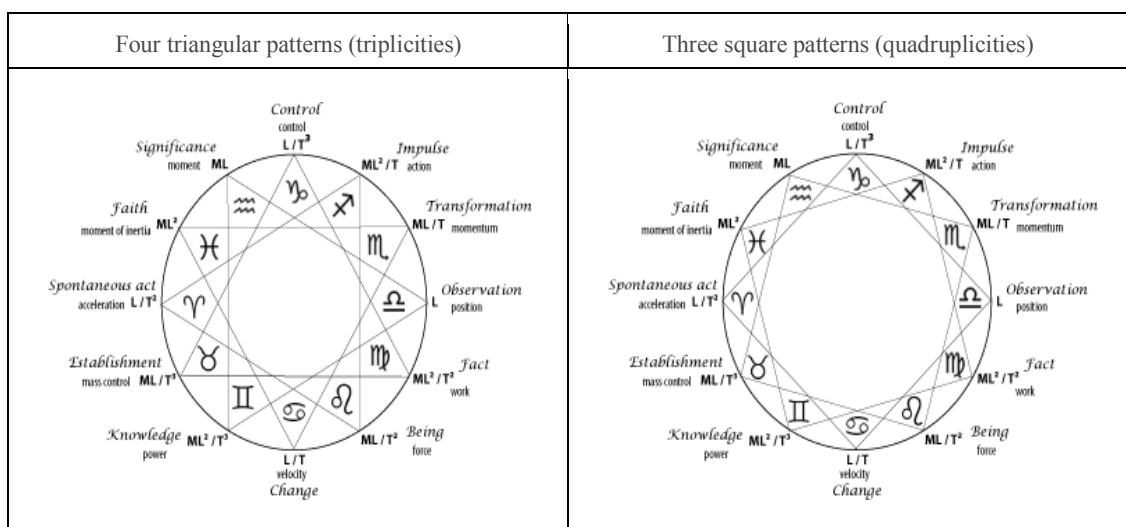


Figure 3.6: Circular configuration of 12 Measure Formulae correlated with the zodiac pattern (adopted from Young, 1976)

As Young (1987) indicated, science and astrology are views of antithetical nature; they face the world (Cosmos) in opposite directions:

- Classic science seeks for laws and regularities of objects that can be applied to classes of them, without regard to their individuality. On the other side, astrology is concerned with individuals; while it makes some use of laws, these laws serve as rules which permit the description of differences having a significant outcome in the life of an individual.
- Moreover, science, dealing with time as linear, searches for general laws and principles and provides a map of spatial (or spatial-like) relationships. On the other hand, astrology, viewing time as cyclic, searches with itineraries unique to individuals, rather than with a general map.
- Finally, the central dogma of science is that the same experiment, when repeated at a different time, will yield the same result; the central dogma of Astrology is that

different experiments made at the same time (i.e. simultaneous births) will yield the same result.

Conclusively, the key that links the archetypal models to complexity is that although they are widely considered as being stable, simplified and deterministic, in the contrary, archetypal models permit subjective, relativist and contextual interpretation of abstract notions or the reality itself. Through the diversity and fuzziness of their elemental components, they are able to bear different and emergent meanings that represent human, organisational and social complexity.

3.2 SENSE MAKING TOOLS

In this section, we extend the literature on sensemaking discussed in the first section of the review where we have seen how meaning emerges and gets shared. Now we will see how it can be represented by particularly considering the contribution of the geometric metaphor in meaning representation and providing examples of the use of geometrical signification templates derived from business and research world.

Furthermore, the main concepts and requirements for the design and evaluation of a sensemaking tool will be presented. More specifically, we will examine: a) the fundamental structural and procedural requirements of such a tool; b) the ones related to its objectives, meaning the capacity and maturity for change; and c) the principles for developing the tool and validating its results, which will enable us to plan the stages of its construction and refinement, and to define the rules of the assessment and validation of the results of its testing.

In this way we will be able to articulate, in the last section, the specifications of the new sensemaking tool so as to be used in complex and transition environments.

3.2.1. Meaning and Geometry

a) Geometrical representation of symbols and concepts

Meaning is a most necessary archetypal component of our psychological existence; in Jung's terms, the archetype of meaning (or spirit) is expressed through the *Wise Old Man* and the *Great Mother* (Fordham, 1953)⁶⁰. According to Jung (1968, 1940) and von Franz (1974), the geometrical schemes are considered as images of the deepest archetypes. It is also true that all the highly developed cultures of the world have used some geometric constructions as their symbols (e.g. the triangular pattern for trinity, the cycle or square mandala, the cross pointing towards the four directions, the interlacing triangles, the sacred hoop, the world tree, or the snake that swallows its own tail).

⁶⁰ Besides acting as archetype, meaning acts as *strange attractor* too. When someone who focuses on something becomes aware of its first level, he can explore into the meaning of what he discovered and thus go on 'zooming' each time deeper and deeper, just like the fractals recreate the original pattern endlessly. And if during this process, meaning enters a certain level of understanding, a certain word or phrase can 'explode' with meaning, liberating new insights. But this cannot happen far away from the 'edge-of-chaos' or else, in conventional conversations or small talk. The efficiency of learning depends on the potential of meanings to lose their stability and undergo creative crises at the edge of chaos, which leads to the emergence of new meanings or the destruction of the old ones. Meanings that rather preserve their stability become dogmas and dogmas impede the emergence of new strange attractor, which results in a gradual lost of meaning (Dimitrov, 2005).

Indeed, across the ages, philosophers and scientists approached the powerful relationship between geometry and meaning. In his work *Timaeus* (Stanford Encyclopedia of Philosophy), Plato presented his cosmology model based on five solids related to the four natural elements (fire, water, air and earth) plus quintessence. His concept was adapted and further researched by Johannes Kepler (Caspar, 2012). Since then, Buckminster Fuller through his work “*Synergetics*” (1975) and Arthur Young in his book “*Geometry of Meaning*” (1976) have, among others, contributed to this relationship.

Recently, the geometry of thinking and meaning has been introduced into the organisational and business context. The geometrical metaphor has been extensively used in the articulation of identity and strategy; simple geometric forms seem to help organisational leaders and strategists structure their thinking and planning (Judge, 2009; Keidel, 1994; 2010). For geometry can enable conceptualisation, visualize emergent properties and explore relationships. The geometrical representation of notions or patterns enables a more participatory sense-making, which corresponds more to the common sense, even sometimes at the expense of accuracy.

b) Geometric signification templates

Keidel (1994) has introduced the Triangular Design Framework based on which, he examines organisations with regards of their blend of autonomy, control and cooperation and then investigates their leadership perception of how they should change (see Figures below).

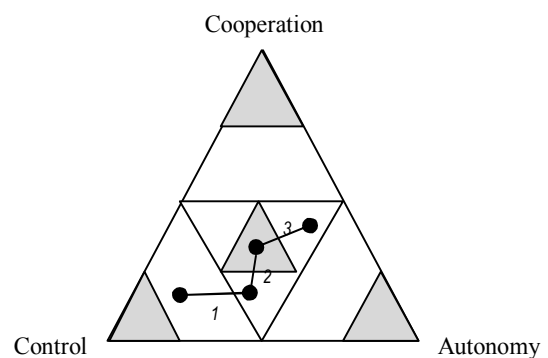
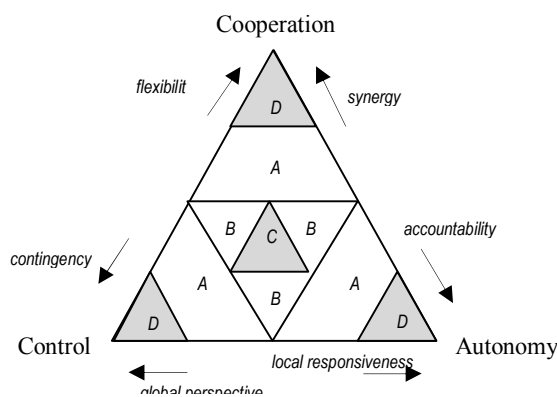


Figure 3.7: Organisational Viability and Vulnerability Figure 3.8: Multiple organisational transitions
(both adopted from Keidel, 1994)

He considers that the viable blends areas for an organisation are “A” (relatively ‘pure’ design) and “B” (2-way hybrid), while the non-viable are “C” (absence of design priorities) and “D” (overemphasis on one valuable). The leadership team examines then where the organisation stands at that moment and where they would like to reach in a desired future

and through conversation the create a change pathway and put its phases on the triangular map, after discussing potential perils and expected outcome of each transition phase.

Moreover, a three-fold concept or a three-fold of alternative modes or choices can be represented by a triangle; the elements or the components of the three-fold correspond to the nodes (vertices) of the triangle, while their relations can be held on the sides. Likewise, a four-fold concept or model can be represented by a square or a four-domain scheme. It should be particularly noted that the latest version of the Sense-Maker, which is a pattern-imprinting tool, follows a three-fold, while the Cynefin model follows a four-fold one (Kurt and Snowden, 2003). In its third version of Sense-Maker tools, the conventional dipoles of choice have been substituted by triangles, within which one's opinion, estimation or viewpoint can be marked; the location is meaningful (see figures below).

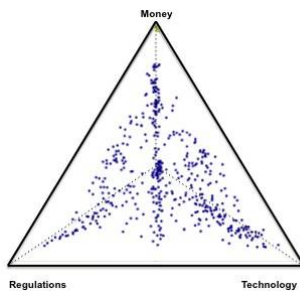


Figure 3.9: Pattern from the use of SenseMaker

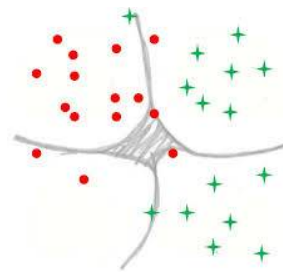


Figure 3.10: Pattern from the use of Cynefin model

(adopted from cognitive-edge.com)

This concept is used in surveys and workshops, in order to imprint where the participants stand with regards to a specific question (issue), the alternative answers or solutions of which correspond and signify the vertices or the domains. The pattern that is created by overlaying the individual responses informs of the collective perception, attitude or will of the examined population. Indeed, if we combine, the pattern of the answers in two different questions then the information becomes more valuable. For example, if the red dots and the green crosses in the above figure represent challenging problems and attempted solutions respectively and each domain represents a different the type of attitude, then the above pattern reveals that in the given context people are trying to solve certain kind of problems with different kind of 'tools'. In other words, no matter what kind the causes of the problems were of, people there were using a different type of skills, which could be most irrelevant for the case. (This is an actual deliverable from a workshop in a large Greek business company.)

In some survey cases that we are interested in imprinting what people need or think about certain issues or how feasible some alternative aspects / solutions are, we can use a three-fold (or four-fold) template, provided that the given alternatives (answers) are explicitly and meaningfully expressed. For example, the questions and alternative answers may be:

- *Which phase of a business company you think it's most important?*
a) creation, b) establishment in the market, c) adaptation to change
- *What kind of entrepreneurship program would you like?*
a) theoretical, b) with case studies, c) hands-on experience
- *What kind of requirements a trainer should have for such programs?*
a) management knowledge, b) experience in business, c) communication skills
- *When does change work better?*
a) influential people support it, b) people's deeper nature is acknowledged, c) efficient mechanisms are available

If someone agrees with one answer, he marks (putting X or \surd) near the corresponding vertex, inside the dark small triangle. If he agrees with two of them, he marks on the relevant white area. If he agrees with all, without being able to choose one, he marks on the dark circle in the center. And in case he finds the question irrelevant or disagrees with all the answers, he marks outside of the triangle.

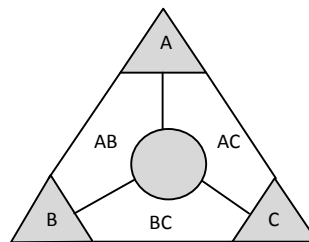


Figure 3.11: A triangular template for quantitative research

Extending further this concept, we could use polygons instead of triangles and thus investigate the relations between more factors of a certain issue or problem. By representing the factors with the nodes of the polygon and their relationships with the diagonals, we could visualize a) the impact of each factor on different groups, time periods etc and b) the most important positive or negative relationships between these factors, as shown in the figure below, where a 12-fold model has been employed.

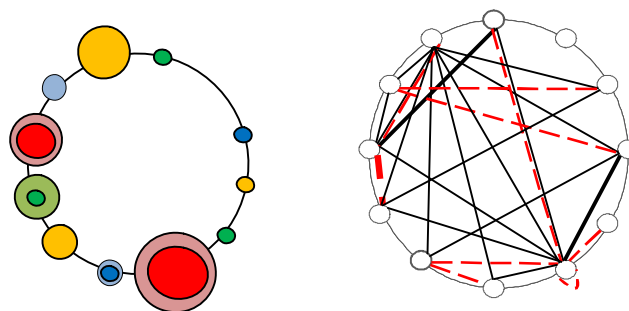


Figure 3.12: Impact and relationships between the factors of a complex problem.

Anthony Judge (2009) explores the combination of geometry, topology and human dynamics in supporting the articulation of identity. Through geometrical forms, especially

12-fold models, he attempts to represent of the relations that exist or may occur between complementary elements of complex problems, such as strategies, dialogue modes or ‘languages’ for sustainable governance, phases in learning-action cycle, etc. For this he groups the 12 elements in pairs (positioned across the circle) or in 3 sets of 4 (one pair mediates the ‘conflict’ of the other) or 4 sets of 3 (to avoid such challenging dynamics) and presents them either through 3X4 matrices or dodecagons, like the following ones. The 12-fold pattern can be then understood a) as a whole (circle or rectangle), b) focusing on 3-fold or 4-fold patterns.⁶¹

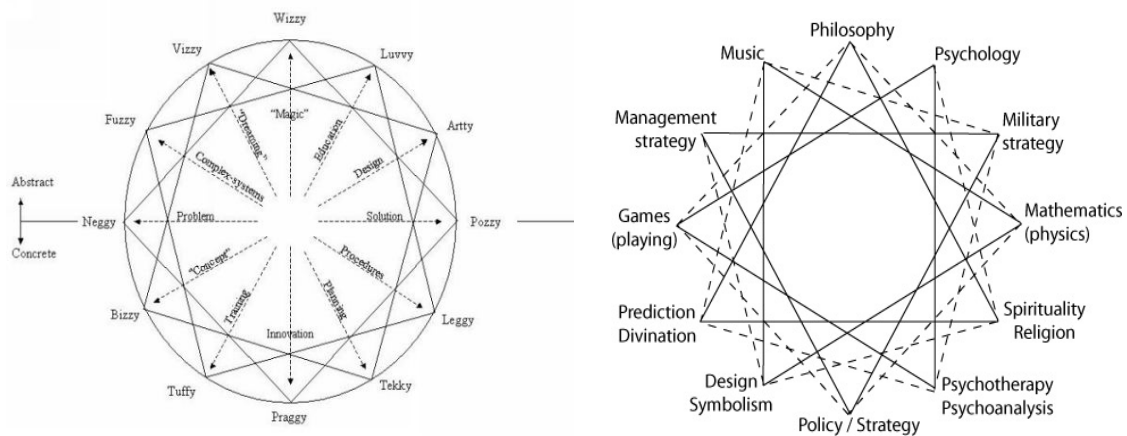


Figure 3.13: 12-folds of Complementary languages (adopted from Judge, 2003; 2009)

3.2.2. Sensemaking tools

a) *Fundamental requirements*

Complexity theorists and practitioners (Mitleton-Kelly, 2011; Tait, 2010) have often indicated that complex social problems appear intractable because they are approached in a linear and simplistic way. They suggest that instead of this, a multi-dimensional approach should be employed that could probably identify the interacting elements of a complex problem space. However, in real world applications, complexity is usually understood in terms of complex adaptive software or adaptive engineering methodologies that would meet (as their designers hope) large-scale commercial needs. Sometimes, this assumption enters the field of social issues and generates the obsession for predicting the future. Quantitative indicators that should be constantly monitored, algorithms that assess the existing status, and scenarios that advise how to impose best solutions calculated by simulations bring forward a rather familiar tapestry; it is familiar because under all this complicatedness it is linear.

In practice, however, on many occasions complex methodologies are conducted in a linear attitude. For example, consultants often pay little attention (if any) to the subtle

⁶¹ Other 3-D signification representation by the aid of solids can be found in Appendix 1 (1.3)

indications that the context is always ready to provide to a willing facilitator. Other times, they are too focused on the deliverable at the end of the process that they miss some crucial issues related to the emotional status of the target group. And often they conceptualize and rationalize almost everything, leaving no space for the real agents to ‘play’ and reflect.

Therefore, instead of seeking for complicated tools and using them in the usual linear attitude, there is an interesting alternative, suggested by Andrew Tait (2010) at the 1st International Workshop on Complexity and Real World Applications: *use linear tools in a non-linear attitude*. Such an idea has two main advantages: First, simple tools are more attractive to people than complicate ones, because people always need to simplify real life procedures. Second, if used properly, they can challenge easier the established assumptions of the target group, as they are considered more trustworthy than any ‘new fad’.

The non-linear attitude means, among others, to look for the subtle or voiceless parts of the system; to allow different interpretations and focus on diversities; to trust the (self-organizing) process and provide time and space for its emergent outcome and most of all, to know that you cannot control or change a complex system but only to disturb or tune it. Within this frame (simple tools, complex attitude), we will discuss in the following paragraphs four kinds of requirements that are needed for the development, test and evaluation of a sensemaking tool: the structural, the procedural, and the ones related to the objectives and the validation of the tool.

Regarding the *structural requirements*, Kurtz (2009), co-creator of the Cynefin model, identifies three main characteristics required for a sensemaking tool has to have before it can be useful. These are:

- a) It must have value-free dimensions. That means that it should not have implicit or explicit value axes, because sense making depends on the self-organizing emergence and not on the straight - forward creation of meaningful patterns. For this, one should be able to obfuscate to switch the directionality of the model.
- b) It must have at least two dimensions. This is necessary for mapping the properties emerged onto a space of resonant meaning, as the topographical maps that contain information about point descriptions. She considers that 3-D tools require more physical preparation, while triangles and pyramids are one-dimensional and thus do not work.
- c) The model should be able to resonate easily with the people who use it. Which means that if the tool’s space does not mean anything to them, the patterns will not mean anything either.

Regarding the *procedural requirements*, Ancona (2012) describes the part of the “4-CAP” leadership framework (taught at the MIT Sloan School of Management) that refers to sensemaking. The sensemaking process consists of three core elements: a) exploring the wider system, b) creating a map of the current situation, and c) acting to change the system to learn more about it. Each element of the process is further broken down into steps, the key points of which is to work with others, to observe what is going on, and to keep prior biases away. These steps - tasks, presented as useful tips, are:

- seek out and combine many types of data; listen to many and different sources; mix computer research with personal interviews,
- involve more people as you can to make sense of anything; through this interaction what you think can only become better,
- move beyond stereotypes; try to feel the particular nuances rather than oversimplifying
- be very sensitive to operations; learn from front-liners, customers and IT; what are the trends for the future; what is behind the trends,
- do not apply your existing framework on a new situation; let the appropriate map emerge as you understand it,
- put the emerging situation into a new framework; use images, metaphors and stories to capture the key elements of the new situation,
- learn from small experiments; if you are not sure how the system works, try again,
- be aware and realize your impact of your own behaviour in creating the environment in which you are working, and
- correct quickly when things go wrong - not if; detect, contain and bounce back from errors.

The *requirements related to the objectives* must answer to the two main difficulties in the intangible assets identified by Kaplan: a) the implicit factors and capabilities that shape the collective perception and behaviour of a system and the degree of their alignment with the leadership vision and b) the readiness of the organisation’s leadership and employees to undergo the necessary cultural changes for this. With regard to this scope, the above factors are related with two notions that are introduced here: the *capacity* and *maturity* for change.

b) The issues of Capacity and Maturity

The term *capacity* (alternatively *potential*) includes *the sum of the qualities, values, skills and inclinations* (hereby also referred as *intangible assets*) *that are inherent in an entity (individual, group, organisation or community) or have been obtained throughout this*

entity's evolution. It is actually whatever is used as a collective set of resources by an organisation or community to face inner or outer challenges that act as stimuli. Challenges and intangible assets are interrelated and interacting. In fact, it is the challenge that activates a part of the system's capacity, which until that time exists in-potential. Some challenges and needs suit more to certain values, skills and qualities available by the system; others do not. While the former can be faced easier by the system, without spending valuable resources, it is the latter that can become more fruitful, leading to valuable experience and enabling the actualisation of hidden potential. However, if improperly treated, they can be very dangerous, leading even to self-destruction. These assets constitute and depict on a collective level "the interior condition on which the success (or failure) of an intervention depends" (Scharmer, 2007, p. 27). This is "the inner place from which we (collectively) operate, the source from which our actions originate" (ibid, p. 7).

Mapping the system's intangible assets shows in which way the forces and needs that operate on a higher-order level resonate within the system. This is considered to be of great importance, as the role and impact of the tangibles are more or less denoted in most cases, while the intangibles, being neglected, interpreted differently or even rejected, remain usually in the 'shadow'. Together, they can depict a larger picture of the current reality and the desired future of the organisation. This can provide more meaning and motivation to the organisation as a whole. In other words, the degree of coherence of the collective capacity informs of the system's ability to make sense of itself and its environment and to adapt to it. However, this map should be contextually expressed, meaning in real personas, real problems and mainly in a language easily understood by everyone in the system.

On the other hand, by the term *maturity* is meant *whatever permits individuals, groups and societies to recognize their problems before trying to confront them*. It is *not* the capability to operate according preset keys, rules and procedures, like traditional assessment tools claim (Curtis, Hefley and Miller, 2009). It is rather the *ability and knowledge to discover the 'keys' needed for the problems and the will to use them*. Actually, it is the way a person (or entity) behaves when encountering an unknown or unsolved situation. It has to do with the space that one makes (or leaves not) for something new when dealing with a challenge that has not been faced before or remains unsurpassed so far. It is *the (leader's) awareness and ability to let go a dominant skill or quality that is non-functional anymore or ineffective for a particular challenge, in order to let in (accept and allow the use of) a more proper one, even if it seems polar to the old*. It is the ability for self-learning and at the same time the commitment to make the steps required towards this. It informs about the 'lessons

learned' so far (by the organisation or the community as a whole), as well as about the openness for the ones yet to be learned.

The 'lesson' is a pattern of meaning that emerges through experience, reflection and conversation. For those who think of evolution as a developmental pathway, in each stage there are specific understandings to become aware of, missions to be accomplished or lessons to be learned, before moving to the next step; indeed, this is the common sense and belief for the 'true' meaning or the word maturity.

Yet, in non-linear systems, lessons are available anytime and in any occasion, according to the existing level of self-awareness and maturity. When such factors are sensitized enough while struggling with a challenge, they could bring a person or a system to a certain energy level that corresponds to a threshold of linearity. Beyond that threshold, a bifurcation can occur in the existing mental patterns and a new understanding (different from the initially aimed) is possible to emerge. Actually, the more experienced and ready one is for such 'discovery' opportunities, the more fruitful the process will be. 'Lessons' usually refer to:

- a) *Operational / personality qualities or skills*, related to targets reaching and obstacles overcoming; relationships guarding and danger or conflict avoiding; knowledge acquiring and ideas expression; facing reality and carrying out duty.
- b) *Developmental stages*, derived from archetypal models of personal development (Hercules' 12 labors), awareness building (12 steps of recovery programs), transformation processes (12 steps in the hero's journey) etc.
- c) *Evolutionary capabilities*, classified in levels and required for introducing particular change initiatives or fields of operation; in this way an organisation can avoid introducing workforce practices that its employees are unprepared to implement effectively (P-CMMi, People Capability Maturity Model) (Curtis, Hefley and Miller, 2009).
- d) *Archetypal challenges or traps*, based on the shadow of archetypes that are described in models, such as the OTCI (Pearson, 2003), the DAI (Rooke and Torbert, 2005) or the DNAI (Neville and Dalmau, 2006).

However, with regard to the scope of this research, a lesson learned exceeds a particular target, stage, challenge or capability. It is a *pattern* of skills, qualities etc that have been verified through experience as the proper way to deal with problems or face challenges. It is the higher-order meaning that comes out of the experience so far. Nevertheless, *the more verified (and thus, the more dominant) a lesson becomes, the more exclusive for new (alternative) learning becomes*. This awareness can help leaders to provide space to the

‘other’ voices within their organisation or community, enrich their fundamental beliefs and, eventually, shift the way they attend the world before attempting to change the world itself.

Thus, imprinting the collective capacity (potential) and maturity for change in a given context can reveal the system’s blind spots (untapped qualities and skills and hidden relations) and help understand the problems before trying to confront them. Nevertheless, making sense of the collective pattern and one’s own role in it is not an easy thing; it cannot be accomplished simply through the use of a tool or a process, even a complex one. It requires certain skills and metaskills on behalf of the change leaders / agents, among which perhaps the most important is the cultivation of a personal awareness. Actually, only if someone recognizes oneself as ‘part of the problem’, as an actor who, by doing or not doing, influences things being the way they are, only then can intervene essentially to the situation (Kahane, 2004).

With regards to the scope of the research and taking into consideration the internal logic of Pearson’s PMAI / OTCI models, previously described, I suggest the following 4-level model for the maturity assessment, which contains a description, a goal, a shadow trap and a task to overcome it. The leadership and the employees of an organisation should be assessed by an instrument based on this model.

Maturity		Shadow	
Level / description	Goal	Trap	Task
0 Not assessed (“we’re good”)	Become aware of assessment	Not interested in assessing	Identify existing skills and learn how to develop them
1 Master the dominant skills (<i>become a hero in your world</i>)	Face challenges and overcome problems by using these skills	Single mindset (strong and coherent culture)	Enrich the collective view, explore new ways of practice
2 Practice alternatively (<i>discover a new world</i>)	Control the dominant spirit / skill	Paralysis (attempt to compromise polarities)	Balance and synthesize the alternatives, move on
3 Learn how to flow (<i>live in two worlds</i>)	Open up new ways, more efficient	Abstraction (concepts of higher-order)	Be practical (develop real world applications)

Table 3.4: Maturity levels and goals, traps and tasks for shadow aspects

c) *Development and validation of a tool*

Finally, with regards to the requirements for a successful development, test and validation of the tool, three models derived from the area of Software Engineering, which are briefly presented below; the Spiral Model, the V-model and the CMM.

The *Spiral Model* (Boehm, 1986) answers the assumptions of the 5-steps *Waterfall model* (Royce, 1970) that possesses a linear and irreversible character (requirements, design, implementation, verification, maintenance). On the other hand, the Spiral Model begins by admitting that in many cases the requirements are not known in advance; they have high-risk implications (to performance, cost, safety, schedule or organisational impacts); their nature changes a lot during development or evolution; they are ambiguous and not compatible with all the key system stakeholders' expectations; and the right way and technology for implementing them are neither well understood in advance nor expertise are available freely. Therefore, the development has to proceed through iterative cycles of analysis, design, test and assessment before reaching the final release.

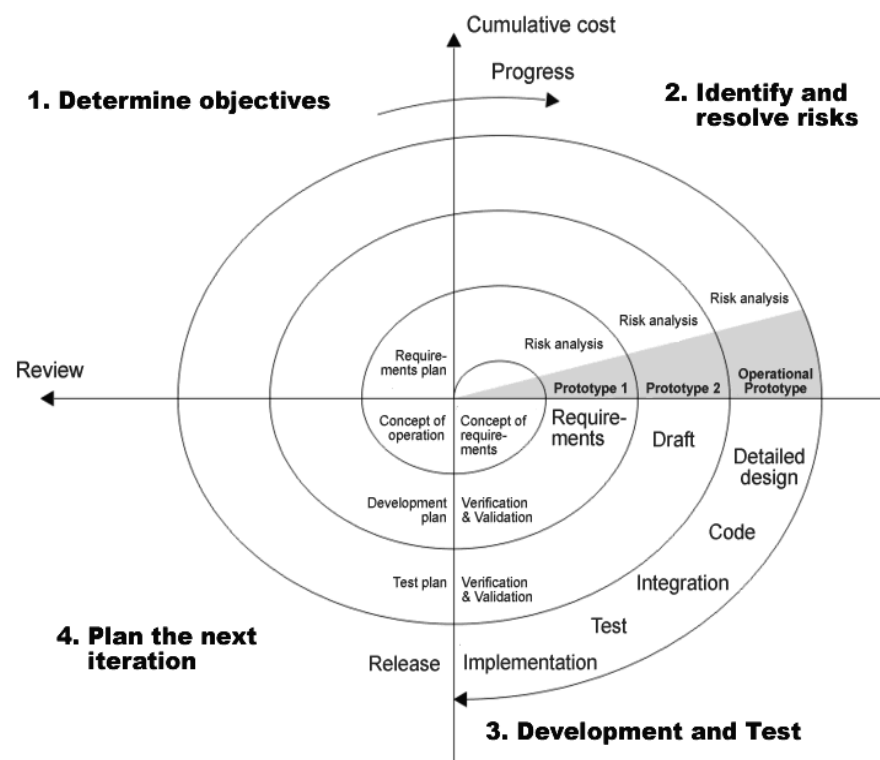


Figure 3.14: The Spiral Model (adopted from Boehm, 1988)

Thus, four basic activities are identified in each cycle of the spiral model: Determine objectives (by evaluating alternatives) - Identify and resolve risks – Develop and test what is so far designed or planned - Obtain approval and commitment to pursue for the next cycle. There are three major cycles: the first is about prototyping requirements, the second about prototyping a draft version and the third concerns an operational prototype and includes a detailed design.

The main concept is that *risk determines the level of effort*, meaning that in each cycle there is a risk analysis step, identifying wasting effort by pursuing options that are unacceptable to key stakeholders, or are too risky to be made.

The *V-model* (Federal Highway Administration [FHWA], 2005) associates development with testing. It describes the main activities to be taken in various levels for systems development and relates them with their results in a project lifecycle and a validation framework. Its left side is *Verification* that represents the decomposition of requirements and creation of specifications, made by the one who makes the system. The right side is *Validation* that represents their integration and is made by the ones(s) using the system. In the middle is *Testing* that goes for both sides, each of which with a different goal and point of view.

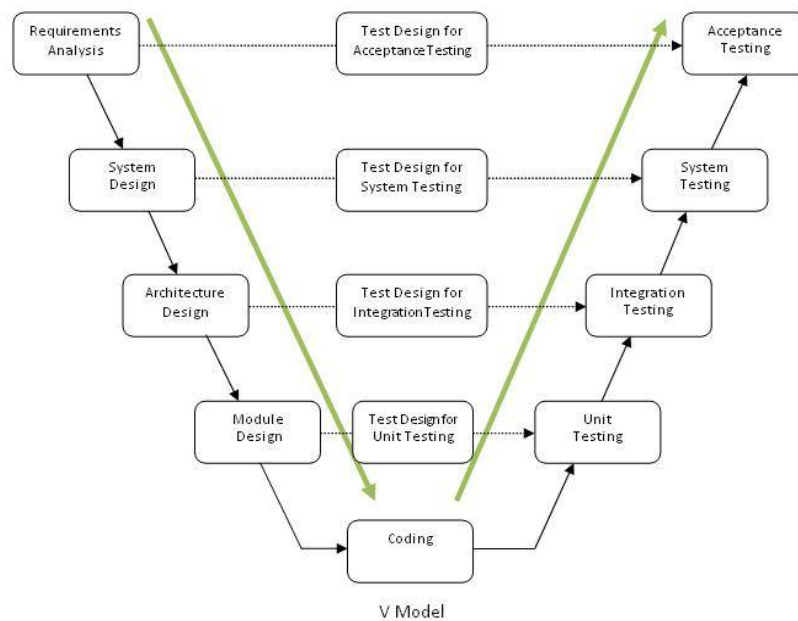


Figure 3.15: The V-Model (adopted from FHWA, 2005)

Thus, verification helps making sure that the tool will be of high quality, but not that it will be useful (*are we building the system right?*). On the other hand, validation ensures that the tool will meet the customer's needs (*are we building the right system?*). The first is an internal process, while the second is external. Some of the main verification and validation techniques are presented below.

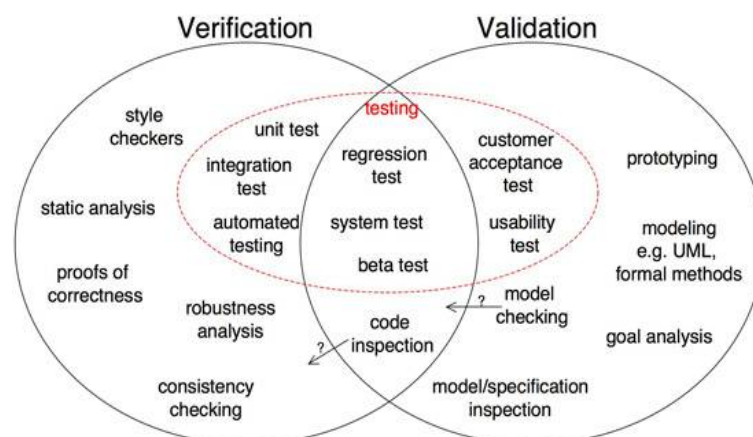


Figure 3.16: V and V techniques (adopted from Easterbook, 2010)

Finally, the CMM, acronym of Capability Maturity Model (Humphrey, 1989), describes the levels of maturation (meaning the formality and optimisation of processes) that can vary from ad hoc practices to formally defined steps, managed result metrics and optimisation of processes. It is a continuum of 5 levels (outlined below), along which process maturity can be developed incrementally, while skipping levels is not feasible or allowed (Curtis et al, 2009). The basic characteristics of each of the 5 levels (*Initial - Repeatable - Defined - Managed - Optimizing*) are presented below:

CMM Levels		Basic Characteristics
Level 1	Initial	At this level, the organization displays ad-hoc, possibly chaotic activity. Project success often depends on individuals; accordingly, the organization depends on outstanding insiders and new hires.
Level 2	Repeatable	At the next level, the organization has established basic management processes along with some documentation (e.g. costs, schedules). Consequently, lessons can be drawn from previous experience.
Level 3	Defined	The organization has documented and standardized all processes. Projects use approved versions of the organization's standards, ensuring an accelerating rate of project success.
Level 4	Managed	At this "quantitative" level, the organization collects detailed measures of processes and product quality, and uses this data to establish controls to ensure appropriate performance.
Level 5	Optimized	At this "qualitative" level, the organization encourages and pilots innovative projects. Feedback from managed processes allows for continuous innovation.

Figure 3.17: Basic characteristics of CMM's levels (Aaron et al, 2004)

The significance of the CMM levels with regards to the development of the sensemaking tool is that it frames the assessment and validation criteria within the *maturity level* of both the context (test bed) and the tool itself. That means that in uncharted contexts or with newly developed tools, the assessment criteria should be better limited in the first two levels.

Taking into consideration the results of the literature review that is concluded here, we can now proceed to the design of a new sense-making tool that will be able to deliver valid information on: a) the implicit factors and capabilities that shape the collective perception and behaviour and the degree of their alignment with the leadership vision and b) the readiness of the organisation's leadership and employees to undergo the necessary cultural changes for this.

3.3 THE CONCEPTUAL MODEL OF THE TOOL

In this last section, the main literature findings are outlined and the specific gap addressed by this research is indicated. The issues addressed refer to the problems in identifying and measuring the intangibles, the limitations of the linear –analytic tools, the strong and weak points of the new complex emergent methods, the compatibility of the archetypes to the strange attractors and the potential contribution of archetypal models, along with the geometric metaphor, and finally, the requirements for constructing, testing and validating a sense making tool.

Thus, in the concluding part of this chapter, the conceptual model of the new sensemaking tool is introduced, along with its fundamental design, structural, operational requirements, and validation principles, in order to ensure the adequacy of the tool for complex and transitional environments.

3.3.1 Literature synopsis and gap

The key findings from the previous sections of the literature review can be summarized as follows.

The intangible assets are of significant importance in current organisations. They possess a complex and collective character and are influenced by the informal organisation and thus, the attempts to develop them have often unpredictable outcome. The main difficulties in managing them are related to the subjectivity of their assessment, the degree of their alignment to the current organisational competencies (*competency gap*) and the company's readiness to undergo the necessary changes in the existing culture towards their accomplishment.

The identification and assessment of the intangibles depend on the implicit factors that create patterns and constitute how people perceive and react to reality in a different way and to what they believe in (social complexity). The problem arises when attempting to introduce an intangible asset the underlying qualities of which are incompatible to the deeper values and beliefs of an organisation or community.

Therefore, it is valuable if leaders and change agents are aware of the implicit qualities and collective priorities that constitute the subtle potential of their organisation, community or system in general, as well as the issues that feed resistance to change. Knowing these, they can make better sense of the context and, thus, choose and prioritize on a safer basis

among contradictory alternatives and avoid some recurrent and sometimes irreversible mistakes that usually activate the system's 'shadow' (its unconscious and neglected side).

However, due to the fundamental assumptions of linearity and the complex, even chaotic, dynamics of higher-order change, the mainstream analytical tools have proved quite poor to work with whatever is tacit and ambiguous. They cannot deliver the non-measurable aspects and implicit qualities of an organisation or the collective priorities and maturity status of a human social system facing a significant change.

Complexity and Chaos seem to explain better the unpredictability of the collective behaviour and imprint how it is shaped by certain dynamic factors, the *strange attractors*. These factors can either act like catalysts and guide the organisation towards the accomplishment of the strategic goal or trigger the resistance to change; knowing their can make all the difference.

Within the frame of Complexity, many useful sense making methods and tools have been developed during the last two decades and are based on the use of dialogue, narrative and metaphor. Their most significant limitation is their inability to relate their outcome to something structured, tangible and meaningful to others and thus, to 'transfer the message'. Limitations also apply on the methods of gathering and processing anecdotes, in order to extract archetypes from them.

On the other hand, archetypes, just like strange attractors, influence deeply what we see, how we interpret it and what we decide to do about it, while at the same time they can bear ambiguity and paradox. Therefore, they could be very helpful in representing the intangible assets and the implicit factors in a given context. Moreover, operating as probability rules, they can indicate feasible journeys of human behaviour, either personal or collective. Yet, some current tools containing archetypes are limited by their typical questionnaire form and the non-complex way they are applied to. Furthermore, some methods aiming to extract archetypes from narrative take a lot of time, often get stuck in their process and, due to their purely contextual character, it is difficult to relate the findings of one case to another.

The archetypal models seem to be able to answer to these limitations, as they can be a typology for the structure, content and relationships of the elements of a complex system on the one hand and a representation of the maturation stages of a human project or an organisation on the other. Their advantage is that while their structure and stages are pretty much alike over time and place, they allow different viewpoints and bear the individuals'

varying interpretations of reality. Therefore, through their choices, people can either confirm an existing pathway or shape a new one and in any case, their decisions will be added to such a knowledge-reservoir that will eventually become full of experience, value and truth.

Finally, the combination of the stability of their structures and stages on the one hand and the diversity of their content on the other generates the idea of using simple geometrical schemes, as signification templates. They can host the different interpretations or decisions made each time and, in general, they can imprint the dynamics of complex behaviours.

The above depict the **gap** that this research aims to address: the development of a sense making tool that would be able to provide sufficient and reliable information on the intangible assets of a human system on the aspects and dynamics of its collective personality and experience. It must be able to function particularly in complex and transitional environments and enable organisations and communities to self-assess their collective capacity and maturity for change. More specifically, the tool is aimed to enable an organisation to:

- Reveal its hidden issues, points where its energy is currently concentrated, as well as the assets that exist in-potentia.
- Reveal the patterns through which intangible issues interrelate and which issues enable or impede their accomplishment.
- Make sense the degree of compatibility of corporate priorities to the organisational culture.
- Estimate the level of difficulty to change the organisation to a desired state and identify possible traps and breakdowns.
- Understand how it responds to external forces and repeating challenges.
- Surface the organisational or community's archetypes in the form of contextual figures or situations and indicate their qualities, along with their 'shadow' aspects.
- Indicate the similarities and differences in the way people in the organisation perceive things and assess their capacity to set and accomplish common goals.
- Estimate the difficulty for the system to change from the current status to the desired one and indicate probable breakdown points.

For this, it should combine archetypal models, complex techniques and simple geometrical schemes and templates. The main concept of such a tool should be: ‘simple tool in a complex attitude’. And its deliverables should address: a) the implicit factors and capabilities that shape the collective perception and behaviour of a system and the degree of their alignment with the leadership vision and b) the readiness of the organisation’s leadership and employees to undergo the necessary cultural changes for this.

3.3.2 Basic characteristics and the Conceptual model of the tool

Based on the conclusions of the Literature Review, the basic characteristics of the conceptual model of the sensemaking tool are presented in the following paragraphs: i) design principles, cornerstones and main assumptions, ii) components and structure, iii) outline of the application process, iv) assessment criteria, v) expected outcome (deliverables) and vi) principles for the validation of its effectiveness.

a) Design principles, cornerstones and main assumptions

The sensemaking tool should meet the following four requirements:

- to relate ephemeral and contextual issues to recurring and archetypal aspects of life;
- to be of a participatory and easy-to-use character;
- to deliver tangible and comprehensive information on intangible assets and ambiguous issues of an organisation or community; and
- to be flexible and accommodate varying content, in order to apply in different cases.

Therefore, the design principles of the structure and the application process of the tool were mainly the following:

- Simplicity: the procedure should be simple and easy for everyone who takes part in it;
- Meaningfulness: the issues raised (stimuli) should be contextual and easily make sense to participants;
- Safety: the questions set should not create a feeling of threat or vulnerability and thus avoid negative or conformist reaction;
- Friendliness: the whole atmosphere should be informal and pleasant and the process should be game-like;
- Real life representation: the process should enable the representation of the dynamics that exist in everyday organisational / community life regarding the relations and interactions between individuals and groups;

- Authenticity: the answers / properties emerging during the process should express authentic feelings or beliefs free from mental processing or influence from external facilitators;
- Emerging character: the process should not permit any ‘go-backs’ or revision of properties that have emerged;
- Prioritizing: the participants should choose their own priorities among the alternatives;
- Dialogue: the process should give spare time to the participants for discussion of the results; it should also give them the chance for further discussion later on;
- Transferability of results: the representation of the results should be evident and make sense, even to non-participants; thus, it could enable the comparison of results among different cases (in time, space, groups);
- Adaptability: the process should be adaptable to various models and different numbers of structural elements, different relations between them and content. If so, it could be characterized as a meta-tool.

Based on the above, the four cornerstones for the development of the sensemaking tool are the following:

- a) *Its structural elements should derive from the theory of archetypes*; for the archetypes:
 - resemble strange attractors, acting as governing factors of collective behaviour; they influence deeply what we see, how we interpret it and what we decide to do;
 - are able to integrate ambiguity and paradox and thus deal with human complexity; they can evoke genuine and diverse interpretations of reality;
 - can be easily understood and their content can be easily contextualized each time;
 - can represent the structural potential of a system (its elements and their relationships) and the dynamics of its maturation process (stages, thresholds and initiation rituals); and thus,
 - can store the collective experience in knowledge repositories and indicate feasible change pathways.

- b) *Its process should employ complex facilitation techniques* that:
 - enable the emergence of the deeper perceptions of the participants;
 - collective properties;
 - enable engagement during the process and acceptance of the outcome;
 - reduce expert’s biases, gaming and social desirability;

- cost less and are easily repeated; and
 - represent both the individual aspects and the collective dynamics that shape the real organisational and social life.
- c) *Simple geometrical templates and schemes* should be used to imprint and represent the emergent patterns, as they:
- help a clear understanding of the relation between the researched issues (core elements) and the emergent properties;
 - visualize the relationships among the emergent properties and thus permit the participants obtain a direct sense of their outcome;
 - imprint evidently any focuses or gaps of attention that exist within the system;
 - are easy-to-understand and hard-to-doubt;
 - make the visualisation of the results easier and enables their conceptualisation.
- d) *The Tool should be modular and of a 'meta' character* that will permit:
- the substitution of other models of different structure;
 - the merging with other tools and the creation of new ad hoc research tools, according to the needs of each case.

There are two main assumptions on which the structure and the process of the tool are based. First, it is assumed that complex situations and problems exist because people are complex and their dynamics (hidden or not) are difficult to grasp and understand in advance and through predetermined frames; especially by outsider experts who miss crucial details of the context (Michiotis, et al, 2010). Thus, the process prompts the participants to act, keeping in mind their individuality in the whole context; this helps them see how they engage with an organisational scheme. Assessment of complexity then becomes both a personal and collective thing from within the system.

Second, it is assumed that “when we give people an image, we plug into the large, old part of the brain and we are wired together, not only to individual memories and fantasies but with those of mankind” (Oztel and Hinz, 2001, p. 167). In other words, when people are attracted to a certain archetypal image, phrase, pattern or situation among others, they indirectly indicate an influential archetype (dominant or shadow) in their context and inform of the collective patterns of behaviour within the group they belong to. This occurs because values are attached to symbolic images that attract or repel our attention through chaotic dynamics. The meaning of these symbolic images vastly transcends their content. Actually,

the meaning of a symbol is synonymous to its capacity to generate a dynamic relationship between the one who interprets and that which is discovered.

Therefore, such *archetypal* triggers (e.g. images, phrases and situations) if properly selected by the facilitator(s), can be used as a means for the participants to depict, beyond rational descriptions, sides of their current or desired reality and bring up some unconscious facets, needs, intentions or feelings generated by it. Moreover, by spontaneously expressing an archetypal image or phrase in contextual terms (of their own reality), people provide the elements for a meaningful language, through which messages can be communicated effectively within the specific context.

Thus, through this combination of archetypes with self-organized and emergent techniques, different interpretations of reality can be expressed in a spontaneous and unaffected way and the main factors of system's complexity can be imprinted.

At this point geometrical templates and schemes are used to organize the emergent properties and visualize the patterns of their relationships. As choices are added over time or location on this map, one can see i) how the system collectively perceives reality and therefore what is capable for and ii) which action-journey is feasible or possible and which is out of the beaten track or difficult.

b) Components and Structure of the Tool

Based on the above, an initial model of the methodological tool was created (Michiotis et al, 2010; Michiotis and Cronin, 2011a), which consisted of:

- i) A number of *elements* that constitute the nodes of a regular polygon, the content of which can be organized into an AxB matrix. These elements represent:
 - The intangible assets of the system's capacity and correspond to the potential ways a system responds when challenged.
 - The fields of experience from (on) which this capacity is acquired (applied).
- ii) A number of *stimuli* representing fundamental needs, forces or challenges, which are encountered in the organisational context (e.g. identity, creativity, learning, risk, success, communication, stability, expansion or competition); through their confrontation the collective personality (culture) of the system is shaped. For the needs of each case study, one of them is referential and sets the questions to be asked.

iii) A *databank* of archetypal images, phrases, situations, and patterns that will be used during the process. Symbolic images, to which values are usually attached, enable the expression of attraction or repulse towards reality or a possible future. The selection of the specific images was based on the archetypal meaning of the four natural elements and their correspondence to the major characteristics of human personality. On the other hand, archetypal situations usually demand particular skills to be employed, in order one to deal with them. The selection of the specific situations is based on the life cycle of what is encountered in nature and human deeds.

Although the tool should not relate to a particular kind of polygon, meaning it could support different numbers of elements, for reasons of testing it, a specific 12-fold model was employed for two main reasons: a) number twelve makes sense easily because of its familiarity and b) it provides a meaningful classification base. More specifically,

a) Many people are very familiar of the 12-fold pattern, as it is very common in many and various aspects in their life, such as: the 12 months, the 2x12 hours per day, and the 2x12 meridians of the earth and, as discussed in the literature review, this pattern it is also addressed as an integral symbol in many faiths, religions, mythologies or traditions world-wide.

b) The 12 elements can be generally classified in 4 sets of three (triads) and 3 sets of four (tetrads). This kind of classification is very simple (but not simplistic) as it can lead to clear and easy to grasp relations among the elements. In this way, a 3x4 matrix could be constructed, which would underlie the contextualisation of the elements, following Young's (1976) *Measure Formula*, discussed in the literature review. According to that, each tetrad (corresponding to Young's 4-fold operator) informs of and describes all possible modes of structure or operation, such as psychological, temperament, actions, states of relations, natural elements. The triad (corresponding to Young's 3-fold operator) indicates a pathway of transformation, e.g. birth–maturity–death; create–sustain–destroy; stimulus–reaction–result; impulse–inertia–balance etc) or even the transcendence of a polarity or a conflict (i.e. black–white-rainbow). Each triad represents a pathway that leads from potentiality to actuality, then to knowledge (kind of maturity) and from there to (a new) potentiality again.

According to Young, if combined, these two ways of classification can describe all possible situations that correspond to the ways that the fundamental components can express or evolve. Although this concept seems deterministic, it is used only as a framework to stimulate emergence. The twelve archetypal elements of the tool can be also viewed as representing twelve evolutionary stages that require proper skills to be accomplished and

eventually shape a full circle; such an interpretation can make sense among many people easily. Thus, when the participants choose the elements of their desire, they reveal through their choices some of the existing or in-potentia collective patterns. Two indicative examples of classification of a 12-fold tool are presented in the following figures and tables that refer to intangible assets and fields of experience.

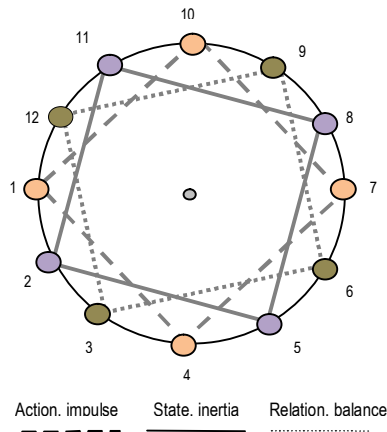


Figure 3.18: Three sets of four (tetrads)

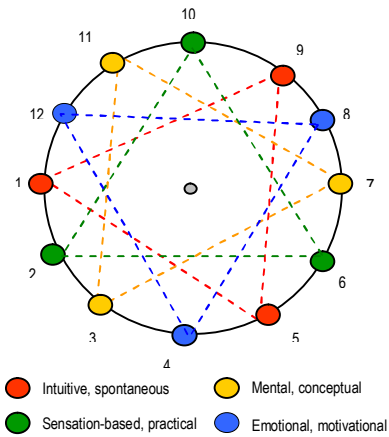


Figure 3.19: Four sets of three (triads)

3-fold / 4-fold	Intuitive, spontaneous	Sensation-based, practical	Mental, conceptual	Emotional, motivational
Action, impulse				
State, inertia				
Relation, balance				

Table 3.5: An example 3x4 matrix of potential (aiming to reveal values and qualities)

Element	Archetypal situations
1	Initiation
2	Formation
3	Communication
4	Breeding
5	Establishment
6	Support

Element	Archetypal situations
7	Balance
8	Experience
9	Targeting
10	Organisation
11	Contestation
12	Transcendence

Table 3.6: An example list of archetypal situations (aiming to reveal skills)

The initial idea was that the assessment of the collective capacity would be provided by the matrix while of the collective maturity by the 12 situations. However, as it will be described further on, that concept was changed at the stage of the Tool-Prototype.

c) *Process outline*

The application of the sense making tool was designed to be carried out in phases (Michiotis et al, 2010; Michiotis and Cronin, 2011a). At first there were some preparatory actions (e.g. conversations or narrative gathering) that aimed to contextualize the sets of archetypal phrases, images, stages and situations, which were derived from the Databank and represent the elements of the tool. A set of those stimuli was presented to some members of the target population who were asked to express in their own words what they see or read. From their answers, a contextually better description of the twelve elements was created, to be used in the following phases. Alternatively, this preparatory phase could be carried out as an initial step of the next one.

The main idea of the process was a circle that began with individual participants, then moved to groups and finally ended to the management or leaders' team. It was a circle of perception representing the way in which the individual members of an organisation or a community continuously bring their assumptions into their system; then how they 'negotiate' them through their relation to the others; and eventually, by the end of the day, how the management or leadership handles any new information (see figure below).

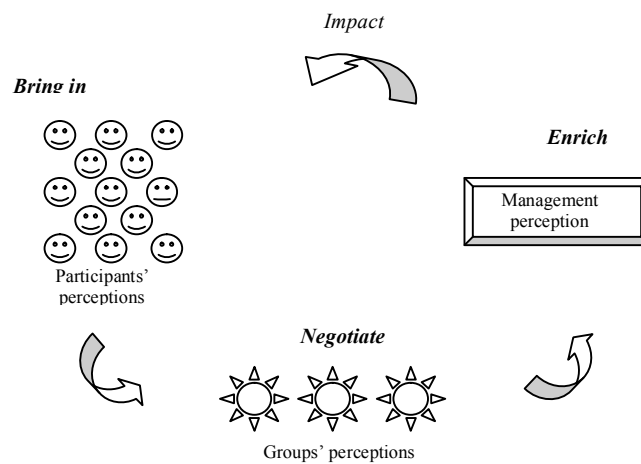


Figure 3.20: The circular concept of perception enrichment

During the data collection, the participants would form groups, based on various criteria and according to the research goals; such as management vs. staff, different regions or divisions of the organisation or different categories of stakeholders. Each participant would personally express how he/she perceived reality and change to a desired future, as well as which were the collective competencies or weak points of the system.

This would be done by: i) writing down (in post-its) the values, emotions, obstacles, skills or deficits that emerged due to the impact caused to him/her by certain stimuli, ii) putting the

post-its next to the relevant stimuli and discussing the collective pattern within the group, and iii) combining some of the emerged properties into complexes and figures (that characterized the specific context) along with the others in the group. In this way, personal perceptions would create emerged properties related to the elements; and out of them collective patterns and entities would be synthesized.

Next, during the assessment phase, this data was compared to the outcome of other groups, seeking for similarities, differences and complementarities. Overlapping such data, new information about the organisation could be extracted. In the final phase, a report was prepared by the researcher, aiming to include and highlight all findings and encourage the leadership team to discuss the findings; the shadow aspects, the hidden potential, the gaps in experience or the inconsistencies between corporate and organisational culture.

The main steps and the outcomes of the data collection phase are presented below in the form of instructions for the participants (see Figure below):

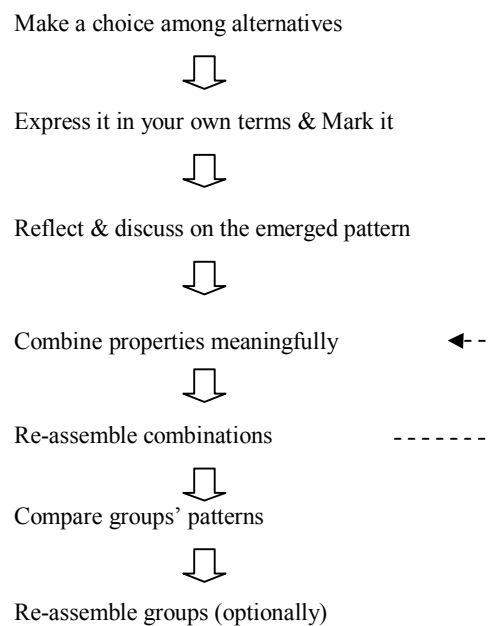


Figure 3.21: The steps of the initial process

- i) choose a few images or phrases (up to 3 or 4) from a given set of 12, based on what makes sense to you within the given context and the issue under discussion,
- ii) express your choices in contextual words and mark them around the 12-fold template that is on your table,

- iii) reflect and discuss with your colleagues on the resulting collective pattern of choices; the influence of each element is related to the distribution of the overall choices around the ‘wheel’ and the frequency of the classes (squares and triads),
- iv) relate any three of the emerged properties in combinations meaningful in your context and indicate the dominant element (node); the *relations* created among the qualities show which ones can *really* work together, even if it is not consciously accepted / stated; (thus, some blind spots could be delivered),
- v) re-assemble under conditions the existing combinations with other properties emerged, thus delivering the group’s collective figures (personas),
- vi) compare the results of different groups, by using the World Café method; this can be very easy due to the visibility of the final geometrical patterns
- vii) and finally (optionally), reassemble your group with members from other groups, in order to explore possible new combinations.

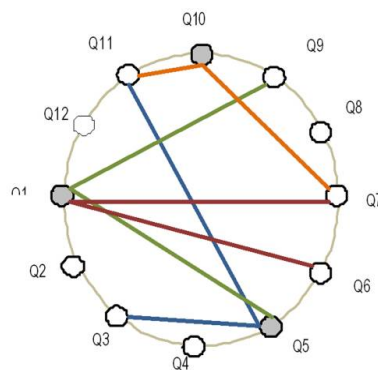
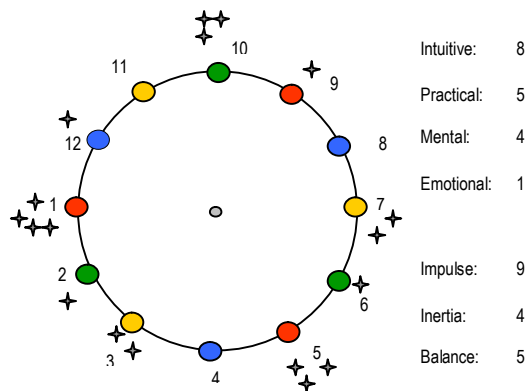


Figure 3.22: An example pattern of choices and its distribution

Figure 3.23: An example pattern of connections

In this way, starting from personal stereotypes (step ‘a’), through discussion and collective work, the participants could form the group’s stereotypes (step ‘e’) and from there the organisational archetypes (step ‘g’), as shown in the next figure.

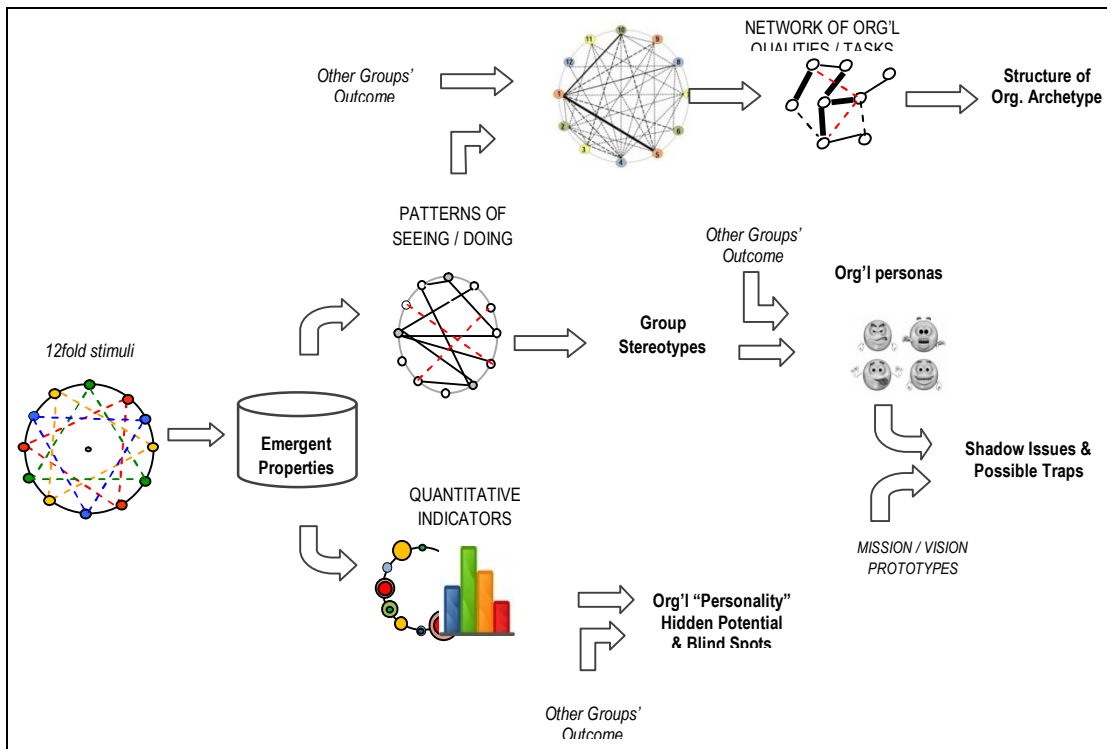


Figure 3.24: visualisation of the process in conceptual terms

d) *Assessment criteria*

Following the generation of group collective personas (Step e), groups would be asked to compare their own results with others' using a few simple criteria, like:

- i) the elements of the model (nodes of the dodecagon) regarding the number of qualities related to them and of triangles including them; the lack of related properties (gaps in collective personality or experience), the coherence of meaning of the related properties, their association to the present or future, and the number of times the 3-fold / 4-fold classifications had been selected.
- ii) the emerged properties (qualities, skills and obstacles) regarding the frequency of their emergence; their placement (around one or more nodes); their compatibility to the mainstream or corporate culture; their relation to present or future (manifested or in-potentia state), and their single or 'double' identity (as both a quality/skill and obstacle).
- iii) the complexes of the combined elements / properties regarding the inclusion of influential properties and the classification of the selected elements; the variety of the elements' classes; and the similarities and differences among the groups.

However, the complete assessment would be a task for the researcher to be carried out after the workshop, based on the frame presented in the following Table:

Goals (what I search)	Criteria (what I examine)	Rules (how I measure)
Influence & role of the elements (I.A) and their categories in the given context	frequency of selection	times of selection
	connectivity to other elements	centrality (SNA)
	density of relationships	criticality (SNA)
Status of the elements (I.A)	if selected in the present (manifested)	times of selection (dominant - marginal)
	if selected in the future (in-potentia)	times of selection (strong - weak potential)
	if not selected (absent)	(possible blind spot)
Signification of elements(I.A) attributed from participants	coherence of meaning of the related properties	similar / different meaning (clarity – diversity)
Compatibility of the elements (I.A) to the organisational culture	positive properties associated	number of properties
	negative properties associated	number of properties
	no properties associated	(indifference / blind spot)
Influence & role of the properties emerged in the given context	frequency of emergence	times of emergence
	frequency of participation on complexes	centrality - criticality
Status of the properties	if emerged in the present (manifested)	times of selection (dominant - marginal)
	if emerged in the future (in-potentia)	times of selection (strong - weak potential)
	if not emerged	(absent)
Clarity of meaning of the influential properties	If identified either as quality / skill or as obstacle / deficit	(single view)
	If identified as both	(ambiguity)
Compatibility of the corporate / mainstream culture to the organisational / local	Compatibility of the main properties emerged to the corporate vision	Number of properties emerged convergent >> divergent
	Incompatibility of the main properties emerged to the corporate vision	Number of properties emerged convergent << divergent
	Ambiguity	Number of properties emerged convergent ~ divergent
Kind of properties / elements combined	Influential properties	% of participation in complexes
	Classification of elements selected	number of selection / class (dominance-diversity)
Similarities and differences	Common properties / elements	influential properties / elements
	Similarity of relation patterns	similar diagonals

Table 3.7: Assessment criteria of the Conceptual Model

e) Expected outcome

The tool was expected to deliver information regarding:

- The qualities, values and skills and the 4-fold/3-fold classifications used by participants that inform of the collective personality of the system;
- The hidden potential (e.g. unexpressed, untapped or neglected values, qualities and skills) that may exist in potentia among some of the ‘players’;
- The common ground and the differences that exist among the various perceptions of reality and visions for the future;
- The unknown or rejected (‘shadow’) aspects of organisational culture and life and the blind spots, which may lead to holdbacks or even impede the change itself;
- The real organisational personas compared to the corporate prototypes and the group stereotypes;
- The structure of the organisational archetypes; a network made of qualities and skills, which are either dominant or in potentia.

f) Validation principles

The validation principles that were initially set derived mainly from the principles of V-Model (FHWA, 2005) and CMM (SEI, 2001), as well as from other software development and evaluation methods (Rakitin, 2001; Babar et al, 2004; Markopoulos and Panayiotopoulos, 2005). With regards to their scope they could be classified in the following main categories:

- a) The tool and its process should respond to the criticism addressed to the mainstream linear – deterministic tools, as well as to the complex techniques discussed in the Literature Review.
- b) The participants in each case should evaluate the process positively and accept the plausibility of their results, and the stakeholders should value the findings.

Therefore, in order for the results to be valid, it should be verified that the tool and its process meet the design principles; for that:

- The content of the stimuli should be relevant to the issues examined; the stimuli should be expressed in a meaningful but neutral way, permitting the expression of positive or negative interpretations of feelings by the participants.

- The process should be emergent, irreversible and represent both the individual and teamwork part of everyday's activities of the participants.
- The facilitator should not interfere during the process or interpret the results; instead, participants should be encouraged towards self-assessment: find their own way to operate as a team, discuss their own results and compare them to the ones of the other teams.

The above set the frame of the second goal of the research that is the development, test and evaluation of a sense making tool, which will be able to reveal the intangible assets and archetypes of an organisation or community by combining archetypal models, complex emergent techniques and simple geometric templates.

CHAPTER FOUR

RESEARCH METHODOLOGY

Having examined the first research question regarding the appropriateness of complexity in cases of higher order change, **the second goal** of the thesis was addressed; to develop, test and validate a sensemaking tool that would be able to reveal and imprint certain intangible assets and archetypal issues in any given organisation, community or system. The literature review concluded that: a) the tool should be simple but operated in a complex attitude, b) it should combine archetypal models, complex emergent techniques and simple geometrical schemes and templates and c) it should be based on the conceptual model that was earlier introduced. After that the research was carried out in four phases:

- A) **Case Selection and Knowing about:** this phase was carried out three independent times, one for each case study, and aimed to provide the necessary information in order to make sense of (i) the context and the particular issues under research and (ii) the special needs of each case that would be used in the contextualisation of the tool.
- B) **Development of the Tool:** during this phase, the tool was: (i) constructed, pilot tested and finalized as a Tool- Prototype and (ii) contextualized for the needs of the 3 cases.
- C) **Implementation of the Tool:** the tool was then tested in a public organisation, a local community (municipality), and a number of secondary education schools.
- D) **Assessment and Validation:** after each case and according to the standards defined during the second phase, the collected data was assessed and the tool’s effectiveness was validated.

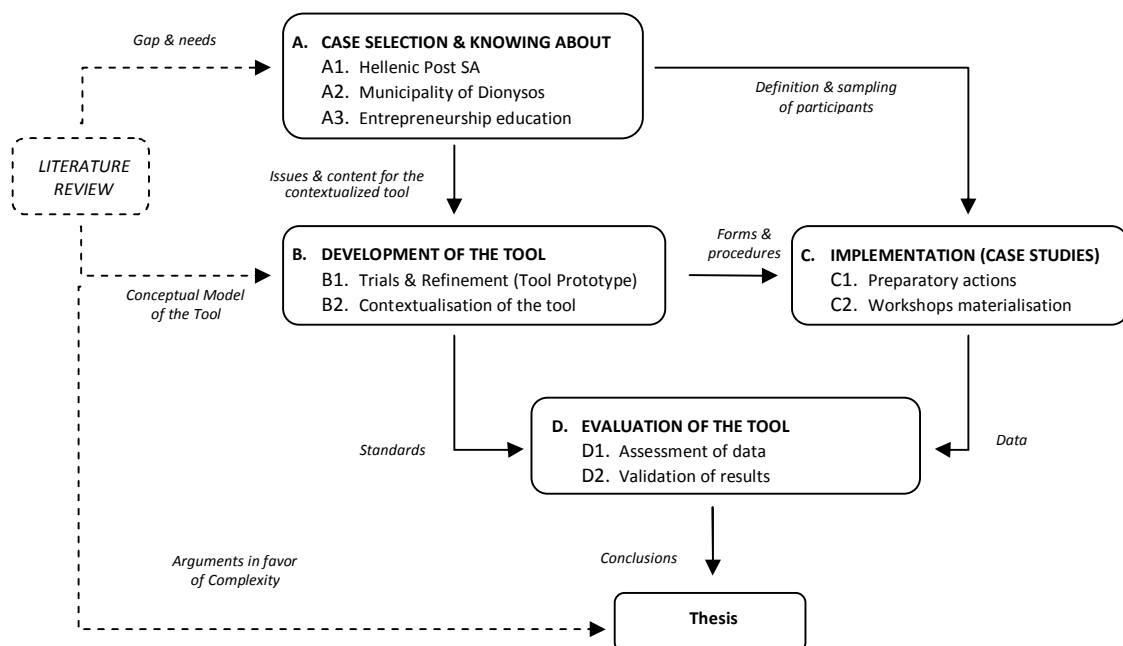


Figure 4.1: The Research Methodology materialisation plan

4.1 EPISTEMOLOGICAL STANCE AND RESEARCH METHODS

The literature suggests that each paradigm⁶² operates using predominantly, though not necessarily exclusively, specific methods; positivism or post-positivism use quantitative methods, while critical theory, interpretivism and constructivism use qualitative ones (Guba and Lincoln, 1994; Naughton et al, 2001; Iosifides, 2003; Mackenzie and Knipe, 2006).

However, “a researcher’s paradigm can be as unique as the researcher herself”.⁶³ Thus, before proceeding to a detailed analysis of what, why, when, by whom and how is going to be done, a researcher has to identify and describe: a) the *epistemological stance* of his/her paradigm and explain its assumptions, and b) the methods to be used in the research (Heath, 1997).

Within this frame and attempting to correlate the characteristics of current research to the established taxonomy, one could claim that (from a rather technical point of view) Pragmatism is its paradigm. This could be claimed due to the diversity of worldviews and assumptions allowed and the multiplicity of methods and forms selected (mainly in mixed methods studies) following the logic of ‘what works better in practice’ (Guba and Lincoln, 1994; Creswell, 2013). Moreover, one could argue in favor of Pragmatism due to the fact that this research has a large variety of methods (mentioned below) and is interested in building a practical tool.

Yet, considering that the theoretical background of the research is most significant than the characteristics of the research methods, I would argue (within the existing taxonomy) in favor of Social Constructivism for the following reasons.

Firstly, because the assumptions of constructivism are very close to the theoretical background of this thesis. As earlier stated (p. 51), social constructivism is very close to the current research and is considered to be one of the various approaches to complexity, along with cognitive complexity and participative complexity (Snowden, 2006), the principles of which are very relevant. For example, the relativity and the transactional character of truth, along with the diversity of the interpretations applied and the subjectivity of the meaning created that characterize constructivism (Berlin, 1987; Guba and Lincoln, 1994; Ratner,

⁶² A paradigm is a perspective, a set of basic beliefs (operating as first principles) that is based on ontological, epistemological, and methodological assumptions (Guba & Lincoln, 1994). The *ontological* assumptions are about the nature of reality (e.g. is it real and objective or constructed through human relationships?), while the *epistemological* are about the relationship between knower and known (e.g. does the knower affect the outcome as little as possible or does (s)he actively construct it with others?) (Guba & Lincoln, 1994). These assumptions are the *Epistemological Stance* of the researcher. On the other hand, *Methodology* usually means the overall approach linked to the paradigm, while *methods* refer to the systematic modes, procedures and tools used for data collection and analysis (McKenzie & Knipe, 2006).

⁶³ <http://isites.harvard.edu/icb/icb.do?keyword=qualitative&pageid=icb.page340910>

2008; Creswell, 2013) have been also discussed and adopted in the second chapter (sections 2.1 and 2.3 of the literature review) and are clearly stated (p. 54) as properties of complexity.

Secondly, because the characteristics of archetypes (as discussed in chapter three, subsection 3.1.1) are in accordance with these assumptions; especially the rationally unreachable essence and meaning of the archetypes, which are understood through their (diverse) interpretations and expressions created by humans is very relevant to the fundamental statement of constructivism: *there is no objective truth to be known* (Hugly and Sayward, 1987:278).

And thirdly, because the implications of social constructivism are in accordance with the fundamental principles of the conceptual model of the tool and the starting and ending points of its application process (third chapter, section 3.3). For example, humans are the primary instrument for data collection; the knower and the known are inseparable; the observation influences what is been seen and the aim is the identification of a joint and contextualized meaning out of the multiple viewpoints that exist (Lincoln and Guba, 1985).

On the other hand, viewed from the methods viewpoint, this research is a *mixed research*, as it involves both quantitative and qualitative methods (Tashakkori and Teddlie, 2003). It could be seen as a *mixed method* research, as it uses qualitative methods in one phase (e.g. interviews in phase 1 for making sense of the context of the cases) and quantitative in the other (e.g. quasi-experiments in phase 3 for data collection and network analysis techniques in phase 4 for data analysis). Yet, I would advocate in favor of the *mixed model* type for two reasons. Firstly, because it mixes both qualitative and quantitative research approaches at the same phase (e.g. in phase 3, both test-like and dialogue based methods are used for data collection; also, in phase 4, simple statistics are used for data analysis, questionnaires for the evaluation of the process and dialogue sessions for the validation of the results). And secondly, the research combines descriptive methods: on the one hand to provide the information, acquired through interviews and documents review, on the case studies' context; and on the other, to describe the quantitative results from the tool's application, through measuring the frequency and average of the findings.

All in all, the methods and techniques used in this mixed research included: a) interviews and dialogue sessions, along with library review and document analysis in the 1st phase, in order to make sense of the major issues of each context, enable the contextualisation of the tool and ensure the proper sampling in each case; b) usability tests for the proof of concept of the tool and system testing in the pilot study of the 2nd phase; c) quasi-experiments with

questionnaire-like tests for data collection in the 3rd phase; and d) numerical descriptions and network analysis for data analysis, along with evaluation questionnaires for the participants and dialogue sessions with the stakeholders for the validation of the results.

The use of the abovementioned methods and techniques for each phase of the research is presented below.

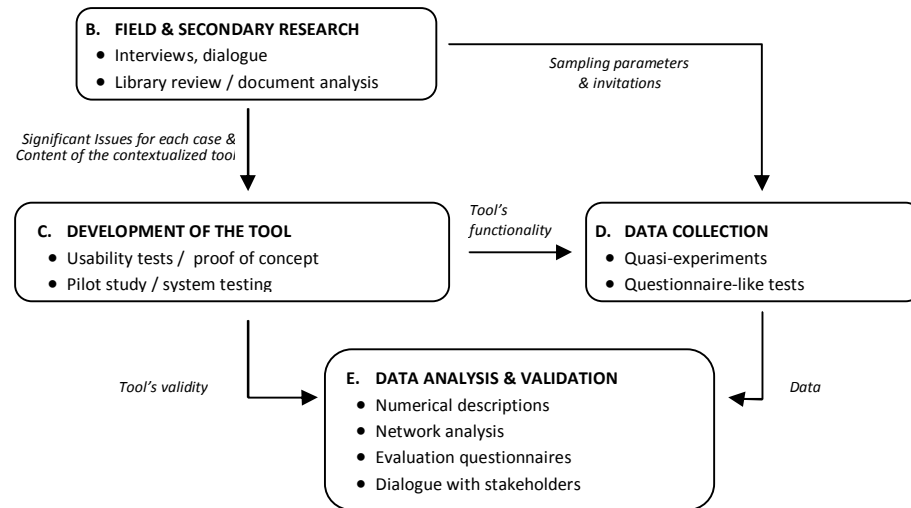


Figure 4.2: The research methods' usage plan

Finally, before the detailed description of the research methodology in the next paragraphs, it should be noted that for methodological reasons, the structure of the research activities is analyzed in three levels: Phases, Work Packages and Tasks. Each Phase consists of Work Packages and further on, each Work Package consists of particular Tasks. The interrelation of Tasks regarding their deliverables is given in the form of a Table at the end of the chapter.

4.2 PHASE A: CASE SELECTION AND KNOWING ABOUT

This phase aimed to select the research test-beds and to acknowledge their context. At first, each case was selected according to certain criteria which were:

- The type and size of the test-bed and target group (e.g. staff from a large organisation, local community's members and system's stakeholders) where the application of the tool should be tested,
- The examined issues (e.g. the compatibility of the staff's needs and culture to the corporate vision or the degree of satisfaction of residents from the provided services) and the deliverables of each case (e.g. factors facilitating or impeding certain goals and organisational, local or social personas) and
- The ability of the tool to co-operate with other models and tools, derived from the areas of complexity and archetypes.

Case	Scope (what to test)	Case's context / Target groups	Issues to be examined
1st	How the tool works in organisations	Public corporation under transition / Mid-level staff	<ul style="list-style-type: none"> • Compatibility of the staff's culture and needs to the corporate vision • Intangible factors that facilitate / impede the company's strategic goals • Profiles of organisational personas
2nd	How it works in local communities	Small municipality before elections / Residents with specific social characteristics	<ul style="list-style-type: none"> • Residents' priorities and (dis)satisfaction of municipal services • Factors that facilitate / impede people to participate in common affairs • Profiles of social / local personas
3rd	How it works with other models	Secondary education schools / Pupils, teachers and administrative staff	<ul style="list-style-type: none"> • Perception factors that facilitate / impede the effectiveness of entrepreneurship education • Main aspects of the existing / desirable profile of entrepreneurs and consumers

Table 4.1: Scope, context and issues under research of each case

Once a case was selected, making sense of its context was done through field and secondary research. More specifically, it was accomplished by interviewing organisational, social or educational stakeholders and change agents and by reviewing reports and other material relevant to the three cases. The interviewees were persons with 'local' knowledge or experience in change initiatives relevant to the challenges faced that time by the organisations or communities that had been selected as test beds. The aim of the secondary research was to make sense of the social or organisational context of the three test beds, as

well as to acknowledge the current priorities and goals and the attainments and failures of previous initiatives.

The data gathered were then evaluated for each case separately and provided information on the overall context and the dominant and weak patterns of each test bed; the strategic goals in each case (viewed from the management / leadership perspective); the recurring patterns and critical issues, as well as the key-players and influential people; the main issues of challenge or conflict that were faced in each setting; and the needs to which the tool should respond in these settings.

That information helped i) the contextualisation of the assets of the Sensemaking Tool, ii) the selection of the issues to be researched in each case, iii) the better sampling of the target groups in the case studies, and iv) the verification of the design principles of the tool set by the literature review.

The work plan of this phase consisted of the following Work Packages and Tasks:

A1. The public corporation “Hellenic Post SA“

A.1.1. Selection of the case study

A.1.2. Interviews and discussions with selected senior and mid staff from the Hellenic Post and its Training Center

A.1.3. Study of the Business plan and corporate reports

A.1.4. Evaluation of the data.

A2. The Municipality of Dionysos

A.2.1. Selection of the case study

A.2.2. Interviews with local government’s officers and consultants and local opinion leaders

A.2.3. Review of evaluation studies on Local Government reformations in Greece; of historical and political data of the municipality; and of local narrative

A.2.4. Evaluation of the data.

A3. The entrepreneurship education programs in Greece

A.3.1. Selection of the case study

A.3.2. Interviews with people that participated in previous entrepreneurship programs in secondary schools of Greece

A.3.3. Review of evaluation reports on the entrepreneurship programs in secondary education

A.3.4. Evaluation of the data.

The research activities of this phase are presented in more details as follows.

4.2.1. The public corporation “Hellenic Post SA” (WP-A1)

The first case study was held at the Hellenic Post SA in late 2011. The Director of the Corporation’s Training Center agreed to utilize the sensemaking tool to help understand the imprint of the structural characteristics of the organisational culture and the assessment of their compatibility with a new corporate orientation and the changes under planning.

In order to make sense of the organisational and corporate context of HP SA, the following tasks were planned and carried out:

- Interviews and discussions with selected senior and mid staff from the Hellenic Post and its Training Center
- Study of the Business plan and official documentation of the company
- Evaluation of the data collected.

Through discussions and collaboration meetings with members of the Top Management team of Hellenic Post, the Director of the Training Center and some other trainers, the corporate vision was understood. Moreover, having access to the business and action plan of the company, as well as to important data of company’s history, the overall status, operating principles, and goals set for the immediate future were made clear. The evaluation of the data enabled the contextualisation of the content of the tool through a) the acknowledgement of the organisational priorities and corporate values and goals and b) the identification of the specific issues faced by the Hellenic Post by that time.

A synopsis of the information provided can be found in Chapter 6, section 6.1, while more detailed presentation of the context can be found in Appendix 2.2.

4.2.2. The Municipality of Dionysos (WP-A2)

The second case study took place in Dionysos, Attica, in early 2013, after an invitation by a group of politically active citizens of that area who intended to run for Mayor in the elections of 2014. They agreed to utilize the sensemaking tool to come to understand the needs and feelings of a specific group of residents after two years of the existing leadership, as well as making sense of their expectations of a new one. They wanted to use this data in their program and strategy.

The researching activities of this Work Package were the following:

- Review of: a) studies, documents and articles on the last administrative reform of the Greek Local Government, b) local historical and political data and c) narrative that were gathered from residents some years ago.
- Interviews with: a) a wide spectrum of local stakeholders and opinion leaders from the municipality, and b) municipal officials and local government consultants.
- Evaluation of the data collected.

These activities aimed to enable the understanding of some of the intractable issues that exist in the local context (social, political and administrative) and some of the particularities of the target groups of the second case study. A great aid to this task has been my own permanent residency in the area for the last 20 years, and my participation in two local associations for the last 5- year period.

It should be noted here that the extended range and large amount of the researching activities in this case were due to the initial plan of the case studies. According to that, the tool was planned to be tested twice within this municipality; the first test-bed would be the administrative organisation of the Municipality and the second its local society. However, after the Reform in Local Government that started in late 2010, the first test-bed was out of the question, so only the second case was kept. Nevertheless, the exceeding information that was gathered helped me deepen in certain particular aspects that were until then unknown to me.

The study of narrative material and the review of the relevant consultation project were the first step. The information gained was of significant importance, since it enlightened some recurring and dominant patterns of the social context. Reading those 200 stories captured from a representative group of the population through anecdote circles, helped in understanding the different perspectives that existed in the community. It also helped in structuring and contextualizing better the next interviews, especially the ones with the representatives of local stakeholders. This was something that could be barely succeeded by usual questionnaires. In addition, a conversation with the project team of the consultation program (“Public Dialogue on Environment and Social Coherence”) shed light on the project report and provided useful information on their overall experience, the major obstacles they faced and the attitude of the local authorities and the residents. Then, a wide range of data was collected through evaluating:

- material from studies (conducted by research institutions on behalf of the Greek state) regarding the vision and challenges of the reformations in public administration

- material from studies (conducted by consulting firms on behalf of EU) assessing the present status of local administration in Greece
- locally available studies on the history of the place and the evolution of demographic characteristics of the community,
- reports on the organisational structure and procedures of the administration, the existing social infrastructure and projects accomplished, and the budget of the last three years,
- lists and contact details of political parties, local public entities and civil organisations, election manifestos of different parties and material of various stakeholders, etc.

The interviews were conducted with a wide spectrum of local key-players and change agents, each of whom should have had a different role and a complementary experience as well. They aimed at enabling me to make sense of the intractable issues and changing priorities that exist among the community. The interviewees were selected in order to represent different perspectives and ideologies, interests and needs, ages and above all different voices; they were derived from the following two major categories: a) community stakeholders, representing the most vital elements of the local society that generate and form new demands and visions and b) local governmental officers and consultants, representing the leverage that sets the frame for the change and then carries it out.

The first category of interviewees comprised of community stakeholders. Eleven interviews were conducted with representatives of the municipality's board, political parties and local associations were invited to discuss issues deriving from election manifestos and local bodies' proclamations. The interviews had the form of semi-structured conversations, which were conducted either individually or in groups, according to the participants' availability and the particularities of each case (e.g. relevance of issues, personal conflicts etc).

The interviewees were asked to discuss the following questions and through their answers they focused on issues they consider important.

- How have they evaluated the current status and the work of local authority so far; towards what direction should this community change?
- Which are the most important needs in their neighborhood / sector; how would the forthcoming reform impact their materialisation?
- Who the natural leaders (influential persons) are and how they emerge; what their most common ways of exercising power, resistance and cooperation are?

- What impedes them from articulating a common language and working together; under what conditions could they synergize in a substantial way?

The second category of interviewees comprised a) local governmental officers and consultants and staff from all the departments and levels of the municipality and b) senior consultants from the national agency for local development and government (EETAA). Those interviews aimed to assess: a) the potential gap between the ways the scope and the requirements of a strategic and action plan as understood by policy makers (EETAA officers) and implementation mechanisms (municipality staff) and b) the maturity of the local staff to materialize such a plan properly, considering their knowledge, skills and existing procedures. In fact, four meetings with the staff of the municipality and two separate conversations with the senior consultants of EETAA took place (see Appendix 2.1).

The form of the first four sessions varied, since the level of the organisational status of each department was different; some followed a semi structured dialogue, while others a loose – almost ‘chaotic’ - process, due to the restricted availability of the participants and the informal attitude of their department. The questions and issues discussed covered the following areas:

- the object of their work and the most important obstacles they encounter,
- the most necessary / urgent / difficult / unrealistic projects that should be completed during the next years in their municipality,
- their opinion / feeling about operating with standards; estimated main obstacles,, and
- their relationships with the elected members of the Council and the citizens.

It should be noted that the municipality staff seemed to fit perfectly in the overall local context as that was understood through the residents’ narratives and the stakeholders’ interviews. The data gathered from the interviews gave information on a wide variety of issues, such as: the diversity of visions for the future; the main challenges faced by the municipality; potential traps and turning points in the administrative change; local protagonists viewed as archetypal figures; dominant and weak collective patterns; power groups of the local social and administrative context; main obstacles for a successful process, etc.

On the other hand, the meetings with the senior consultants of EETAA were of a highly intellectual level due to the participants’ expertise and interest in discussing the problems to strategic planning in municipalities. The semi-structured conversation covered the following issues:

- Which are the main categories of work/services that a municipality's formal Strategic Plan consists of?
- Who are usually involved in its implementation on behalf of the municipalities; what is their knowledge status and attitude?
- How efficient are these plans according to the targets set?
- What does mostly impede the successful materialisation of such a plan; what could be done?

The information gathered from the EETAA consultants and the patterns revealed helped acknowledge some of the main issues that impede strategy planning and policy implementation to become effective. A synopsis of the information provided by these Tasks can be found in Chapter 6, section 6.2, while more detailed presentation of the context can be found in Appendix 2.3.

4.2.3. The entrepreneurship education programs in Greece (WP-A3)

The third case study was part of a research project that was commissioned by the Greek Ministry of Education and was carried out in the first half of 2014 by a consulting firm. The research aimed at revealing the critical causes and parameters that facilitated or impeded the successful implementation of entrepreneurship programs in secondary education. The researching activities of this Work Package were the following:

- Review of reports evaluating the impact of the entrepreneurship programs in the Greek secondary education during the last 15 years.
- Interviews with people who planned or participated in previous entrepreneurship programs in secondary schools of Greece.

Initially, there was a brief review of accounts, assessments and publications on earlier programs on entrepreneurship education implemented in Greek secondary education. The goal is to identify some categories of issues that formally were considered as critical to the success or failure of those programs.

Then, some interviews were conducted with 11 teachers, pupils, administrative officers and businessmen staff who had participated in previous entrepreneurship education programs. They had the form of brain storming sessions and semi-structured conversations and aimed at the indication of the most important difficulties and rewarding moments they had lived during the materialisation of those programs. More specifically, they participants were asked to answer the following questions:

- What would you hold from the previous programs? What would you do differently and how?
- Which part / content of those programs you think was the most helpful for the pupils? Was something missing with regards to the educational or administrative part of the program?
- What kind of knowledge / skills / attitude should a teacher or pupil possess in order to take part in such a program?

The answers gathered helped verify/enrich the factors initially identified as critical and depict the stakeholders' patterns regarding the entrepreneurship education. A synopsis of all the information provided can be found in Chapter 6, section 6.3, while more detailed presentation of the context can be found in Appendix 2.4.

4.3 PHASE B: DEVELOPMENT OF THE TOOL

As already indicated in the second chapter, the conclusions of the Literature Review set the theoretical cornerstones, main assumptions and design principles of the tool and led to the creation of its conceptual model; meaning, the components and process of the tool, some archetypal content as initial stimuli, the data assessment features and the validation principles.

This phase was about: a) testing and refining the conceptual model of the sensemaking tool regarding its components, application process and assessment and validation features, and b) contextualizing its content and form according to the scope and the issues examined in each case study.

So, first, through a series of partial tests, the design of the initial structure, content (phrases and imagery) and application process of the tool were gradually amended and refined and eventually, a Tool-Prototype was created; that was the milestone of this phase. And then, before each of the two implementation cases, the content of the tool was contextualized, according to the findings of the relevant field and secondary research. Finally, in order to test the adaptability / compatibility of the Sensemaking Tool to other models and tools, an extra third case study was decided. Within that, the Prototype was partially restructured regarding its components and process.

This phase shared many characteristics with an action research project, mainly during the trial period; each time the steps ahead were based on the results of the previous, while its milestones can be related to the Spiral Model (Boehm, 1986), as presented below.

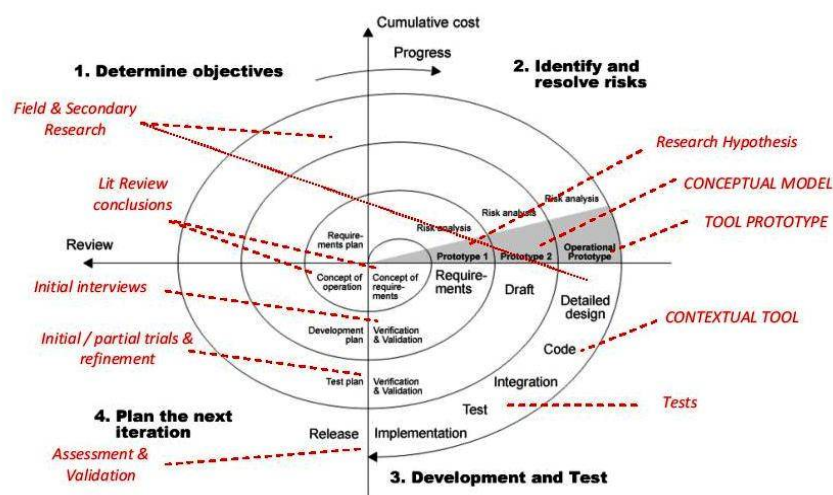


Figure 4.3: The process of the development of the tool in terms of the Spiral Model
The Work Packages and Tasks of this phase are following described in details.

4.3.1. Testing and refinement of the model (WP-B1)

The specific tasks that were accomplished within this Work Package are the following:

B.1.1. Partial trials of the initial model: When the initial version of the model was formed, four tests (trials) were done, in order each time to get feedback on partial questions, such as:

- How functional was the process and how valid was its main assumption proved?
- How meaningful seemed to be the initial stimuli and the archetypal content of the tool to different populations?
- How should the critical issues of each case be related to the elements and the stimuli of the tool? How should the contextualisation be done?
- What kind of information was delivered by each run of the process?
- Was the outcome meaningful and easily accepted by the participants?
- Which main skills seemed necessary for conducting a workshop with this tool? How could these be obtained?

The trials were held in different settings with different groups and goals each time. The first took place in Athens, in June 2009 with thirty college students as participants. The second was carried out in Southampton, in July 2010, as a short session in a conference, with twenty participants who were of academic, research and consulting backgrounds. The third trial took place in Athens, in September 2010, within the work of a seminar on change management that was addressed to public officers. And the last trial was carried out at Harokopion University, Athens, between February and March 2011, within a five-session workshop on organisational culture and change, with ten medium and high-ranked civil officers. The first and last trials were well organized, while the other two emerged rather spontaneously. In all cases the participants were volunteers and were informed on the scope of the trial before signing the consent form. The trials are presented in more details in the next chapter.

B.1.2. Evaluation of results and refinement: Based on the knowledge derived from the remarks and the results of each test, the model was then reviewed and its components and process were refined. At that step the features of the tool were realistically re-assessed regarding their feasibility within the frame of the current research and some of the initial features of the tool were abandoned or postponed for a future work.

B.1.3. Construction of the Tool-Prototype

After the redefinition, a prototype of the tool was constructed. The main issues that were answered in the frame of that work package were:

- Which would be the most contextual and triggering way to put the questions and describe the intangibles?
- In which way could the outcome of the assessment become essentially (deeply) accepted by the participants and the stakeholders?
- What skills should the facilitators possess?

Thus, instead of the abstract elements and the archetypal images, a generic 4X3 matrix was introduced, the cells of which would host the critical issues of each case study; that matrix would lead later on to a 12-fold model of contextual phrases, which would trigger the participants' reaction. Moreover, the application process of the tool, which by then had focused exclusively to the capacity assessment, was further analyzed in steps and the basic skills for the facilitation of that process were identified.

Finally, the assessment criteria were explicitly set and specific rules were formulated for each one. These criteria referred to:

- a) the intangible assets that were represented by the tool's elements, which were examined with regards to their influence and role in the given context (frequency of indication as dominant, desired or absent, connectivity to other elements, density of relationships), their status (manifested or in-potentia), their compatibility to the organisational culture (positive, negative or no properties associated with them), and their clarity (coherence of meaning attributed to them via the related properties),
- b) the emerged properties (qualities, skills and obstacles) that were examined with regards to their influence (frequency of emergence, connectivity to others, density of relationships), their status (manifested or in-potentia), their compatibility to the corporate culture, and their clarity of meaning (identification as both a quality / skill and an obstacle / deficit), and
- c) the complexes (created by the combination of elements / properties and constituting the building blocks of the archetypes), which were examined with regards to the inclusion of influential elements, properties or difficulties (obstacles or deficits) and their similarities or differences among the research groups of each case.

4.3.2. Contextualisation of the Tool (WP-B2)

By the end of the previous Work Package, the conceptual model was evolved to its final mode and a standard version of the tool was created, almost ready to be used in the forthcoming case studies; what was missing was the contextualisation of the tool and its content. The contextualisation process comprised the following:

B.2.1. Contextualisation of the Generic Matrix and the content of the tool: Based on the key-issues that were extracted from the field and secondary research [WP A1], the generic matrix became specific and its cells represented the key-aspects of the particular setting. The key-issues were then transformed into meaningful phrases that were used as stimuli triggering the emergence of participant's relevant properties through discussions with stakeholders.

B.2.2. Specification of the process of its application: The steps of the process were imprinted in the data collection form and proper tables for data organisation were created.

B.2.3. Specialisation of the assessment criteria and rules: Based on the issues under research, criteria and rules were adequately contextualized. In this way, the assessment of the data would become less subjective and more related to the expected deliverables and the research findings more meaningful. The last two steps contributed to the validation of the results of the tool via the already set exogenous evaluative criteria.

This typical process was applied in all case studies. Yet, in the third case, the Prototype was previously restructured partially. This occurred in order to test its adaptability to various research contexts and objectives and its compatibility to other sensemaking models and tools. The main changes concerned its:

- a) Components and structure: some of the original modules of the Tool were substituted by alternative models and tools, the specifications of which should be taken into consideration.
- b) Data collection process: the alternative procedure should meet the requirements of the specific context.
- c) Assessment criteria and expected deliverables: these had to respond to the critical issues under research within the particular case study.

In this way, it could be answered whether (or not) the sensemaking tool possessed a 'meta' character. More details of the above mentioned Work Packages and Tasks of the second phase can be found in the next chapter: "Development of the Tool".

4.4 PHASE C: IMPLEMENTATION OF THE TOOL

The third phase was about testing the tool through a series of workshops. The main goals were i) to test the complete application process in real cases and ii) collect data in order to test its ability to provide deliverables in different settings. For that, two case studies were initially planned. Yet, for reasons aforementioned in this chapter (section 4.3), a third case was added later.

For each case study there were two chronologically distinct stages: a) Preparatory actions, b) Data collection (conduction of workshops) and organisation. Therefore, the Work Packages and Tasks of this phase were the following:

4.4.1. Preparatory actions (WP-C1)

This Work Package comprised the following Tasks:

C.1.1. Definition and sampling of the control groups - Invitation of the participants: in each case study the participants were selected, informed and invited through adequate ways, according to the conditions of each context. In all cases, the control groups represented the target populations; special care was taken for planning the groups (avoid personal conflicts among the participants, consider time restrictions and manage possible cancellations); the participants were previously informed by using information material was specially created and distributed (see Appendix 4: 4.1.1 – 4.1.6); the invitations were sent through the existing channels of each context.

C.1.2. Organisation and housekeeping issues - workshop's requirements: selection / creation of a proper setting and provision of the necessary equipment and accessories.

More specifically, in the **first case** the participants' selection was conducted under the responsibility of the Director of the Hellenic Post (ELTA) Training Center. The criteria for the selection were: a) their status as mid level executives in the ELTA and b) their area of service (Letters Distribution Centers and Post Offices) and c) the representativeness of their geographical distribution and their working age.

Through company channels, invitations and informative material on the content, character, duration, dates and places for conducting the workshops, were sent to 214 employees. Particular information on the research character of the workshops and their rights was explicitly given to the participants before the start of the sessions.

Finally, 195 executives out of 7 regional departments/segments participated in 13 daily events (7 in Athens and 6 all over the rest of Greece), which were carried out from 8/11 to 30/11/2011. The first three workshops (2 in Athens and 1 in the province) were considered pilots due to some minor changes in the procedure and the data collection form. Therefore, the first case study was completed after 10 workshops with the participation of 145 executives, according to the following Table.

Location	Area of service			Total
	LDC	PO	Both	
Athens-1	5	5	4	14
Athens-2	5	5	6	16
Athens-3	4	4	4	12
Athens-4	6	6	6	18
Athens-5	5	5	5	15
ATHENS	25	25	25	75
Salonica-1	4	5	4	13
Salonica-2	5	6	4	15
Larissa	4	5	4	13
Lamia	4	5	4	13
Ioannina	6	5	5	16
PROVINCE	23	26	21	70
TOTAL	48	51	46	145

Table 4.2: Distribution of participants according to their location and type of service (Case study-1)

Regarding the facilities used, the workshops were part of daily events that were held in hotel facilities chosen by the HP-TC, with the appropriate infrastructure and suitable equipment (laptop, overhead projector, desks set in Π formation and round tables for teamwork). The HP-TC provided the reproduction of all necessary forms, stationery and catering service (coffee breaks and light snacks) for all participants.

The net duration of the session was estimated at 1.25 hours: 5-10 minutes for the introductory part, 55-60 minutes for the actual conduct and 10-15 min of discussion on the outcome. Before each workshop a company executive presented the context and scope of the research and after the end of the session a 10 minute break followed.

In the **second case**, the members of the political group had estimated from the start that the municipal citizens aged from 30 to 45 years, married with children up to 20 years old, constituted a preferential audience for their political reasoning, as well as an ideal one for their electoral objectives. Therefore, the participants formed two groups; the first consisted

of citizens interested and active in public life and the second of people indifferent and focused to their private life. All of them were coming from all regions composing the recently united municipality.

Additionally, the participants' selection fulfilled the following criteria: a) balanced attendance of active and non-active citizens, b) a specific age-related spectrum between 30-50 years old, c), different perceptions of all political orientations, and d) balanced distribution in the 7 geographical regions composing the new municipality. The list with the candidates was drawn with the help of the contacts of the political group and of the members-archive of the local Parents Union.

About 75 candidates were invited based on a) their different perceptions, b) a balance between active and non-active citizens, and c) a balanced distribution in the 7 geographical. Through social and personal relations and social media channels, invitations and brief material informing on the content, character, duration, alternative dates and the place for conducting the workshops, were sent to 75 individuals; 34 from group A, 34 from group B and 7 members of the political group (group-X). More details on the information material can be found in Appendix 4 (4.1.1 – 4.1.6).

Out of them, 54 persons finally participated in 11 workshops, from 18/2/2013 to 19/4/2013, either during the morning or in the evening. The initial workshop was with 7 members of the political group; then followed 10 more, with the participation of 24 active and 23 indifferent citizens, who formed 3 groups of active citizens, 3 of indifferent and 4 of mixed. The categorisation of the participants is presented in the following table:

Target groups	Participants / workshop											
	1	2	3	4	5	6	7	8	9	10	11	Total
A		5	4	5				2	2	2	4	24
B					5	4	4	2	2	4	2	23
X	7											7
Total	7	5	4	5	5	4	4	4	4	6	6	54

Table 4.3: Number of participants per group and workshop

The workshops were held on the premises of a consulting company that also provided supporting staff, appropriate equipment, stationery etc, along with catering service for all workshops' participants. Each workshop consisted of one session, the net duration of which was 75 minutes and was allocated as follows: 5 minutes for the introductory part, 55-60 minutes for the actual conduct and 10-15 minutes of discussion on the outcome. A 10 minutes break would follow the end of the session.

Finally, regarding the **third case**, the distribution of the schools (Lyceums) that joined the research was decided by the Ministry officials who appointed the particular schools; 6 were in Athens, 2 in Salonika, 2 in islands and the other 2 in rural areas. From each one 15 pupils (all 16+) and 5 teachers at least should participate in the workshops. Moreover, some 50 administrative staff was selected by their supervisors to participate in separate workshops.

All participants had been previously informed by the school directors on the scope, character, duration, dates and organisation issues of the workshops; the information was based on the material that was especially adapted and officially approved for the needs of this case study. (More details in Appendix 4.1.7).

The research was on a strictly anonymous basis; the participants (pupils, teachers or staff) were appointed the very last moment at the spot just before the beginning of the session. These prerequisites were certified by the Institute of Educational Policy, a Greek governmental body that approved the usage of the tool as appropriate for the context of secondary education after examining the whole package (methodology, research tool, info material, researchers' profile); this is a standard practice for any research project is to run in a Greek public school.

Finally, from 28/4 to 22/7/2014, 23 workshops were conducted in 10 schools (Lyceums) and 12 administrative departments with 376 participants; 271 pupils (220 of the second class and 51 of the first), 51 teachers and 54 administrative employees, as shown in the following Table.

Number & Location of Schools	Pupils			Teachers	Admin. staff
	B' class	A' class	Total		
Athens (4)	89	30	119	16	26
Salonika (2)	40	21	61	11	12
Islands (2)	40		40	10	6
Rural areas (2)	51		51	14	8
Total	220	51	271	51	54

Table 4.4: Distribution of participants according to their location and type (Case study-3)

The participants had been previously informed through personal communications by their headmaster or supervisor on the scope and the basic terms of the consent form; anonymity and freedom to leave without giving explanations was a basic condition of the research. Furthermore, a brief material was earlier sent to the schools and the administrative offices, informing on the content, character, duration, dates and organisation issues of the workshops.

The workshops were held in the schools facilities with the minimum of the necessary equipment and supporting staff. Each workshop consisted of a single session, the net duration of which varied between 60 and 90 minutes.

4.4.2. Data collection (workshops' materialisation) and organisation (WP-C2)

C.2.1. Workshops' materialisation: At the beginning of each workshop there was a welcome session aiming to the provision of information on the workshop's scope, character and terms but not on its procedure and the creation of a relaxed and informal atmosphere. Then, the designed steps of the process were carried out: a) emergence of implicit / collective qualities and skills; b) creation of a collective pattern of choices - sensemaking; c) combination of compatible aspects; and d) synthesis of profiles - creation of complexes. Afterwards, the participants evaluated their feeling from the process, the life-likeness of the results, their way of collaboration and their overall impressions from the workshop through discussion in teams and answering of certain written questions. And finally, it was the closure session. More details on the application process of the tool and the materialisation details of each case study can be found in Chapter 5, section 5.2 (Tool-Prototype) and Chapter 6 (Implementation and Results) respectively.

C.2.2. Data entry and organisation: This Task was about the creation of a software application that was a spreadsheet able to support the data collected and to provide the planned Tables and Graphs. The data was put into the spreadsheet and the validity of the inputs was verified. Then, based on the assessment criteria (set in task B.3.3) data classification lists and simple statistic tables and graphs were created according to the planned prototypes.

4.5 PHASE D: EVALUATION OF THE TOOL

The last phase of the research had to do with the evaluation of the effectiveness of the developed tool, by employing the principles of V-Model (FHWA, 2005) and CMM (SEI, 2001) described in the literature review, as well as of other software development and evaluation methods (Rakitin, 2001; Babar et al, 2004; Markopoulos and Panayiotopoulos, 2005). In practical terms, that was accomplished through: a) the assessment the data collected in the workshops, b) the validation of the results of each case and c) the reflection on the whole experience of each case study and the application of the tool. The work plan of this phase consisted in the following Work Packages and Tasks:

4.5.1. Assessment of the workshops' data (WP-D1)

D.1.1. Application of the assessment features: the data previously collected and organized was assessed via the criteria and rules that referred a) to the elements of the tool, b) the emerged properties and c) the created complexes, as they were set in B.3; more details in Chapter 5, section 5.2. The findings were presented in tables and graphs in order to enable the extraction of the results of each case study (chapter 6).

D.1.2. Formation of deliverables: the deliverables were then formatted according to their preset definitions and the findings of the previous task; some of them are indicatively categorized below.

- Aspects of the collective personality and unrealized potential: identified qualities and skills, either manifested or existing in-potential, influential properties and significant elements (nodes), 4-fold and 3-fold classifications of the emerged properties, and identified obstacles.
- Shadow issues and blind spots: significant differences among reality and future vision, neglected aspects, significant differences among control groups, impeding factors in parallel with influential elements.
- Fields and gaps of collective experience: familiar and difficult-to-face situations, most chosen / non chosen situations, common patterns and significant differences among the groups,
- The active patterns of seeing and doing: significant connections between elements (intangible assets), fundamental relationships among the emerged properties (groups' archetypes), archetypal figures (stereotypes) of each group, and networks of organisational qualities.

D.1.3. Reporting on the results: the most important of the above information was put in a report (findings, tables and graphs, results) that was delivered to the stakeholders and the participants of each case, in order to facilitate their own interpretation, discussion and conclusions.

4.5.2. Validation of results (WP-D2)

D.2.1. Assessment of the validity of the process: the actual procedure that was applied in each case was assessed against the evaluative criteria (design principles of the process and principles of its effectiveness validation) that were set at the stage of the creation of the conceptual model (work-package B1). Through that the process was checked whether or not overcame the limitations of the mainstream linear tools. More specifically, the tool and the process were examined regarding:

- the contextuality, meaningfulness and neutrality of the content
- the participatory character of the process and the representation of the collective dynamics
- the authenticity of the emerged properties and the restriction of social desirability phenomena
- the non-interference of the facilitator
- the sufficiency of the collected data, and the
- the evidence of the results.

D.2.2. Assessment of the participants' opinion / estimations: It should be noted that due to the particular conditions applied in each case study and for the reasons mentioned in Chapter 6 (Implementation and Results), subsections 6.1.4, 6.2.4 and 6.3.4, the participants' evaluation was carried out in a non-unique way. In the first case, the assessment was conducted through the standard protocol of the HP-TC (after a few months, each participant filled a questionnaire), while in the other two followed the tool-prototype form (discussion in group and written answers).

Nevertheless, the main questions that the participants answered were more or less the same: a) Overall impression from the process, b) Collaboration within the group, c) Factors that impressed them and d) Life-likeness of results. The remarks and suggestions of the participants that were included in their evaluation form were assessed: the most frequent of such characterisations attributed to the process and the life-likeness of their own results were listed and quantified (%).

D.2.3. Dialogue with stakeholders on results: the report created in D.1.3 should be finally put in a semi-structured dialogue session with the ones who ordered or hosted each case (e.g. representatives from the company's management, members of the local community or Ministry officials) or given as feedback to the participants or put on a public consultation via internet. This would provide a sense of the impact that was created to them by the results and harvest their thoughts on the whole research. Actually, this part of the process is essential for the complex attitude that is necessary for the simple tool to be applied.

Finally, the whole package of the research work was the object of reflection, which was aided by the notes I kept during the entire project. The main issues of that reflection were about the pathway of changes in the model and process, the action research character of the work, the strong and weak points of the tool, the difficulties faced and the unresolved issues, the necessary skills for the facilitator, potential application fields and possible extensions for future work.

The outcome and interdependence of all research activities is outlined in the following table, while more details on what and how was accomplished can be found in the next chapters.

Research Task		Outcome	Where used
A.1.1	Selection of the 1 st case study	First test bed defined, target groups	A.1.2-3
A.1.2	Interviews and discussions with selected staff	HP's dominant patterns	A.1.4
A.1.3	Study of Business plan and corporate reports	HP's values and priorities	A.1.4
A.1.4	Evaluation of the data	Issues to be examined, sampling criteria	B.2.1-3 (i), C.1.1-2 (i)
A.2.1	Selection of the 2 nd case study	Second test bed defined	A.2.2-3
A.2.2	Interviews with officers, consultants & opinion leaders	Dominant patterns, critical issues	A.2.4
A.2.3	Review of studies on reforms; hist./polit. data; local narrative	Dominant patterns, shadow issues, social networks	A.2.4
A.2.4	Evaluation of the data	Issues to be examined, sampling criteria	B.2.1-3 (ii), C.1.1-2 (ii)
A.3.1	Selection of the 3 rd case study	Third test bed defined, target groups	A.3.2-3
A.3.2	Interviews with people involved in previous programs	Dominant patterns, critical issues	A.3.4
A.3.3	Review of evaluation reports	Dominant patterns, shadow issues,	A.3.4
A.3.4	Evaluation of the data	Issues to be examined, sampling criteria	B.2.1-3 (iii), C.1.1-2 (iii)

B.1.1	Partial trials of the initial model	Supporting evidence for amendments on the tool	B.1.2
B.1.2	Evaluation of results and refinement	Conclusions on the early versions of the tool	B.1.3
B.1.3	Construction of the Tool-prototype	Prototype structure, application process & assessment / validation	B.2.1 -3
B.2.1	Contextualisation of Generic Matrix and content	Research tool (for each case)	C.2.1
B.2.2	Specification of the application process	Tool's application process (for each case)	C.2.1
B.2.3	Specialisation of assessment criteria and rules	Assessment / validation process and rules (for each case)	D.1.1, D.2.1
C.1.1	Sampling - Selection and invitation of the participants	Control groups and participants	C.2.1
C.1.2	Organisation & housekeeping issues	Readiness to conduct	C.2.1
C.2.1	Workshops' materialisation	Data collected	C.2.2
C.2.2	Data entry and organisation	Data files	D.1.1
D.1.1	Application of the assessment features	Findings	D.1.2
D.1.2	Formation of deliverables	Data tables and graphs	D.1.3
D.1.3	Reporting on the results	Results	D.2.3
D.2.1	Assessment of the validity of the process	Verification of procedure	E
D.2.2	Assessment of the participants' evaluation	Assessment of participants' opinion	E
D.2.3	Dialogue with stakeholders on results	Validation / enrichment of results	E
E	Conclusions	Thesis	

Table 4.5: Outcome and interdependence of all research activities

CHAPTER FIVE

DEVELOPMENT OF THE TOOL

In this chapter, the major stages of the development of the sensemaking tool are described. The development process starts after the creation of a Conceptual Model and, through a series of partial tests and pilot trials, it leads to the construction of a Tool-Prototype. Then, the Tool was contextualized and finalized for the needs of the first two case studies, based on the information that was gathered in each case. Finally, it was restructured for the needs of the last case study, in order to test its adaptability to different needs and its compatibility to other complex models and tools.

In order for the reader to obtain a more clear and tangible idea of the entire process of the design, development and application of the tool, as a whole, the levels of its evolution from an abstract idea to a contextual tool and a meta-Tool are outlined and presented below. Here, it should be noted that the first of the following steps exceeds the frame of the second phase of the research methodology and is described in the last section of the Literature Review.

- *Creation of the Conceptual Model*: definition of the basic concepts and the design principles of the tool, modeling of its components, design of its structural elements and its process, provision of indicative (archetypal) content for the stimuli databank, and set of the major validation features.
- *Initial trials and refinement of the model*: conduction of workshops in different settings, the feedback on the overall functionality and meaningfulness of the tool and its deliverables; set of assessment criteria and rules; amendments leading to a *Tool-Prototype*.
- *Contextualisation of the Tool*: contextual content based on the information delivered by the field and secondary research of the first phase; specification of the aspects of the issues of the generic matrix, meaningful phrases as triggers; proper forms and tables for each case.
- *Adaptability / Compatibility test of the Tool*: partial restructuring of the Prototype, in order a) to meet the specifications of the models that were selected to substitute some of the original modules and b) to express better the critical issues of the particular context.

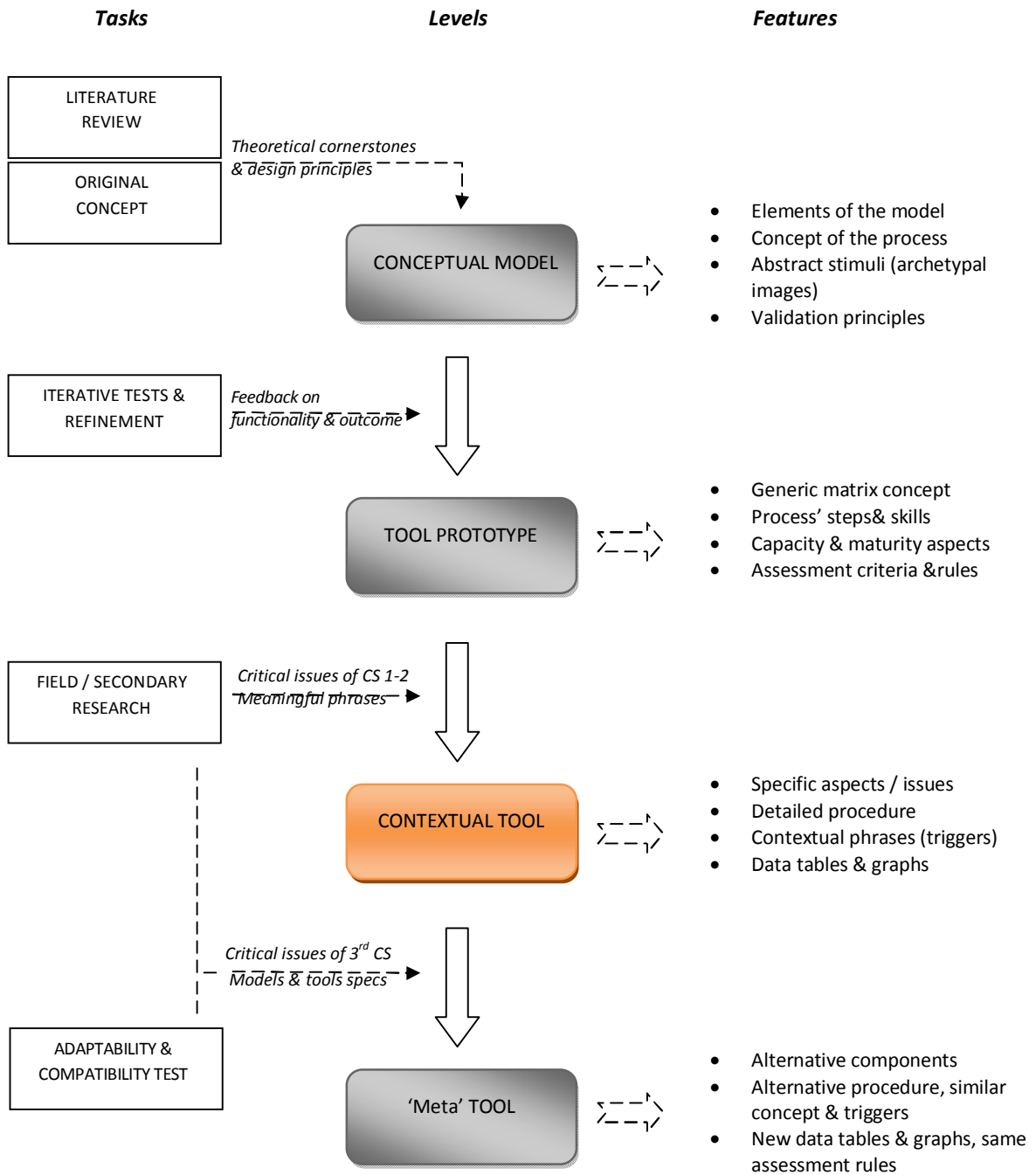


Figure 5.1: The process of the development of the tool and the levels of its evolution

5.1 TESTING AND REFINEMENT OF THE TOOL

After having defined the previously described conceptual model and created some early versions of the tool, the next two and a half years were dedicated in partial tests of the model and the process. There were several tests in different settings and with a different goal each time. That happened because there was a whole circle of tests, amendments, verifications and validation activities that had to be done, in order for the initial (conceptual) model to become an Operational Prototype (see Figure 4.3, p. 156). And, moreover, such a process is anything but linear, especially when the questions to be answered are quite a few. Actually, as it will be shown in the discussion chapter (section 7.3), this part of the work was like an action research project. In each test, the model was evaluated on the basis of some of the following criteria, originated from the design principles and the process validation requirements:

- How functional was the whole concept?
- How meaningful did the stimuli seem?
- How acceptable were the questions set?
- How well did the contextualisation work?
- Was the duration sufficient or excessive?
- Which were the weak points of the initial process?
- Did the tool deliver what was promised?
- What were the strengths and weaknesses in facilitation?

Based on the feedback received from each test, a Toy-Prototype was constructed and used in the pilot test. The following paragraphs describe the scope and context of each test, together with the most significant findings and results that led to modifications of the tool.

5.1.1 The First Trial

The first trial took place in Athens, in June 2009 at the venue of the IST College, within the framework of a workshop on innovation and entrepreneurship for college students. The 30 Greek management students who joined the test formed 6 groups. The test aimed to:

- Provide initial feedback on the degree of the overall acceptance of the tool;
- Test how meaningful its main concept (archetypes + geometry) was;
- Test how functional the initial steps of the capacity assessment were;
- Deliver some initial results, based on which the assessment criteria could be further developed.

The 12 elements were expressed through phrases describing images that corresponded to the four natural elements and followed the logic of the Young's three-fold operator. These phrases were contextually refined by the aid of a college tutor and are presented in the following Table.

1. A sudden thunder strikes	5. An inextinguishable extending fire	9. A torch indicating the target
2. Cultivation of a fruitful plain	6. A careful route into a steep valley	10. A ride to the top of the mountain
3. An ever changing wind	7. A vortex of scientific discoveries	11. A strong wind sculpting solutions
4. A turbulent river of uprising	8. A lake of social traditions	12. A big storm changing lives

Table 5.1: The content of the stimuli in the 1st trial, Athens, 2009.

After forming 6 groups of 5 persons, the participants were asked to select the elements that depicted better how they perceived their College reality, express their feelings in their own words and write them down on the a large 12-fold template near each element (see Figure below). Then, they should combine any three of the properties emerged that captured their attention by drawing triangles inside the dodecagon and name the created complexes in a meaningful and contextual way (examples are presented in the next Table).

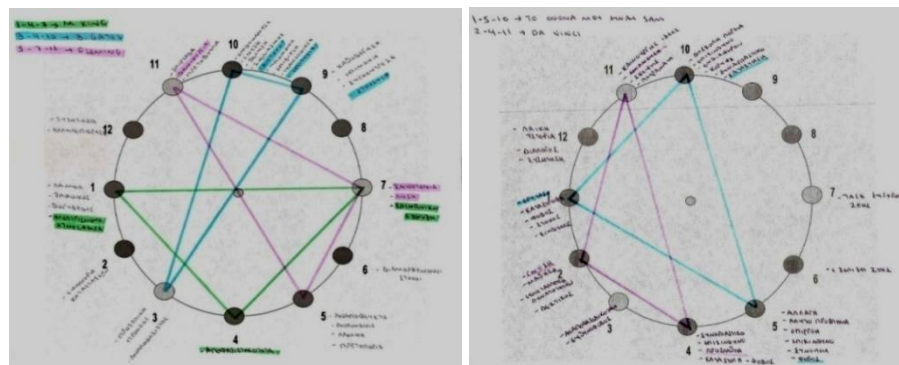


Figure 5.2: 12-fold templates with emergent properties from the 1st trial, Greece, 2009.

Elements	Identified triads (related qualities)	Label of the 'triangle'
1 – 4 – 7	Charged atmosphere – determination - social development	Martin Luther King
1 – 4 – 9	(non specified)	Batman
1 – 5 – 9	Lethal – destruction - glimmering	Death (anickname)
1 – 5 – 10	Fear – fear - danger	Hades
1 – 5 – 10	Love – fear - success	My name is Sam
1 – 6 – 8	Fear – Path towards targets - family	Ulysses
2 – 4 - 11	Knowledge – effort - inspiration	Da Vinci
3 – 4 – 10	Determination – adventure – courage	Lost
3 – 9 – 10	Personal progress – persistence - objective	Bill Gates
4 – 8 – 12	Imposition – habits - state of panic	Batman
5 – 7 – 11	Problem solution – innovation - creation	Fleming

Table 5.2: Examples of relational triangles created in the 1st test, Greece, 2009

Two indicative results are given in the Figures below, while the detailed data and results from the first trial are presented in Appendix 3.2.

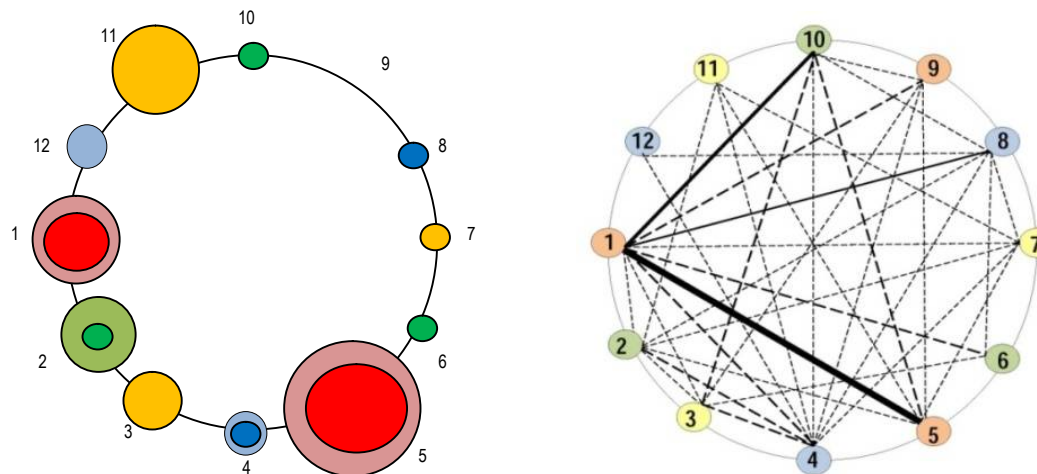


Figure 5.3: Influence of elements Emerged pattern of connections from the 1st trial, Greece, 2009
(present status: dark, future: light)

The results of the test were very helpful, especially regarding the concept of the model and the assessment criteria. No particular problem occurred during the process and the students had no problem to participate in the test; in fact they found it very interesting and different comparing to their mainstream education. The finding of a cluster of stronger relations suggested there might be value in considering connections of high density as possibly outlining a complex of attraction.

Moreover, since different interpretations for each node emerged and that the same interpretation was encountered in different nodes seem to verify the complex character of the process. Yet, certain properties seemed to have an influential role in the context, as they emerged and participated in the created complexes repeatedly. On the other hand, the element most frequently identified (most present) [No 5] was not the most accessible (central) [No 1]. Finally, the ‘collective personality’ with regards to the 4-fold and 3-fold categorisations (intuitive – practical – mental – emotional and impulsive – inertial - balancing) seemed to vary among groups.

5.1.2 The 2nd Trial

The second trial was carried out in Southampton, in July 2010, as a short session within the framework of an international workshop on “Complexity and Real World Applications” (organized by *Emergent Publications*). The twenty participants, who were of academic, research and consulting backgrounds, formed three groups on the basis of their own choice. The trial aimed to check the meaningfulness of archetypal imagery (indicating status or potential), which can be used where contextualisation is not easy or feasible. According to

the workshop scenario, the participants were the management team of a new Complexity Institute and; they had to identify which of the 12 elements represented better the spirit and orientation of that Institute; again, it was a challenge of defining identity.

The 12 elements of the model were expressed through archetypal images representing the natural elements (see Figure below); actually, they were visualizing the content of the previous trial. The images were presented to the groups by the aid of a projector; one after the other and then all together, without any explanations.

The participants were told that the context of the ‘exercise’ was an international Research Institute that was in the phase of establishment and was facing challenges regarding its identity. Then they were asked to choose up to 4 images that attracted, blocked or made particular sense to them within the given context, express their choices in terms of feelings or qualities / skills needed and write them down around the dodecagon. Then, they were asked to reflect and discuss (within their) group on the collective pattern that emerged from their choices in terms of the 12-fold and the 3-fold and 4-fold classifications.



Figure 5.4: Archetypal imagery used as stimuli in the 2nd trial, UK, 2010.

Due to limited time available, the process comprised only the first stage (emergence of the qualities). Most of the participants eventually engaged in the process, although some of them initially insisted for a detailed description of the model.

Some interesting findings of that workshop, the results of which are available at the Appendix 3.3, were the following: these participants (intellectual and mature experts) appeared to be more reactive to emotional issues rather than to mental; some of them paid more attention to their intuition rather than to practical issues; and they were ‘split’ between impulse and inertia. One participant commented that it could make sense if considering that the specific academics and consultants were there to explore a rather new theory (complexity) and possibly defend it against a rather inertial world of logic and practical results.

Furthermore, the members of one group thought of me interpreting their results as attempting to impose meaning to them and so they resigned from the process. In this way, some blind spots regarding my skills and attitude as a facilitator that existed at the moment were also revealed, especially when addressing a team with high self-esteem or of high-hierarchical position. In such cases, as a participant advised later, a helpful technique is to pay attention to the subtle and guide carefully with gentle moves.

Nevertheless, the results of the test argued in favor of the influence and effectiveness of such imagery, especially when the target group consists of largely unrelated people.

5.1.3 The 3rd Trial

The third trial took place in Athens, in September 2010, at the venue of the National Centre for Public Administration and Local Government of Greece, within the work of a seminar on change management that was addressed to public officers. The trial aimed to test the meaningfulness of the content of the 12 archetypal situations, which at that time were thought to be related to the stages of maturity and the lessons learned; however, this idea was amended later.

The 20 participants formed four groups and were given a following list of archetypal situations (stages). This time the issue under examination was the participants’ collective experience; where (in which areas or fields) is concentrated and from where is missing; how can be revealed and how is consolidated. The participants were asked to identify up to three situations that seemed already familiar and three more that seemed rather impossible to encounter in their work environment. For each familiar situation, they were asked to indicate the skill employed and the knowledge obtained (which at that time was described as ‘lesson learned’) and for each impossible the shortages or obstacles that prevented it from occurring. The next Table presents the archetypal situations used and the following Figure presents the distribution of participants’ choices.

Element	Archetypal stages and phrases	
1	Impulse	<i>I want things to change</i>
2	Formation	<i>I shape new abstract notions</i>
3	Communication	<i>I exchange thoughts and ideas</i>
4	Breeding	<i>I carefully develop some of them</i>
5	Establishment	<i>I want to implement and extend them</i>
6	Support	<i>I analyze data and document pathways</i>
7	Balance	<i>I try to make the opposites synergize</i>
8	Experience	<i>I transform experience into conscious re-orientation</i>
9	Targeting	<i>I take targeted actions</i>
10	Organisation	<i>I systematically apply the knowledge obtained</i>
11	Discredit	<i>I question and revision old knowledge</i>
12	Transcendence	<i>I transcend conflict being at service</i>

Table 5.3: Archetypal situations and phrases used in the 3rd trial, Greece, 2010.

The impulse for change was the most selected (influential) stage among the public officers; yet, there were some who considered such a thing impossible. Furthermore, the absence of experience and ‘lessons learned’ regarding the next step (the ability of formatting impulses) was very revealing, for it functions like an obstacle and the initial desire for change seems to get stuck. Moreover, the ‘irregularity’ of experience on the following stages is interesting too; it reveals a landscape of fragmented knowledge, like isolated islands within a turbulent sea of contradictions. This finding is a common truth for those who know the context of the Greek Public Administration. But what made that finding most interesting is that it repeatedly emerged during the next tests and case studies.

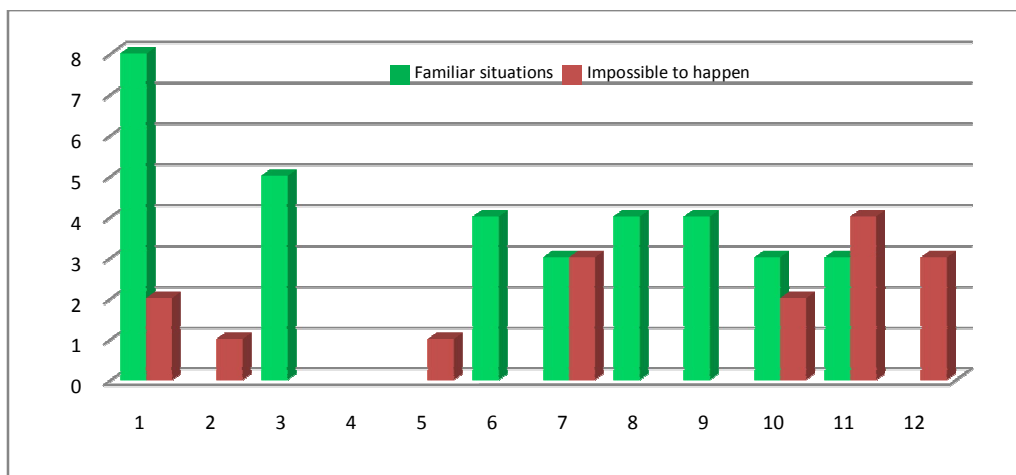


Figure 5.5: Frequency of situations indicated as familiar / impossible in the 3rd trial, Greece, 2010.

In addition, the answers provided regarding the ‘knowledge obtained’ of the most familiar stage are of particular interest. Again, for those who know the Greek Public Sector and of the Greek society as well, these phrases make a lot of sense. For those who don’t, they are a good way to understand how the Greeks perceive and stand in front of initiation.

Archetypal stage	Knowledge gained from it
<p>Impulse (<i>I want things to change</i>)</p>	<ul style="list-style-type: none"> + It is so difficult to change things; people are used to them + We all seek for something new but this causes tension and conflict; we have to put our ego aside + Most people seek for something new but they lack courage; they need something to attract them through the threshold + It is way too difficult and hard to change things, for synergy is needed and personal cost + It is like judging between the pain from staying the same and the one from changing + When functioning impulsively and with egoism the problem gets bigger + I need to make the first move and be patient, for change needs time + If you don’t try on your own, things never improve + I have to change first

Table 5.4: Contextual interpretations (knowledge gained) of the 1st archetypal stage (3rd test, Greece, 2010)

The results of this test (see Appendix 3.4) were of help regarding the interpretations of the ‘lessons learned’ by the participants and their correspondence to the gaps of collective experience. Through their answers some of the most characteristic patterns of the Greek public sector (and the Greek society as well) were revealed. Later, the data of this trial led to the understanding that a lesson learned exceeds a particular phrase or situation; it is rather a pattern that embraces some of them and creates a higher order meaning.

5.1.4 The 4th Trial (the Pilot test)

Finally, the last trial was held at the venue of Harokopion University in Athens, between February and March 2011. It was planned to serve as the pilot before the case studies, something like a combined rehearsal of all the steps of the process. For that it was carried out in two parts, within a five-session workshop on organisational culture and change (organized by the Greek Chamber of Management Officers and a consulting company). The whole workshop was planned to last 5 weeks due to the limited availability of the participants and to provide time for them to reflect and discuss.

The trial aimed to test the functionality of the following:

- the distinction between the current (present) reality and a desired one (in future)
- the designed criteria and rules for the assessment of data
- the breaking of the data collection process in two parts (days) and
- a specific idea for the maturity assessment ('single-skill solutions').

The participants were 10 medium and high-ranked civil officers who formed two groups, on the basis of their occupation. Group-A consisted of officers engaged in management and back-office duties (i.e. financial audit, project planning and monitoring, control procedures etc), while Group-B consisted of front-liners serving customers or dealing with issues such as public relations and social care.

One week before the workshop, participants were asked to fill a questionnaire on their organisational culture. They were given a list of phrases depicting different styles, work spirits and atmospheres (see next Table) and they were asked to rank (from 1 to 10) the degree to which each asset corresponded to the existing or a desired status.

No	Org'l spirit	No	Org'l spirit
1	Enthusiasm, will and lead for something new	7	Reconciliation of opposites, reinstating a sense of justice
2	Stability, persistence and preservation of what exists	8	Dilemmas and conflicts through black-and-white choices
3	Dialogue and communication for exchanging ideas	9	Focusing on targets, ambition and learning
4	Emotional care and protection, groundwork	10	Hierarchical organisation, accession and recognition
5	Determination, leadership, creativity, establishment	11	Question and review of established status, innovation
6	Patient data collection and analysis, obsession with details	12	Forgiveness, loyalty, service, breaking through conflicts

Table 5.5: Content of the questionnaire given before the 3rd trial, Greece, 2011

The statistical average of their assessment of the present state was more or less flat with no special priorities. Regarding the desired future, the average of the answers was again flat but on an increased level. There were two exceptions: their wish for less stability and no conflicts (see next figure).

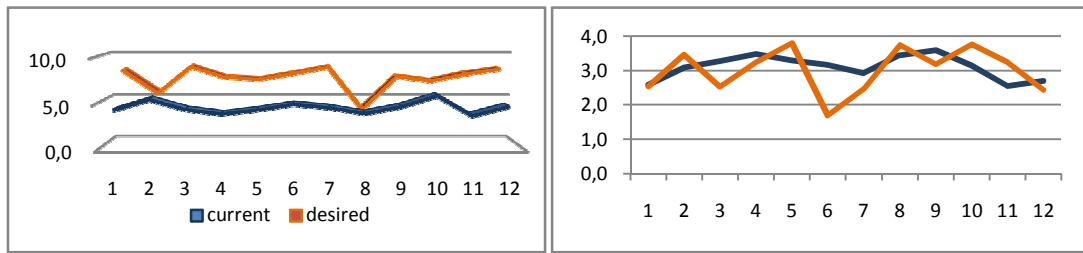


Figure 5.6: Average ranking of the answers (1-10) and St. Deviation of the answers

Work with the tool was conducted in two separate days; capacity assessment on the first and maturity assessment on the second. The process of capacity assessment was based on the templates of the 1st and 2nd trial, which had been developed and well documented meanwhile; yet it took more time than expected and exceeded to the next day. Regarding the maturity assessment, its first part was based on the experience gained from the 3rd trial; yet, its second was new and never tested before.

The aim of the process of the first day was to seek values, qualities and obstacles; but no skills. The elements were represented by the same 12 archetypal images, accompanied by some open-end phrases. But this time the participants had fewer choices among the alternatives to depict: a) how they perceived reality, b) how they would like the future and c) what was the main obstacle standing between present and future. That meant they had to prioritize more.

The prompting questions given to them on the first day were the following:

- a) *Choose 1 or 2 images that in your opinion depict the current organisational reality. Which are their main characteristics? Express them in terms of values or qualities (no more than four) or a small phrase; make a post-it for each and place it close to it.*
- b) *Which image represents the future that you would desire for your organisation? Express its qualities on post-its (of a different color) and place them close to those.*
- c) *Which is the main obstacle for such a change? Write on a paper the obstacle of the transition between the specific present and future images.*

Then they were asked to work collectively and:

- d) *Relate any three of the emerged properties that you assume they are encountered together within your context, even if they don't necessarily 'fit' each other from a first view. In this way, create up to 4 triads. Then, write all triads and properties on a table.*
- e) *Mark on the 12gon the triads, indicating each time the corresponding properties and the dominant node (corner of an angle). Mark as well all the obstacles previously identified (Step 1c) using a different color (e.g. red).*
- f) *Continue to work in a collective way; start from these triads and add some more (1-3) qualities to each triad, in order to shape figures that exist in your organisational life or setting. Make sure that you meet the following conditions:*
 - *Do not to create more than 4 assemblies*

- Do not to include more than 5-6 qualities in each assembly
- Try to include 1-2 obstacles in each assembly
- Do not include the same quality in more than two assemblies

g) *At the end of the process name (label) the assemblies created in contextually meaningful ways.*

On the second day, the participants were given the list of 12 archetypal situations that was used in the third test, which was similar to the content of the questionnaire they filled before the seminar. They were asked to:

- a) *Choose up to 3 situations that seem familiar to you or are considered to be crucial within your organisational context. Write the lessons learned from dealing with them on a paper indicating the number of the stage they refer to.*
- b) *Indicate the skills (no more than 6 in total) that were employed for or developed by these situations. Write them on post-its and place them close to their numbers.*
- c) *Choose up to 3 situations that seem unfamiliar or impossible to happen within the organisational context. Think what would prevent them from occurring and write the main reason for each case on a different color post-it and place it close to its number.*
- d) *For each of the most frequently emerged skills relate any 3 of the archetypal stages, which are assumed to be faced better by using the specific skill. Indicate the dominant node of the triad (the corner of the angle) and indicate the specific skills corresponding to the triangle. This should be done on a collective basis; all triads and skills should be noted on the table given.*
- e) *Estimate how good they are in practicing each of these skills; to what extent these challenges are really faced in this way? Identify any secondary problems that are created by this practice.*
- f) *Note any situation/stage that could be addressed by seemingly incompatible skills; if yes, discuss whether one of the skills dominates upon the others or how they manage to co-operate.*
- g) *Indicate any irregularities in the distribution of skills around the dodecagon and, if yes, discuss whether they could indicate gaps in experience or transition obstacles from the situations prior to them.*
- h) *Reflect on what could occur if a polar (complementary) skill would be used for the specific challenge or transition and consider if it would be more appropriate.*

The new steps ([e] to [h]) were not properly conducted or skipped, mostly because of the restricted availability of time; almost an hour was dedicated to discuss the results of the capacity assessment. So, by the time of completion of step [d], the participants seemed fed up. That was a clear finding regarding the time frame of the application process.

The participants who were present on the last day of the program were invited to evaluate its results in terms of a) the program's impact versus their initial expectations and b) their gain from the whole program.

The most interesting findings of the workshop were the following:

- The phrases associated with some archetypal stages did not constitute lessons learned, as was initially thought. In the most of the situations, the participants seemed to refer

to obstacles rather than lessons, as they possessed a mainly negative or defensive character. In some other situations, the ‘lessons’ seemed to transmit opposing ‘messages’.

- During the discussion that followed the participants noted that a) the images used were very meaningful to them, b) the whole process enabled awareness building: how they see, relate, (co)operate, what they expect and c) the tool needed to mature more and become less abstract. Therefore, in the next cases, emphasis should be given to the tool’s contextualisation and more attention to the discussion on the findings among the participants.

The results were very helpful (see Appendix 3.5), as they oriented the amendments needed for the model and the tool, refined more the phrasal guide, verified the meaningfulness of the assessment criteria and revealed a valuable aspect of the process; its ability to go beyond conventional answers and reveal what really matters for a group and how it operates.

5.1.5 Conclusions and changes made

This extended pre-testing period concluded to a positive overall estimation, based on the following remarks regarding the Tool and its use:

- a) According to the discussions I had with the participants after each trial, in most cases they found the process being encouraging and enabling their participation and the outcome comprehensive due to its pattern-based character.
- b) The results, as they derived from simple observation and discussion on their own emergent properties, created opportunities for better understanding of the ways of being and acting in the particular contexts / systems.
- c) Furthermore, based on the discussions made with the participants, in most of the cases, their acceptance of the results appeared to be to a satisfactory degree. Additionally, the archetypal images, words and phrases appeared to enable participants to ‘connect’ to the result; yet more contextualisation seems to be needed in case of researching issues other than the collective profile of a population.
- d) The role of the facilitator should not be to interpret the results but to facilitate the group reach to its own; he/she should only suggest patterns relations and make their correlation easier for interpretation.

e) Transforming the pattern of the triangles into a network of elements can lead to the identification of the organisational or social archetype. Moreover, the complexes of properties can lead to a network of feasible pathways for cultivating particular aimed skills or for transcending existing polarities.

f) Finally, in order for the tool to maintain the character of self-assessment, a computerized version should be available; thus the results could be available right after data collection, which could facilitate dialogue and reflection. Yet, this limitation continued in the testing phase of the tool.

Yet, the experience from this stage of the development led to five significant changes on the content and the application process of the tool:

1. In order to research specific intangible assets within the examined organisation or community, the elements of the tool should become less abstract and more related to these assets; for that a special contextualisation should be needed before each application of the tool.
2. As time restrictions proved significant and the whole engagement of the participants should not exceed the duration of a half-day workshop, the process should become simpler and faster.
3. In order to reveal the deeper assumptions of the participants, their priorities should be stronger and, therefore, their allowed choices among the alternative assets (elements) should be fewer.
4. The combination of the elements (intangible assets) should be distinguished from the combination of the qualities (implicit factors); the former can lead to an attractor, while the latter can depict a (scenario) persona.
5. Last but not least, as the 'lessons learned' could not be actually delivered (but only phrasal stereotypes that were hard to process within a short workshop), the tool should resign from the maturity assessment target as it was initially thought; instead, it should focus on revealing the fields and gaps of the collective experience.

5.2 THE TOOL - PROTOTYPE

Thus, after a two and a half years period of testing the early versions of the Sensemaking tool, a Prototype of the Tool was constructed. This prototype served as the basis for the research tool used in the cases studies, after been adequately contextualized or even partially restructured (in the third case). In the next paragraphs its structure, process, assessment criteria and expected deliverables are described.

5.2.1. Structural components of the Tool

The Sensemaking Tool consists of:

1. Twelve *elements* that can represent:
 - The main or pursued intangible assets of the system that constitute its existing or potential collective capacity; they can have the form of alternative folds of the organisational culture, corporate goals and priorities, complementary activities of governmental responsibility or categories of community’s needs, and
 - Complementary fields of experience, demanding situations or challenges, based on the life cycle of what is encountered in nature and human deeds; it is from them that the system’s capacity is acquired or applied to.

The 12 elements function as *attractors* to the intangible assets of an organisation or community (e.g. values, emotions, skills and attitudes) that correspond to the potential ways that a challenge is collectively perceived and answered within this system. They constitute the nodes of a regular dodecagon that serves as a 12-fold template (see Figures below) and the content of a 3x4 Matrix that is based on the 3-fold and 4-fold concept, earlier described.

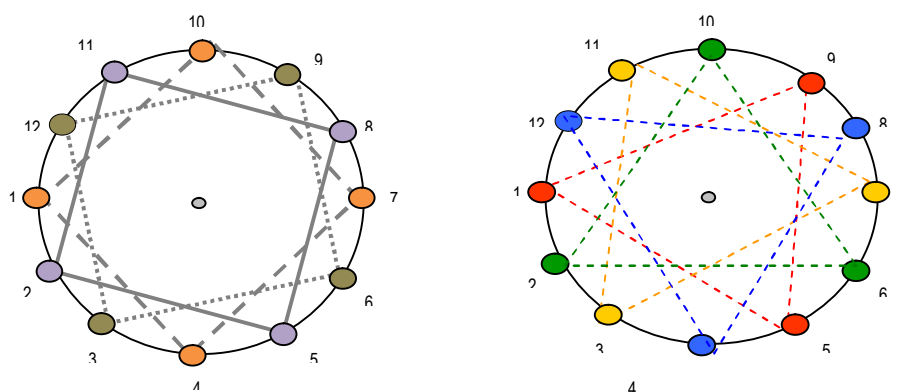


Figure 5.7: Three-fold (3sets of tetrads) and Four-fold (4 sets of triads)

Each fold of the 3-fold corresponds to one tetrad of elements and each fold of the 4-fold to a triad. The 12 elements are allocated to the cells of a Generic Matrix as follows:

3-fold \ 4-fold	fold - 1	fold - 2	fold - 3	fold - 4
fold - 1	1	10	7	4
fold - 2	5	2	11	8
fold - 3	9	6	3	12

Table 5.6: Allocation of the 12 elements according to the 3-fold and 4-fold concept (Generic Matrix)

The 3-fold concept represents a pathway of evolution or a polarity resolution model. As the former, it leads from potentiality to actuality, then to transformation and from there to a new potentiality again. As the latter, it resolves a conflict through relation or transcendence of its sides. Being archetypal, it can bear various practical meanings, such as:

- create – sustain – destroy
- birth – maturity – death
- stimulus – reaction – result
- impulse – inertia – balance
- black – white –grey
- black – white – rainbow.

On the other hand, the 4-fold concept informs of and describes all possible modes of a structure or operation and therefore, it is used to analyze concepts and forms in their essential components. As well, being archetypal, it can bear various practical meanings, such as:

- thinking – feeling – intuition - sensation (psychological base of a decision)
- mental - emotional – spontaneous – practical (aspects of relationship or action)
- planning – organizing - directing – control (basic operations of management)
- concept - means – driving force – people (essential parts of a project)
- procedures – tools – goal – skills (requirements to accomplish a task)
- flexibility – rigidity –transformation – relation (ways of being)
- expert – cultivator / mediator –agitator - guardian (archetypal roles)
- and any other tetrad that can refer to or symbolized by the four natural elements (air – water – fire – earth) that are widely and easily understood by the people.

2. A number of *stimuli*, in the form of prompting questions, referring to the major issues that should be investigated in each application of the tool. These stimuli relate to the fundamental (archetypal) needs, forces or challenges, which are encountered in the organisational or social context (e.g. identity, creativity, learning, risk, success, stability, communication, expansion, competition etc), through the confrontation of which the

collective personality (culture) of the system is shaped. The aim of these prompting questions is to stimulate the intangible assets of the system with regards to the 12 elements of the tool.

Some indicative examples of such prompting questions / stimuli are the following:

- Which of the following phrases / images depicts better the current status in your organisation / community? Which one symbolizes more the future that you desire?
 - Which of the following phrases / sectors represents the highest priorities / strong points or weaknesses of your organisation / municipality? Which one describes better the future that you desire?
 - Which of the following phrases / images corresponds better to the characteristics of the entrepreneur / professional / consumer that you like / dislike most?
 - Which of the following situations seems most familiar to you or your workplace / community? Which one you think it is impossible to happen?
3. A ***databank*** of archetypal items, such as images, phrases, and situations that correspond to the 12 elements. During the process, these symbolic items enable the expression of the participants' attraction or repulse towards reality / future or towards demanding situations. The values, qualities, emotions, skills, and deficits that emerge attached to the elements of the model, inform of the intangible assets of the organisation or community. This depository will be enriched through the application of the sensemaking tool in various and different settings. In each case, the contextualisation of these items will be based on the information provided by the field / secondary research and the specific issues raised by the ones who order or host the research. Some indicative examples of such sets of assets are presented below:
- Images of natural elements
Erupting volcano - Burning sun - Bonfire - Mountain's peak - Open plain - Misty forest path - Tornado - Windmill whirling - Wheat bowing - Waterfall - Still lake - Breaking wave / Open sea.
 - Types of states or relationships
Impulsive intuition - Sustaining energy - Changing direction - Impulsive sensations - Practical stability - Balancing senses - Impulsive thoughts - Sustainable thoughts / plans - Unsettling mentality - Emotional impulse - Inertial emotions - Transformative emotions.

- Challenging situations

Initiation - Formation - Communication - Breeding - Establishment - Support - Balance - Experience - Targeting - Organisation - Contestation – Transcendence.

- Organisation profile / goals

Innovation – Customers satisfaction – Teamwork – Market expansion – Quality and performance – Adaptability – Market leader – Universality– Social responsibility – Entrepreneurial spirit – Learning and evolving – Friendliness.

- Governmental or Municipality’s responsibilities or work sectors

Local development - Life and ownership - Planning, organisation and evaluation - Common-used infrastructure - Tradition and cohesion - Eco- sensibility - Virtuous government - Daily problems – Solidarity - Safety and aesthetics - Consultation and accountability - Culture and civilization.

- Personal characteristics

Devotion and generosity - Survival and interdependence - Courage and heroism - Idealism and confidence - Creative expression - Passion and sensitivity - Rupture and overthrow - Search and exploration - Domination and control - Pleasure and challenges - Transformation / magical solutions - Wise and fair choices.

These assets constitute the Generic Matrix, to the cells of which get allocated according to the aforementioned concept of the 3-fold and 4-fold operator (Table 5.6).

5.2.2. The process of the application of the tool

In each application of the sensemaking tool, the whole process is carried out in four stages: Preparatory actions, Data collection, Data assessment and Validation of results. With regard to the Research Methodology, the first step of the first stage (contextualization of the tool) is described later on in the third section of this chapter, while the rest are discussed in the next chapter.

For methodological reasons, the process has been structured in three levels: Stages, Steps and Actions. Each Stage consists of Steps and each Step is further analyzed in Actions. The Step corresponds more or less to the ‘Work Package’ notion and leads to a particular outcome or deliverable. In the following paragraphs a description of the *goal* and *object* of each Step is given, along with the *means* used and the *people* involved in it.

Stage 1: Preparatory Actions

In order to enable a better application of the Tool, certain preparatory actions must take place before the data collection, which have to do with: 1) the contextualisation of the research tool, 2) the selection and invitation of the participants and 3) the organisation of the workshop.

Step 1.1: Contextualisation of the research tool

With regard to the Research Methodology, the contextualisation of the tool is part of the Development of the Tool, which precedes the Implementation. Yet, viewing the process as a whole and in order the reader to obtain an integrated idea of the tool and its application process, this step is described right here as part of the preparatory actions, meaning the actions taken before the data collection. Thus, contextualisation has two goals:

a) Setting the objectives of the case study and defining the control groups

Based on the main issues put under research by the leadership of the organisation or community, the expected outcome of the application of the Tool must be outlined and the prompting questions must be articulated; these must be confirmed by the leadership. Next, the groups of participants must be defined in a way that meets the expected information; e.g. how different groups of people perceive a particular organisational / social issue or respond to a specific challenge. The selection of the groups is made based on some criteria that have to do with the issue or challenge, as well as with the nature of the examined system. They can be from different hierarchical levels, divisional or regional parts, types of stakeholders, demographical or other characteristic; their similarities and diversities (in perception, attitude, behaviour etc) is the object of the specific research (case).

For example, when an organisational issue is studied, the participants can be drawn from two or more different departments / divisions, geographical settings or other kind of staff's subgroups within the same company or organisation. Additional criteria can be the working or physical age of the participants, their hierarchical position or level of expertise. When the research takes places in local communities, the control groups can be formed among various stakeholders, depending on the issue examined. Primary criteria of selection in such cases can be the range of their age, their family status, educational, economical or social status, special interests, membership in local associations, participation in common affairs or even the location they live. For example, if someone has children, then is a potential member of a target group for education and welfare issues. His/her interest in common affairs, if existed,

provides a second dichotomy within the previous subgroup. Then another criterion can be added, related for example to the geographical location of his/her home or work - and so on.

b) Creation of the generic matrix and contextualisation of the content of the tool

Based on the findings of the second phase of the methodology (field and secondary research), the researcher must create the key concepts of the Generic Matrix according to the aforementioned 3-fold and 4-fold concept and then express them in a contextual way through meaningful phrases or images. The latter should possess a neutral and fuzzy, even ambiguous character, 'uncolored' by one's perceptions or beliefs; thus they could leave enough space for different meanings, either positive or negative. After elaborating the first draft, another discussion with the same (or similar) people must follow, aiming to fine tune the tool before its use. Alternatively, a pre-workshop, addressed by potential participants, could take place, aiming to eliminate possible defaults. After this, the tool is ready to be applied and the final templates of the tool are created.

Step 1.2: Selection and invitation of the participants

Within this step the researcher / facilitator has to accomplish the following Actions:

a) Selection of the participants

For each control group, corresponding to the lowest dichotomy level of the examined issue, at least three or four subgroups of 4-6 participants should be formed. These subgroups will go through the process that is described below either in parallel or one after the other. This depends on the availability of time, settings, participants and facilitators. One skilled facilitator can run the process maximum for three subgroups simultaneously.

b) Invitation to the workshop

After setting the selection criteria, the access to potential participants will be enabled through the adequate organisational pathway or by taking advantage of the local social networks, either physical or virtual. It should be ensured that the invited participants are representative of the control groups previously defined. In any case, an invitation should be prepared, signed by the organizers and informing on the location, the time and the character of the process. This invitation will be accompanied by a brochure that will inform briefly on the scope and the character of the research, as well as of the participants' right to leave the process anytime they feel like without giving any kind of note excuse or consent form. It should be also examined if a special motivation is required for the acceptance of the invitation on their behalf. Finally, a couple of days before the event the organizer(s) should

contact the selected participants and verify their coming. In order to handle cases of cancellations, the organizer should have invited the maximum possible number of participants, let's say 6 persons per group.

Step 1.3: Organisation of the workshop

The researcher has also to consider some aspects regarding the organisation of the workshops, such as time restrictions, space requirements, availability of necessary equipment and other housekeeping issues.

a) Time restrictions

The net duration of an unhurried run of the 1st phase workshop is about 1.15' – 1.30' plus 15-30' minutes for the delays in arrival and the welcome speech. That makes 1,5 – 2 hours in total, which is manageable in an organisational context but too long for a community's one; there people extract time from their daily duties or their own personal time. In this case, some steps of phase 1 should be quickened.

b) Facilities requirements and housekeeping issues

The setting should be comfortable and, preferably, other than working space. The atmosphere should be relaxed, informal and friendly. Moreover, as the event is rather a workshop, the necessary equipment consists of enough tables and chairs, 1-2 whiteboards or boards with paper, sheets of large papers with the model drawn on them, and colored post-its or stickers (5 colors). Optionally, one could ensure a laptop, a data projector and a camera. Finally, a light catering (coffee brake) should be nice and an assistant would be very helpful.

Stage 2: Data Collection

The data collection process consists of three distinct parts. The scope of the first is the emergence of the participants' authentic and implicit properties signified by them and related to the intangible assets of the system. In the second part the goal is the combination of some intangible assets that are considered compatible. This can lead to the creation of a compass for the orientation of the examined system regarding the faced change. Finally, the third part aims at the creation of organisational or social personas through a synthesis of the emerged skills, values, emotions, and deficits. These could be used for the formation of training / research scenarios personas or for a network of qualities, as aforementioned.

Before the beginning of the workshop, it is necessary for the researcher / facilitator to address the participants and welcome them to workshop. He/she should once more inform them briefly on the scope of the research and their rights during the process and answer any

question they have. After that, the participants should sign the consent form and receive a copy of the data collection form (template). If the stimuli consist of images a projector would be very helpful.

After that, there are six further steps:

- Identification of dominant and desired aspects of the ‘system’
- Identification of existing and missing aspects of collective experience
- Discussion on the emerged properties and patterns
- Identification of fundamental relations within the 12-fold
- Formation of contextual figures from the emerged properties
- Initial evaluation of the process and the results

Step 2.1: Identification of dominant and desired aspects of the ‘system’

In this step the participants will indicate which aspects of their organisational or community’s reality they consider being the most indicative, important or desired. They will also express what these aspects bring up to them in contextual words or small phrases (implicit properties). More specifically:

a) Working on individual basis, each participant is asked to read (or look at) the 12 phrases / images that comprise the first set of stimuli and then choose among them: i) one or two that depict better the current organisational reality and ii) one that symbolizes a desired future. If the research takes place in a community, the phrases / images can refer the municipality’s profile or describe some of its major sectors or services provided. Each participant should choose one or two of these, with which he/she strongly agree or disagree, as well as one for the desired future.

b) The participants are then asked to express in their own words the values, principles or emotions (positive or negative) that are brought up by the choices they made. For each choice they have made, they can write down (on the template) one to three words or short expressions; these are put into the proper cells of the template shown in the following table.

	PRESENT (<i>yellow</i>)		FUTURE (<i>orange</i>)	OBSTACLE (<i>pink</i>)
No of phrase	#	#	#	From # to #
Qualities				

Table 5.7: The first template of the data collection form

It should be mentioned that no matter if the participants like or dislike the aspect they have chosen, the choice confirms its importance and existence within the given organisation or community. On the other hand, the properties related to the desired future are in potentia; if this future arrives, they will emerge. This could work the other way as well: for this future to come, such qualities should become dominant.

c) After that, each participant should consider the main obstacle that impedes (the organisation or the community) moving from the current reality to the desired one. This obstacle should be expressed by a word or a short saying, which must also be written properly on the template. If a participant has chosen more than one reality's aspects (in 1a), he/she must indicate the one he thinks most related to the future he desires.

d) Finally, all these properties should get re-written on colored post-its that have been handed to the participants. Each property should be written on a different post-it, following the guidelines regarding the colors.

Step 2.2: Identification of existing and missing aspects of collective experience

After the completion of step 1, the same procedure is repeated with the second set of stimuli that refer to the aspects (facets) of collective experience that enable or impede a vision to materialize.

a) Still working on individual basis, the participants are asked to read the 12 phrases that comprise the second set of stimuli and then choose among them i) one or two situations they believe that seem most familiar or dominant in their organisational or social context and ii) one that seems unlike or impossible to happen in their work or living space.

b) For each of the familiar situations the participants will indicate 1-3 skills they think being necessary for accomplishing and for the impossible one, they will indicate 1-3 reasons, deficits or missing skills that make the situation unlike or impossible to happen.

c) All these new properties will be put in the proper cells of the template (see the following table) and will be re-written on colored post-its or stickers.

	SKILLS (<i>green</i>)		SHORTAGES (<i>fixia</i>)
No of phrase	#	#	#
Qualities			

Table 5.8: The second template of the data collection form

Step 2.3: Mapping of the emerged properties and discussion on the patterns

a) From this point and on, the participants come together and work as a team in front of a large paper, on which a 12-fold template is drawn. One by one they read loudly the choices they have made and the emerged properties of Step 1. Then they place the post-its on the template, close the node to which each property (post-it) refers. Each of the obstacles is put on a 'present-future' arrow, meaning a directed line that connects the nodes indicated by each participant in Table 22. In this way, a pattern is created (see Figure below) that refers to the collective perception of the current reality and its priorities, the expectations of a desired future, the impeding factors among them, and the most influential qualities, dominant or potential.

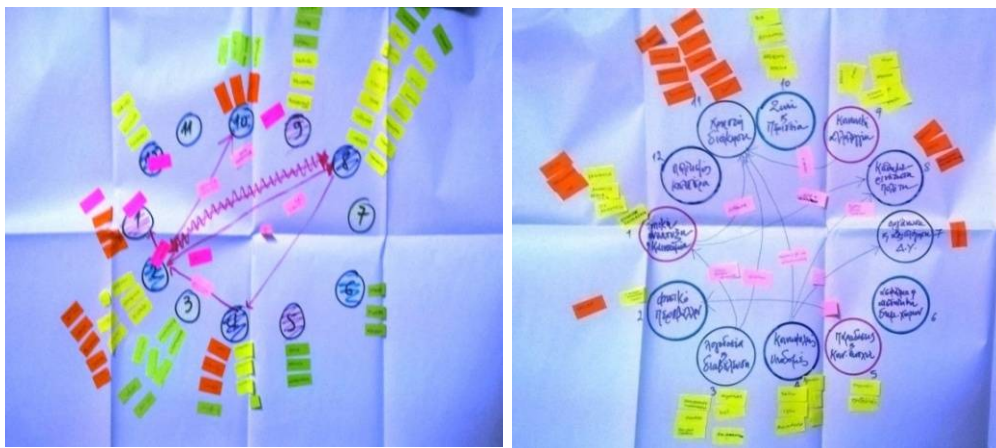


Figure 5.8: Indicative examples of 12-fold templates with placed properties

b) The participants are then encouraged to discuss on the emerged pattern and properties, based on some questions suggested by the facilitator:

- To which profiles / priorities you are more attracted or indifferent?
- Which of the 4 main values / sectors seem to be more or less attracting / important?
- Which values and emotions seem to currently dominate? And which in a desired future?
- Where the strongest obstacles lay and what they are about?
- What situations does it seem that you can easily face and what that you avoid?

c) The above procedures ([a] and [b]) are repeated for the outcomes of Step 2 aided by a second 12-fold template. Again the facilitator suggests some questions like:

- Which are the urging needs in the specific organisation or community?
- What kind of situations can be easily faced? (lessons learnt)
- Which are usually avoided? (gaps)
- Which skills seem to dominate and which are missing?

Step 2.4: Identification of fundamental relations within the 12-fold

a) After an optional short break for coffee or tea, the participants are asked to indicate some relations they consider fundamental among the elements of the first 12-fold. They must relate any 3 of the 12 presented profiles they assume to be compatible or any 3 priorities they think that should be addressed in combination within their context. They must also indicate which item they consider to be the most important (dominant). The participants will make their choices as team and based on their own criteria they will conclude to 2-3 triads. The results must be written in the table below.

b) The same then happens with the second set of the 12 situations.

Profiles / priorities (1 st set)			Situations (2 nd set)		
Main node	2 nd	3rd	Main node	2nd	3rd

Table 5.9: The third template of the data collection form

Step 2.5: Formation of contextual figures from the emerged properties

In the second last part of the process, the participants are asked to compose 2-3 contextual figures that are characteristic in their organisation or community. These figures will be built up by using (as core aspects) qualities and skills that have been emerged during the process.

To do this they start by relating 3 properties (qualities or skills) they assume that usually exist together and then add 1-2 obstacles or shortages and (if needed) some extra quality that has not been mentioned. Finally, they must give a meaningful name (or nickname) to the figures they have created. All these have to be written in the following table.

Fundamental qualities			Obstacles / Shortages (1-2)		Extra quality	Figure's name

Table 5.10: The fourth template of the data collection form

The outcome of this step informs of which qualities and skills can work together, even if they don't necessarily 'fit' from a first view or even if this is not consciously accepted or stated.

It is obvious that these figures correspond to the viewpoint of the specific group. If the group is unmingled, the figures that will be shaped correspond to its stereotypes; if it is mixed, they correspond to a compromised or balanced (enriched) view.

Step 2.6: Initial evaluation of the process and the results

Finally, the participants are asked to evaluate their overall experience by discussing and answering in written the following questions:

- How did you find the process?
- What things did impress you?
- Do you think the outcome is close to the truth?
- How did you work as a team?

Before leaving, the researcher/facilitator thanks the participants for their contribution and reminds them that they will be informed on the results of the research.

5.2.3. Assessment criteria and rules

The data collected through the previously described steps are recorded in a properly structured Excel file and organized adequately, in order to enable easier access and ad hoc queries. The data is then assessed by the researcher against some criteria that refer (i) to the elements of the tool / intangible assets of the system, (ii) to the emerged properties (e.g. skills, qualities, obstacles, etc), and (iii) their combinations and complexes. The assessment is carried out based on common-sense rules, simple statistics and basic network analysis. Criteria, rules and their logic are presenting below.

a) Criteria based on elements

- The total volume of qualities or skills that have been placed around a node of the polygon (element of the model) is related to the influence (strength) of this element (and of the tetrads and triads it belongs) to the system's collective personality. Thus, the more times a node has attracted the participants' choices, the more *present* (influential) it is; likewise, the more attractive (cumulatively) a set of nodes is, the more influential its character is within the system.
- Of particular interest is when the distribution between the current and desired status is essentially different. It indicates a strong desire (and capacity) for a significant change; although not necessarily towards the direction planned by the management.

- Particular nodes without any choice indicate gaps in personality elements or in experience fields. This is important, especially when it appears among more groups, as it warns about possible blind spots or inexperience.
- On the other hand, the positive or negative sign of the properties (qualities/skills and obstacles/shortages respectively) attributed to a specific element (asset), indicates its compatibility to the organisational or social culture.
- The relevance of the properties that are attributed to a node is related to the coherence of meaning that this particular element has within the group. Nodes with many similar properties create a clear meaning among the group and are commonly understood in the same way; this is important if verified through different control groups.
- Yet, nodes with polar or complementary qualities or skills are very interesting too; they indicate ‘locations’ (sources or fields) seemingly in conflict, but also with unrealized potential to tap.
- The connectivity of a node to others (due to its participation in fundamental relationships of qualities or skills) refers to the centrality of its role. Thus, the more connected an archetypal element or situation is, the more accessible it is within the system through its interpretations or required skills.
- On the other hand, the strength of the relations between specific nodes, especially if verified among different groups, indicates a critical role of these archetypal characteristics in the system’s attractor. If such a finding is not known or even unexpected, it possibly indicates a potential critical variable of the emerging attractor; this can be proved very interesting.

b) Criteria based on the properties emerged

- The strength (influence) of a certain quality or skill relates to the number of times: i) it is identified by a specific group (or in total) and ii) it participates in the created triangles of fundamental relationships.
- The persistent identification of a property as characteristic of the current reality means that this quality or a skill is already manifested within the system. On the other hand, when a property is commonly identified by many groups as part of a desired future, it indicates of a quality or skill that is in-potentia and seeking to emerge. Moreover, the recurrence of a quality or skill both in present and future signifies its stable dominance within the system.

- A large volume of (different) qualities emerged relates to a large diversity of different interpretations of reality within the system; likewise, a large volume of skills relates to the availability of various ways to face challenges and problems. Significant divergence between the current and future volumes indicates a possible change in the system's tendency towards pluralism or coherence.
- The overall distribution of the properties emerged around the nodes-elements of the model (or the tetrads and triads) signifies a fundamental inclination of the system's collective personality towards a particular characteristic (or a set). Different distributions among various groups indicate diversity in their basic characteristics and tendencies, which should be further examined whether it depends on the type of their tasks or not.
- If a property (especially an influential one) is related to various nodes, it overlaps the meaning of the nodes and is activated by different circumstances; this property is dominant within the system. In the contrary, when it is related to a specific node, its meaning is influenced by the archetypal meaning of the node-element.
- If a certain property participates in the complexes that are created by various groups, it can be used as a common ground among them and a structural element of the organisational archetype. If in the contrary these complexes consist of radically different properties, a substantial gap of perception may exist across the groups, along with strong stereotypes.
- The incompatibility of a certain influential property to the mainstream organisational or corporate culture informs of the system's shadow. The more relevant such properties are, the more specified the shadow is; but hard to get accepted.
- If an influential property has been identified as an obstacle too (within the same group or among others), it also informs of the group's shadow or of a conflict between different groups' stereotypes. The same occurs when two radically different properties are located on the same node.

c) Criteria based on the created complexes

- The triangles of the fundamental relationships among the elements selected constitute the building blocks of the archetype of the group or system. On the other hand, the relation among the properties emerged informs of indicates qualities or skills that can really work together even if they seem not.

- The number of fundamental relationships in which a certain property participates relates to its centrality in the network of qualities or skills and the accessibility by other properties. This also indicates a high degree of compatibility of the specific property to the system's intangibles.
- The density of a certain connection between two qualities or skills (especially if verified by other groups as well) indicates the criticality of their role in the group's (or system's) attractor.
- An obstacle line that 'connects' two influential elements reveals a difficulty in combining them or in a transition between these states or fields of experience. In both cases possible are indicated. Overlapping of influential relationships among elements (triangle's sides) with obstacle lines (impeding a present-future transition) informs of a blind spot or a hidden trap.
- The network of the organisational qualities or tasks can be viewed in a quantum perspective; as being both a structure and a pathway. Thus, if compared to a linear change 'roadmap', it informs of possible pitfalls (e.g. incompatibility between the nodes of a direct transition) or suggests efficient 'shortcuts' (when the connection between the nodes is strong).

5.2.4. Presentation of results

The results produced by the assessment criteria and rules, as they were described in the previous paragraph, should be then presented in specific forms that would enable the extraction of the deliverables. Such indicative tables and graphs that would help the presentation are presented in Appendix 3.6.

5.2.5. Expected deliverables

Through relating and commenting the findings presented in the previously described forms, the following information is delivered on the level of the whole organisation or community and/or each target group. This information should correspond to the deliverables of the tool.

a) Aspects of the collective personality and unrealized potential:

- The list of identified qualities and skills, either manifested or existing in-potential, for each control group
- The influential properties and the significant elements (nodes)
- The 4-fold and 3-fold classifications of the emerged properties

- The identified obstacles and the elements (fears or holdbacks)
- Significant differences among the perception of reality and vision for the future (different or opposing properties or elements).

b) *Shadow issues, blind spots and possible traps:*

- The neglected or rejected aspects of organisational culture and life, such as:
 - The absence of any reference made for particular nodes (elements or situations)
 - Qualities / skills frequently emerged but non-part of any fundamental relationship
 - Influential properties seeming incompatible to the mainstream (corporate) profile.
- Significant differences among the findings of different control groups, such as:
 - Qualities/skills or elements strongly present or absent in some of the groups
 - Different orientation of desired futures among the groups
 - Properties associated with different elements among the groups
 - Elements associated with properties of opposing meaning
 - Significant difference between corporate prototypes and extracted archetypes.
- Impeding factors that are in parallel with strong points, such as:
 - Obstacles linking influential elements
 - Obstacles concurring with fundamental relationships (triangle's sides)
 - Significant differences between official road maps and extracted networks.

c) *The complexes created (active perception or behaviour patterns)*

- The pattern emerging from the fundamental relationships among the elements for each group; identification of critical variables and pathways
- The organisational or social personas as viewed by each group; comparison corporate prototypes
- The network of the emerged qualities, skills and obstacles, either dominant or in potentia; identification of critical variables and pathways.

In this way, the sense making tool will be in position to deliver the following information:

- a) The intangible assets (values, qualities, skills, holdbacks and fears) that exist within the specific context either manifested or in-potentia, constitute its collective personality and outline the fields of its experience.
- b) The blind spots, shadow issues and gaps that exist among the various mindsets and constitute obstacles for activating the available potential or even perils for the desired transition of the organisation.

- c) The operational complexes of the above properties in the form of contextual archetypes that vary according to the stakeholders' viewpoint and reveal the ways reality is perceived and dealt with.

5.2.6. The validation of the effectiveness of the tool

The validation of the effectiveness of the tool comprises three levels:

- a) The validation of the process itself: It should be examined whether the data collection and the assessment process were applied correctly and according to the standards, like for example whether:
- the sampling was representative of the control groups
 - the content of the stimuli was contextual, meaningful and neutral
 - phenomena of social desirability, gaming and conformism were avoided
 - the researcher's attitude and practice were not intervening or interpreting
 - the process was completed according to the plan
 - the data collected was sufficient
 - the assessment criteria and rules were applied and
 - how any ambiguous issues raised from the results were dealt with.
- b) The assessment of the participants evaluation: The answers of the participants should be assessed with regards to:
- their overall estimation from the process
 - the plausibility of the results they produced and
 - their impression from their work as a team.
- c) The dialogue with the stakeholders: The report on the results of each case study should be given to the stakeholders of the organisation or community and a conversation with them should be aimed at, in order for them to say:
- how they evaluate the results
 - what are the points of their interest
 - what they would like to be done further.

Thus defined, the Tool- Prototype could be applied as a research tool, after being contextualized for the needs of each case study, as following presented.

5.3 CONTEXTUALISATION OF THE TOOL

After the construction of the Tool Prototype, the only thing pending was its contextualisation, according to the needs of each case study. As stated in the Methodology chapter, the contextualisation process comprised: a) the adaptation of the content of the Generic Matrix to the issues that would be examined, b) the specification of the exact steps of the application process and the creation of the data collection form and the data organisation tables, and c) the specialisation of the assessment criteria and rules based on the issues under research. In the following subsections, this process will be presented case by case.

5.3.1 Case One: Hellenic Post SA

In the first case study, the specific issues under research were given by the company's management and were the following:

- Which aspects of the organisational culture are compatible to the current corporate vision?
- Which of the corporate goals and priorities could be easily included in a desired future?
- What impedes the realisation of that future?

Shaping the Generic Matrix was based on the corporate values as were officially indicated in the Business Plan of the Hellenic Post: a) Company, b) Customers, c) Staff (employees) and d) Society.

Following, the goals and priorities of HP interweaved around them, according to the logic of the “three-fold operator” (Young, 1975): a) creation, b) establishment, and c) balance / transformation.

Thus, the following 12 key-words emerged that depict as many unilateral aspects of the company profile. As one can see in the following table, *company* is the core element of phrases Nr 1, 5 and 9; *customers* of Nr 2, 6 and 10; *staff* of Nr 3, 7 and 11; and *society* of Nr 4, 8 and 12.

3-fold / 4 Values	Company	Customers	Staff/ Employees	Society
creation	1. Innovation - New products	10. Expansion - New markets	7. Entrepre- neurial spirit	4. Social responsibility
establishment	5. Sustainability & leadership	2. Loyalty & satisfaction	11. Quality& performance	8. No distinctions
balance / transformation	9. Learning & evolving	6. Adaptation	3. Teamwork & Safety	12. Friendliness & directness

Table 5.11: The Generic Matrix of the 1st case study

These “keys” were confirmed as important priorities by the Director of the VTC and based on these, equal number of phrases was created that described alternative / complementary components (single facets) of the company profile and the company objectives.

Furthermore, in order to capture the inherent organisational skills, either manifested or in potentia, the 12 archetypal situations (challenges) were used in the same form as in the Tool-Prototype version.

The **Data collection form** that was created based on the above and used in this case is presented in the Appendix 4.2.

Finally, taking into consideration the objectives of the case, the data collected should be examined with respect to the following issues:

- Main aspects (folds) of the corporate profile in the present and in a desired future
- Values, qualities and practices that reveal the staff’s attitude regarding the company’s goals
- Requirements for things to become better and factors that constitute obstacles
- Qualities and skills currently dominant and present to a desired future as well and others that so far constitute a hidden, unexploited potential.
- Similarities and differences among the research groups
- Challenges that the various factors feel familiar to and others considered as difficult to face.

5.3.2 Case Two: Dionysos Municipality

In the second case study, the specific issues under research case study were given by a group of local leaders and were the following:

- Which are the main priorities and needs of the (specific group of) residents?
- Are these residents pleased of the overall status of the services provided by the municipality?
- What they think it has to change in order things to become better than today?

For the contextualisation of the research tool, I relied on the four basic axes and the content of the original model of a Municipalities Business Plan that was delivered (on behalf of the Greek Ministry of Interior) by the EETAA consultants. Thus, around the fourfold: a) *Vision*, b) *Environment*, c) *Management*, and d) *Services*, I interwove the priorities of the business plan, according to the 3fold: a) *create requisites*, b) *establish and sustain*, and c) *maturate and change*. Thus emerged the following 12 key-words, depicting as many specialized areas of municipal activity:

Status \ Axes	Leading vision (cultivate)	Environment (protect)	Management (know)	Services provided (care)
Create requisites	1. Innovation & development	10. People's life & property	7. Planning, organisation & evaluation	4. Common-used infrastructure
Implement & sustain	5. Tradition & cohesion	2. Eco- sensibility	11. Virtuous administration	8. Daily problems
Maturate & change	9. Solidarity	6. Safety & aesthetics	3. Consultation & accountability	12. Culture & civilisation

Table 5.12: The Generic Matrix of the 2nd case study

These “keys” were confirmed as to their relevance and completeness of coverage of municipal activity, with the help of two consultants in matters of local government, and based on these, I created as many phrases describing additional individual areas of activities and goals of a municipality. Following, these phrases became meaningful, with the assistance of residents of the area, coming from the same target groups as those under investigation. To imprint the capacities inherent to the local society, manifested or in-potential, the 12 situational challenges of the first case-study were once again used.

The **Data collection form** that was created based on the above and used in this case study is presented in the Appendix 4.2.

Finally, taking into consideration the objectives of the case, the data collected should be examined with respect to the following issues:

- Main priorities and needs of the (specific group of) residents in the present and in a desired future
- Values, qualities and practices that reveal the satisfaction / dissatisfaction of the residents from the services provided by the municipality
- Requirements for things to become better and factors that constitute obstacles
- Qualities and skills currently dominant and present to a desired future as well and others that so far constitute a hidden, unexploited potential.
- Similarities and differences among the research groups
- Challenges that the various factors feel familiar to and others considered as difficult to face.

5.3.3 Case Three: Entrepreneurial Studies

In order to test: a) the adaptability of the Sensemaking Tool to various research contexts and objectives and b) its compatibility to other sensemaking models and research tools derived from the areas of complexity and archetypes, a third case study was needed; and the Tool-Prototype needed to be restructured to meet its the needs.

That case study was about researching: a) how three different groups of the stakeholders of the entrepreneurship programs in the Greek secondary education (pupils, teachers and administrative officers) perceive the concept and practice of entrepreneurship and b) which intangible factors facilitate or impede the successful implementation of the entrepreneurship education programs.

The specific research questions that were agreed with the Greek Ministry of Education were the following:

- Which are the qualities (values, skills, practices) that can function as positive role models of entrepreneurship for the different stakeholders of the programs? And which are those that constitute negative role models?
- Which of these qualities possess common meaning among the groups, so that around them common understanding could be built? Which constitute obstacles or communication gaps?
- Which of the dominant qualities of entrepreneurship today are present to a desired future as well? And which qualities constitute a hidden, unexploited potential at this day?

- Which challenges the various factors feel familiar to, and which do they consider as difficult to face? What issues are their gaps of experience related to, or their unacceptable (repressed) parts?

The special demands of that case were the following: a) the research tool should be unique for all three control groups, b) the prompting questions for the data collection should be simpler, c) the whole method should be rather of a game-like style, and d) the duration of the workshops should be less than an hour long.

Therefore, the main changes that took place with regards to the Prototype were: i) an alternative technique for the emergence of the participants' qualities that depicted their perception on entrepreneurship would be used and ii) the emerged qualities would be related (indirectly) to a new sensemaking model / template; thus they would (partially) disconnect from the stimuli that created them. The impact of these changes on the components, the structure and the process of the third contextualized version of the tool, as well as the assessment criteria to be used in that case and the expected deliverables are presented in the following paragraphs.

Components and structure of the tool

This new version of the sensemaking tool was still modular and resulted as a synthesis of:

a) *The Cynefin model*: it was used as the main sensemaking template by the aid of which the participants would signify their emerging properties; this would be done by relating them to the meaning that was attributed to the 4+1 domains of Cynefin. The attributed meaning of the 5 domains corresponded to 5 principles of human attitude and behaviour that are presented in the following table (more details on the Cynefin model can be found in the Literature review: second chapter, subsection 2.3.2). The 4+1 principles that were employed for the signification of the emerged properties were written on the corners of a large template that was used by each group as following:

Universality: global application of a single truth, known to all.

Expertise: obedience to the experts who know best.

Diversity: tolerance and dialogue among the many and contradictory versions of the truth

Initiative: trust in a leadership that will take over to lift the misunderstandings

Non-interference: I don't know / I don't care / I don't take position.

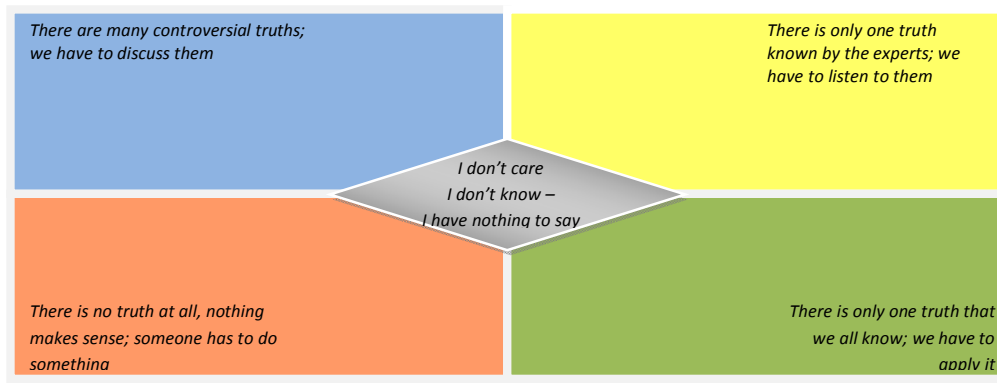


Figure 5.9: The Data Collection / signification Template of the 3rd case study

b) *Pearson's OTCI model*: the core-characteristics of the 12 archetypal figures of the model served as a 3x4 generic matrix for the creation of the profiles of entrepreneurs and consumers, as perceived in the present and as expected in an ideal future (more details can be found in the Literature review: third chapter, subsection 3.1.2). The 12 archetypal characteristics which were based on the OTCI model are presented in the form of a 3x4 matrix:

<i>3-fold 4-fold</i>	<i>Stability & control</i>	<i>People, belonging relationship</i>	<i>Mastery & results</i>	<i>Learning & evolution</i>
<i>Socialisation - Adaptation</i>	Devotion & generosity	Survival & interdependence	Courage & heroism	Idealism & confidence
<i>Transformation - Hidden potential</i>	Creative expression	Passion & sensitivity	Rupture & overthrow	Search - exploration
<i>Restabilisation - Conscious choices</i>	Domination & control	Pleasure & challenges	Transformation-magical solutions	Wise & fair choices

Table 5.13: The Generic Matrix of the 3rd case study

c) *The Tool-Prototype*: it provided the 12 situations and the concept of relating triads for the creation of profiles that was based on the assets of PMAI.

Data collection Process

The data collection was done through experiential workshops that consisted of two parts:

- *Part 1* aimed at: a) the detection of values and competences that the participants considered as fundamental and b) their signification with regards to the 5 principles.
- *Part 2* aimed at the creation of actual and desired businessmen and consumers profiles, which can be used in educational scenarios.

The techniques used for the data collection included prompting questions facilitating the spontaneous emergence of qualities, choice of priorities among alternative situations, synthesis among alternative choices/situations, qualities signification (charting), group discussion and recording of impressions.

The steps of the procedure were the following:

Part 1 (individually and teamwork)

Step 1: Emergence of the values, perceptions and practices that the participants like / dislike most in the world of market (e.g. businessmen, professionals, clients); 'likes' and 'dislikes' on different color post-its.

Step 2: Emergence of competences and deficits (shortages of skills) which characterize the participants' social environment and correspond to everyday challenges that they face; skills and deficits on different color post-its.

Step 3: Signification of the emerged qualities according to the 5 principles (Cynefin template)

Step 4: Discussion on the outcome and the collective pattern formed by their choices.

Part 2 (teamwork)

Step 1: Creation of businessmen profiles, by combining in 3 the above mentioned 12 archetypal characteristics; the collectively resulting profiles corresponded to the present and a desired future.

Step 2: Creation of the respective consumers profiles.

Assessment and expected deliverables

For the results analysis were used simple quantitative rules based on common-logic assumptions. The main data processing criteria and assessment rules per phase were the following:

Part 1

- Which qualities emerged the most? (*high rates=great influence*)
- Which ones had the most positive/negative signs (colors)?(*positive: idealisation, negative: demonisation*)
- Which of the 12 situations were chosen as familiar, which as impossible and which were not chosen at all?
- Which was the overall distribution of the qualities in the 4+1 domains of the model? Which was the overall sign of each domain?

- Which qualities were placed in the center area?*(they constitute disorder elements-possible 'Shadow')*
- Comparison of the above findings among different groups.

Part 2

- In how many triads did each archetypal characteristic participate?*(many: dominant / central role, few: marginal, not any: isolated)*
- Which characteristics were connected with many/a few others?*(with many: critical role/density of connections, few: peripheral)*
- Which characteristics had the greatest occurrence in the future triads?*(they constitute hidden potential)* Which had the less?*(limited dynamics)*
- Comparison of the above findings among different groups.

Based on the above, some of the expected deliverables from the workshops would be, among others, the following:

- More important positive and negative values, attitudes, skills, etc associated to the market people
- Ways of dealing with demanding situations and gaps of experience in facing challenges
- Similarities and differences among different target groups
- Scenario figures for the distinct roles of businessmen and consumers.

At this point, the tool was ready to be used in the workshops of the three case studies. The conditions of its application along with the results produced are presented in the following chapter.

CHAPTER SIX

IMPLEMENTATION AND RESULTS

As presented in the methodology chapter, the effectiveness of a new sensemaking tool would be tested in three cases:

1. In organisations that were in a transition phase or a merger and acquisition process and in need to introduce a new organisational culture. As such, the state corporation of Hellenic Post that was facing a privatisation process was selected. Groups of its mid-level staff examined a) the compatibility of the organisational culture and needs to the corporate vision, b) the facilitating or impeding factors regarding the company's strategic goals, and c) the main organisational personas.
2. In local communities and societies that faced a large-scale change and their leaders had divergent visions of the future, as in the recently formed municipality of Dionysos, in Attica region. There, only a year before the municipal elections, participants investigated a) the priorities of two particular groups of residents (politically involved or not) and their satisfaction or dissatisfaction from the current leadership, b) the factors that enable or impede people to participate in common affairs services, and c) the main social / local profiles.
3. In supra-local institutional systems that were interested in introducing innovative programs but were impeded by perception barriers of their stakeholders. As such some Greek secondary education schools and administrative departments were selected by the Greek Ministry of Education, which was planning to implement new entrepreneurship education programs. The issues processed by the pupils, teachers and administrative staff who participated were a) the perception factors that facilitate or impede the effectiveness of the entrepreneurship education programs and b) the main aspects of the existing and desirable profiles of entrepreneurs and consumers.

Case by case, a detailed description of all three main tests of the sensemaking tool is presented in this chapter and each case is presented separately as following:

- The context in brief: main findings from the field and secondary research;
- Conduct of the workshops: a step by step description of the actual process;
- Presentation and analysis of the results through tables, graphs and brief commentary;
and
- Validation of the results, based on the standards of the tool.

It is reminded that the aim, the data collection form and the data analysis criteria and rules for each case study were presented in sections 5.2 and 5.3 of the previous chapter.

6.1. CASE ONE: HELLENIC POST SA

As previously mentioned the first case study was held at the Hellenic Post SA (ELTA in Greek) and aimed to the imprint of the structural characteristics of the organisational culture and the assessment of their compatibility with a new corporate orientation and the changes under planning.

6.1.1. The organisational and corporate context

Hellenic Post (ELTA) was established in 1827 and by that day was employing nearly 10,000 people and had about 800 branches and 1,000 agencies all over Greece. In 1986, the first private company entered the market of couriers, while ELTA was still a state monopoly in some postal services. In 1998, the Greek Government decided to change its status from public service to state company and the new management started a long-term program aiming to the modernisation of its dysfunctional structures and procedures. It was a slow and difficult process, full of delays, which however permitted the company to offer better services and to regain trust among its customers. Yet, despite the improvement, the recent quality indicators appeared stagnant or even to decline. The recent economic crisis in Greece had reduced the customers' orders and the state's big contracts and thus, the company's income had been seriously affected. This had led to downsizing and reduction of salaries, in parallel with rumors about closing or selling the company; these had increased uncertainty and affected the staff in a very negative.

In anticipation of operating in a fully competitive business environment from 2013, the Business Plan had set three strategic axes. The last of them referred to a human-centered business philosophy, which was based on four core values that were expressed by four words: *Company, Customers, Staff/Employees, and Society*. As this kind of strategy takes time that was not available under the existing circumstances, Hellenic Post was interested in a) making the company's vision compatible to the staff's values and skills and b) 'transforming' mid-level staff into experienced and conscious professionals. For that, its management was interested into identifying the crucial factors that enabled or impeded the employees towards this goal and, if possible, provide an easier and safer path for this 'transformation'.

6.1.2. Conduct of workshops

Beginning the session, a corporate executive made a brief opening statement regarding to the strategic goals of the company for the coming three-year period. He mentioned particularly the need for change to the old mentalities and conventional practices, which was

essential to the market opening and the possible privatisation of the company. Then, acting as the facilitator, I briefed the participants on the objective and the nature of the workshop, without analyzing the procedure, though. Furthermore, I informed them that in the duration of the workshop they could ask any questions they might have, they could move about freely and be served from the coffee break. They could even abandon the procedure if wished to. Then, with a Powerpoint presentation, I guided the participants step-by-step through the procedure prescribed, which did not leave any space for rationalisation of their choices.

Initially, the participants functioned individually and picked out which of the 12 phrases depicted the present and the desired future of the Organisation. They also recorded the feelings emerging from their choices, along with the obstacles they felt existed between today and tomorrow. At the next step, they picked one or two of the 12 situational challenges they felt as being more familiar and one they felt highly impossible to happen in their working environment. They recorded the skills required for the first situations (ones they thought to be collectively available) and the existing skill deficits impeding the latter.

Following, the participants transferred to the existing round tables, forming three groups, to continue with the process. As already stated, group A was comprised by employees with experience at the letters distribution centers, group B by employees with experience at post offices and group C, by employees with experience at both working posts. The members of each group set their post-its on the chart with the 12 nodes and drew the impediments they had previously located, as diagonals of a dodecagon, which corresponded to impeded transitions from the present to a desired future. Next, through team work, they combined into threes the compatible aspects of the company profile and the compatible situational challenges. Finally, based on the directions of the last part, they used the qualities that had emerged in the first part of the session to form complexes that depicted organisational figures in their working environment.

The participants had the immediate chance to discuss the pattern that emerged by their own choices. Then, by rotating from group to group, they had also the chance to see the outcome (pattern) and the content (qualities and complexes) that had emerged among the other teams. In most workshops, the session ended with a short discussion among the participants. Also, throughout the duration of the workshop, they were able to set questions and receive answers on matters of procedure.

Being the policy of the HP-TC to give an evaluation of the event after a short period of time, and to report on the performance results, the participants did not fill out any kind of questionnaire at that time. The outputs of each workshop were archived in folders and the

data was recorded in a special application of the Excel, which was created for the needs of this particular case.

6.1.3. Presentation of the findings

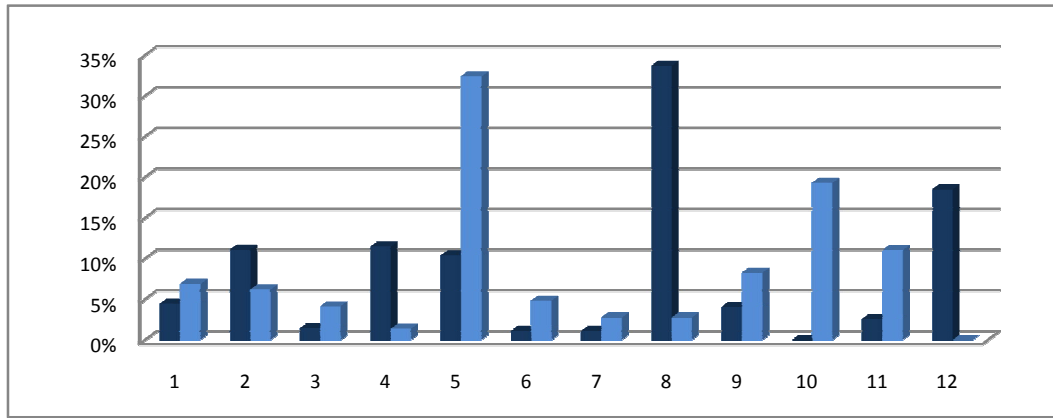
In the following pages the results of the case will be presented through comparative tables and charts with the following order: a) the staff's selections among the 12 folds of the corporate profile aspects/business priorities, based on a 12-fold, 4-fold and 3-fold signification, as well as on the participation of the sectors (elements) in the combinations; b) the staff's emotions generated per profile fold / priority, as derived from the emerged qualities related to the elements; c) the collective (organisational) experience in facing turning points and the ability (or not) to manage important challenges of their field; and d) the characteristics of existing organisational personas and the key-issues of organisational qualities networks.

It should be noted here that according to the neutrality requirements of the tool, the following data analysis should have a bullet-style format, as its purpose is not to deliver results but only facts, in order to facilitate an uninfluenced self-assessment and validation made by the participants and stakeholders. Yet, in order to meet the academic standards for a dissertation, I outline the findings as emerge every after a few graphs and I briefly comment them at the end of a segment or the case. But, it should be clear that this is **my own interpretation of the results** and should be only taken as such; as an example of the assessment, which should be collectively created by the participants or stakeholders.

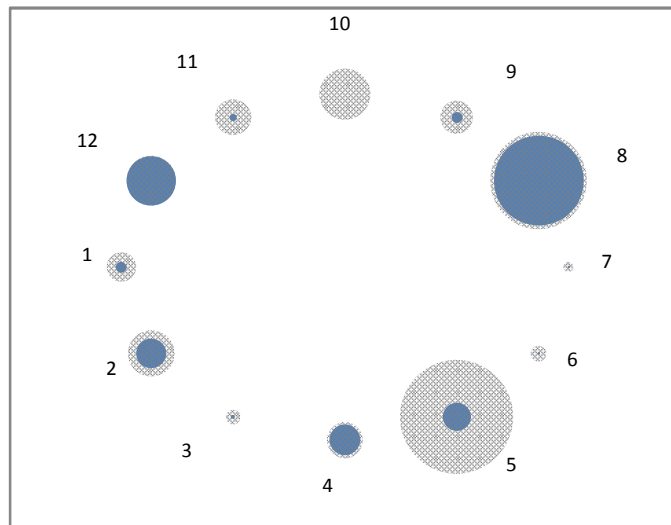
a) Profile aspects prioritized by the staff

Profile aspects (indicated as most important)	Present (current)				Future (desired)			
	G-1	G-2	G-3	Tot	G-1	G-2	G-3	Tot
1. innovates and develops new products	2%	4%	7%	4%	6%	4%	11%	7%
2. loyal and satisfied customers	10%	16%	7%	11%	6%	6%	7%	6%
3. safe and team-oriented environment	1%	2%	1%	1%	6%	2%	4%	4%
4. responsibly contributes to society	12%	9%	14%	11%	4%	0%	0%	1%
5. sustainable leader in its sector	8%	12%	11%	10%	21%	41%	35%	32%
6. adapts fast to the needs of its customers	0%	1%	2%	1%	4%	4%	7%	5%
7. uneasy entrepreneurial spirit of its people	0%	2%	1%	1%	6%	2%	0%	3%
8. serves with no discriminations	39%	32%	30%	34%	6%	2%	0%	3%
9. able to learn and evolve	3%	5%	3%	4%	10%	8%	7%	8%
10. opens in new markets and conquers them	0%	0%	0%	0%	21%	18%	20%	19%
11. professionalism - stable quality & performance	1%	1%	6%	3%	8%	14%	11%	11%
12. directness and friendliness of its people	22%	16%	17%	19%	0%	0%	0%	0%

Table 6.1: Frequency of selection of the 12 elements in present / future (% of the participants' choices per group & in total)



Graph 6.1: Distribution of the elements selected by all participants (*dark color: present, light: future*)



Graph 6.2: Distribution (on the dodecagon) of the elements selected by all participants

At the time of the case study, the participants indicated as most close to reality the profile aspects related mainly to the “service with no exceptions or discriminations” (all over the country) and secondarily to the “directness of service and the friendliness of the staff”. In order to securely estimate the emotional impact of these mainstream aspects, one should examine whether the emotions attributed to these were positive or negative (see Table 6.12).

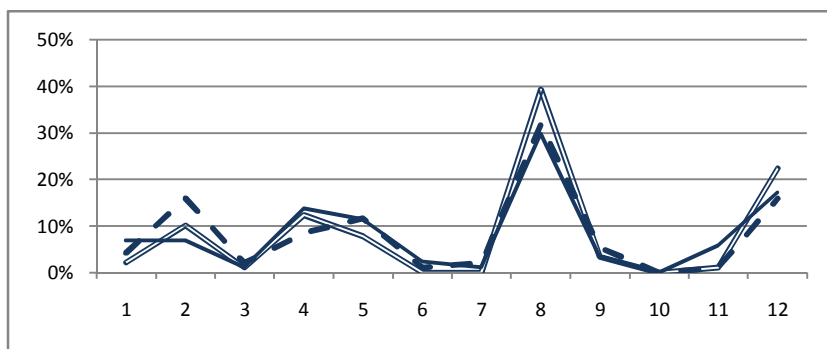
On the other hand, some other aspects seemed to be of little or no priority at all (at the time of the research) and thus, seemed to be considered as not important or undeveloped. The interesting thing here was that among them were the aspects of entrepreneurial spirit, innovation, teamwork, adaptability to customers, learning attitude, market-orientation (extrovert spirit) and professionalism; each of them were chosen no more than 5% by the participants.

The future expectations of the residents seemed focused on two new aspects: the pursuit of sustainability and market leadership and the open and extrovert spirit. As these

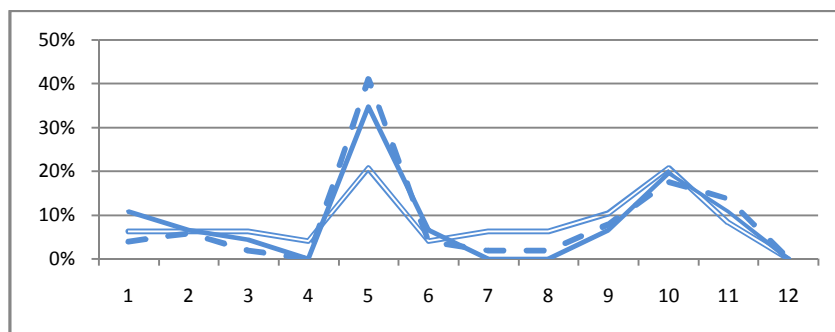
aspects were very weak or even absent at the time of the research, doubts are created regarding the authenticity (reliability) or the efficacy of their statement. Actually, this should be checked up whether the related properties, in Tables 6.10-11, were ambiguous or even not that relevant to such targets.

What was also interesting about their future expectations was that the currently dominant aspects had no future perspective; they were diminished or decline. This could be a possible blind spot in case that pleasant feelings would be generated by these aspects; again this should be checked with Table 6.1. On the other hand, as the main transitions form the “serving all over the country” situation towards “market leadership” ([8]→[5]) and “new markets conquering” ([8]→ [10]) were mostly impeded (Table 6.7), this should be discussed taking also into consideration the issues that emerged as main obstacles (Table 6.13).

Finally, the comparison of the present and future patterns among all three control groups (see Graphs 6.3 and 6.4 below) shows that, at that time, all members of Hellenic Post were perceiving reality almost identically and more or less they were looking towards the same future direction. More specifically, the existing priorities of the groups seemed to follow rather similar patterns and their main differences referred to the customers’ loyalty in present and, mainly, to the future sustainability of the company.



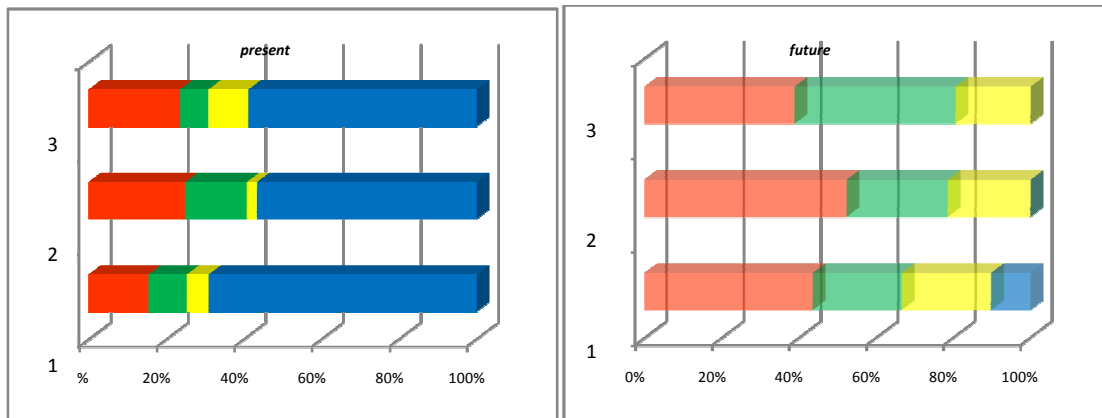
Graph 6.3: Comparison of the patterns emerged from the groups regarding their present priorities (double line: group A, dotted: group B, single: group C)



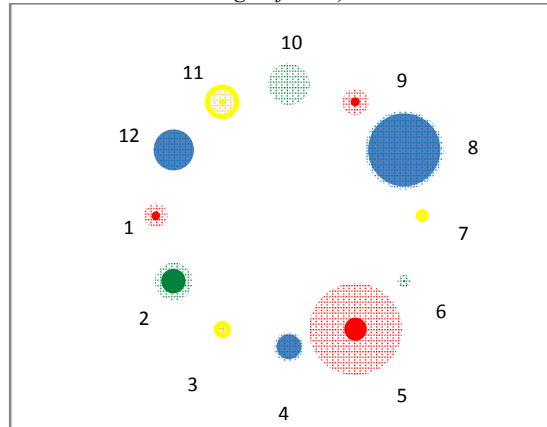
Graph 6.4: Comparison of the patterns emerged from the groups regarding their future priorities (double line: group A, dotted: group B, single: group C)

Profile aspects	Present (current)				Future (desired)			
	G-1	G-2	G-3	Tot	G-1	G-2	G-3	Tot
Company (<i>red</i>)	13%	21%	22%	19%	38%	53%	51%	47%
Customers (<i>green</i>)	10%	17%	9%	12%	31%	27%	32%	30%
Staff (<i>yellow</i>)	2%	5%	8%	5%	21%	18%	15%	18%
Society (<i>blue</i>)	75%	56%	61%	64%	10%	2%	2%	5%

Table 6.2: Distribution of the choices made on a 4-fold basis in present / future (% of the total choices made by the participants of each group)



Graph 6.5: Comparative distribution of the present and future priorities of the groups on a 4-fold basis (*dark color: present, light: future*)

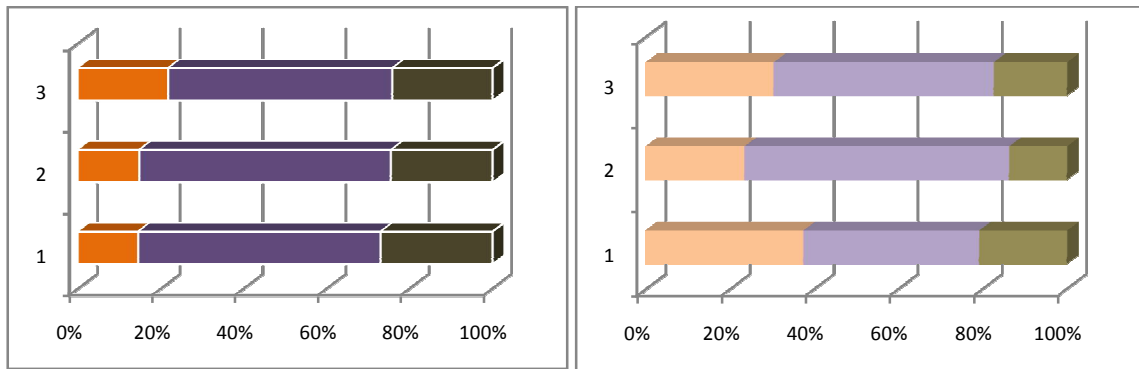


Graph 6.6: Distribution (on the dodecagon) of the elements selected by all participants on a 4-fold basis (*dark color: present, light: future*)

The 4-fold classification (based on the four core-corporate values) shows that the staff seems to be willing to reduce the public / social character of the organisation in favor of a well organized and market-oriented company. However, the huge change in percentages of society-related aspects (64% → 5%) should make one cautious whether they meant and understood what they were saying or not; this should be cross-checked with other findings. On the other hand, the 3-fold classification shows that the profile aspects related to the beginning seemed to gain space while the ones related to maintaining remain the same (max slack 5%).

Types of theHP activities	Present (current)				Future (desired)			
	G-1	G-2	G-3	Tot	G-1	G-2	G-3	Tot
Start(<i>brown</i>)	14%	15%	22%	17%	38%	24%	32%	31%
Maintain(<i>purple</i>)	59%	61%	54%	58%	42%	63%	51%	52%
Maturate (<i>grey</i>)	28%	24%	24%	25%	21%	14%	17%	17%

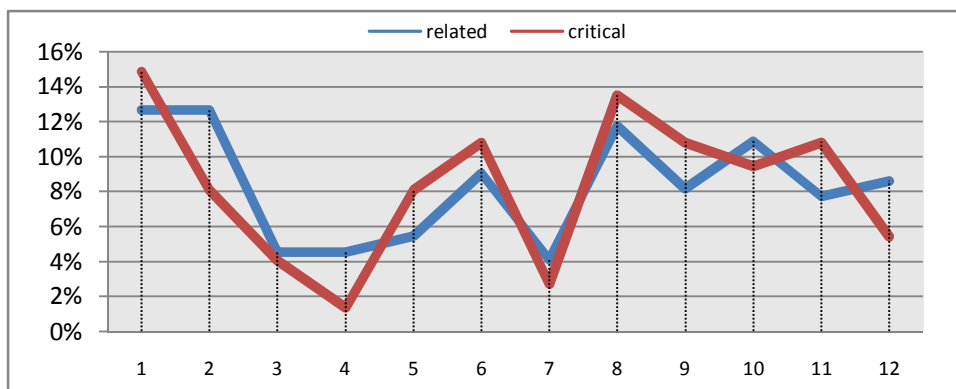
Table 6.3: Frequency Distribution of the choices made on a 3-fold basis in present / future (% of the total choices made by the participants of each group)



Graph 6.7: Comparative distribution of the present and future priorities of the groups on a 3-fold basis (dark color: present, light: future)

Element	Related	critical
1. innovates and develops new products	13%	15%
2. loyal and satisfied customers	13%	8%
3. safe and team-oriented environment	5%	4%
4. responsibly contributes to society	5%	1%
5. sustainable leader in its sector	5%	8%
6. adapts fast to the needs of its customers	9%	11%
7. uneasy entrepreneurial spirit of its people	4%	3%
8. serves with no discriminations	12%	14%
9. able to learn and evolve	8%	11%
10. opens in new markets and conquers them	11%	9%
11. professionalism - stable quality & performance	8%	11%
12. directness and friendliness of its people	9%	5%

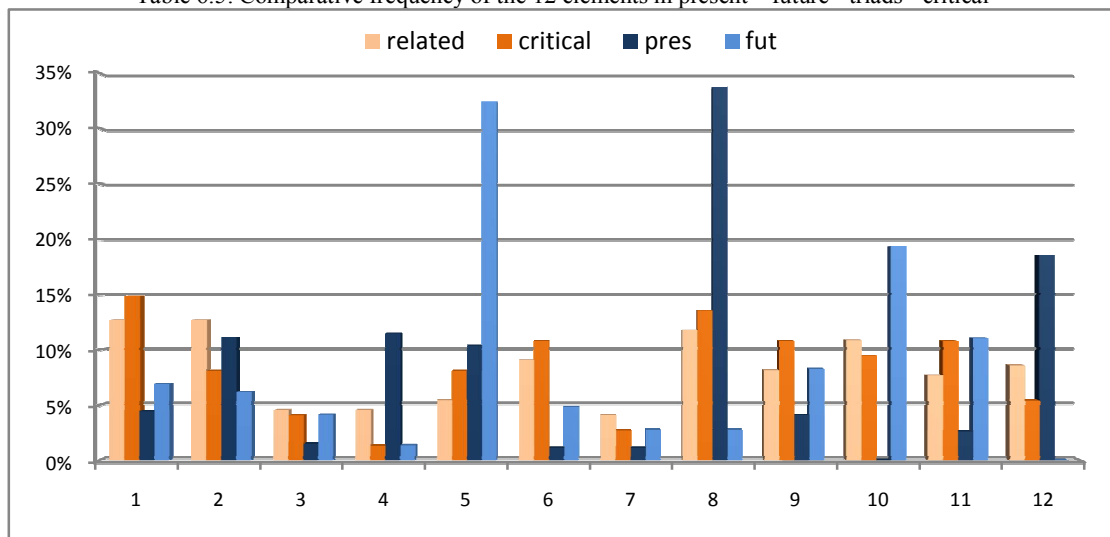
Table 6.4: Frequency of the 12 elements combined in triads and identified as critical



Graph 6.8: Frequency of the 12 elements combined in triads and identified as critical

Profile aspect	Chosen in present	Desired in future	Related with others	Identified as critical
1. innovates and develops new products	4%	7%	13%	15%
2. loyal and satisfied customers	11%	6%	13%	8%
3. safe and team-oriented environment	1%	4%	5%	4%
4. responsibly contributes to society	11%	1%	5%	1%
5. sustainable leader in its sector	10%	32%	5%	8%
6. adapts fast to the needs of its customers	1%	5%	9%	11%
7. uneasy entrepreneurial spirit of its people	1%	3%	4%	3%
8. serves with no discriminations	34%	3%	12%	14%
9. able to learn and evolve	4%	8%	8%	11%
10. opens in new markets and conquers them	0%	19%	11%	9%
11. professionalism - stable quality & performance	3%	11%	8%	11%
12. directness and friendliness of its people	19%	0%	9%	5%

Table 6.5: Comparative frequency of the 12 elements in present – future - triads - critical



Graph 6.9: Comparative frequency of the 12 elements in present – future - triads – critical

Comparing the patterns of the above graph, one can notice that the aspects that were considered as most compatible or critical were not the same with the ones considered as most representative of present reality or desired future; in the contrary they differ a lot. For example, although the aspects (goals) of innovation, adaptation, learning and professionalism were rarely or not at all chosen as representing the present and future of the organisation, they were mostly related to the others, meaning they were recognized as most compatible to them. Actually, innovation was identified as the most compatible and the most critical aspect in the triads of combinations, even more than the most frequently chosen elements. This is perhaps indicative of which intangibles are considered by the participants as subsidiary goals, compatible to the main corporate priorities. On the other hand, the aspects of social responsibility, entrepreneurial spirit and teamwork seemed to be the most

‘disconnected’; this perhaps depicts another blind spot as such aspects cannot ‘grow’ independently.

With regards to the strongest compatibility bonds among the profile aspects (see the following Table), one can first notice that the most influential relations are not impeded. Furthermore, two major relational triangles (of connections) were formed: [8]–[2]–[6] (serving all over the country – loyal & satisfied customers – adaptation to customers’ needs) and [1]–[10]–[9] (innovation-learning-new markets), which seem to be clear from obstacles. The first seemed to refer to the present (at the time) situation, while the second to the pursued corporate goal.

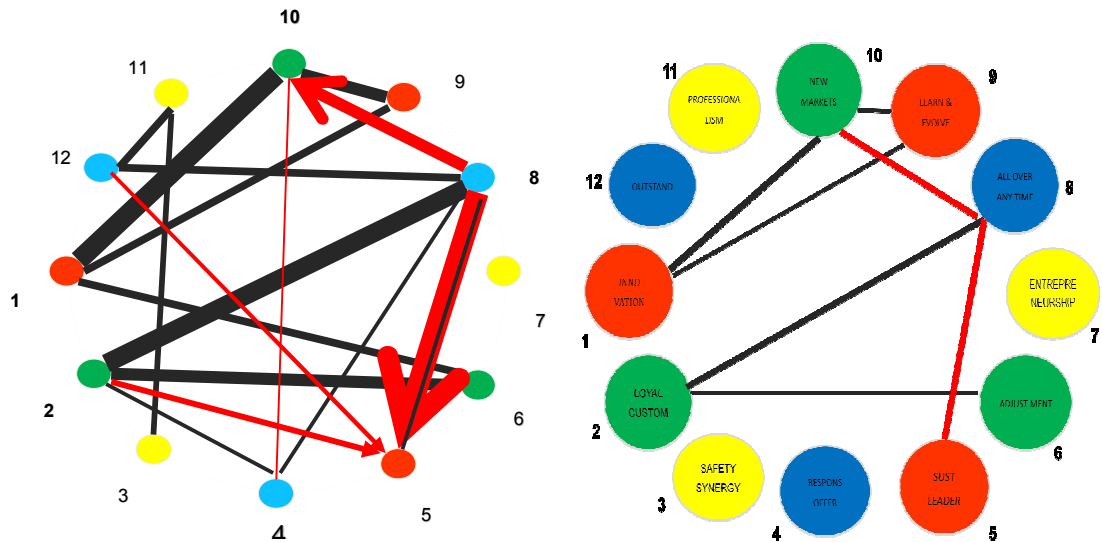
Related aspects of corporate profile		Times related	By % of participants
1	10	18	12%
2	8	17	12%
2	6	12	8%
1	9	11	8%
9	10	11	8%
1	6	9	6%
8	12	9	6%
11	12	9	6%
3	11	8	6%
2	4	7	5%
4	8	7	5%

Table 6.6: Most strong (frequent) relations between profile aspects

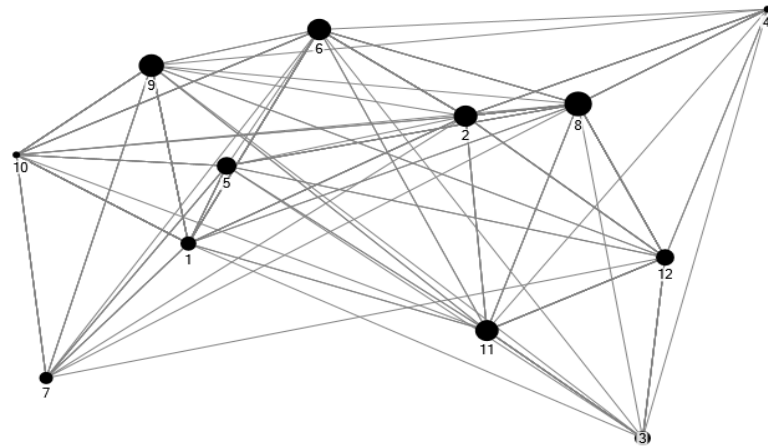
Present → Future aspects	Times impeded	Identified by % of participants
8 → 5	24	17%
8 → 10	10	7%
2 → 5	6	4%
12 → 5	6	4%
4 → 10	5	3%

Table 6.7: Most impeded transitions between (current & desired) profile aspects

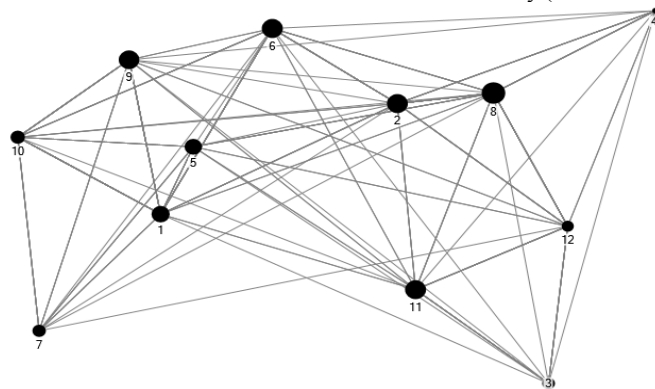
On the other hand, the most impeded transitions were between the dominant at the time aspect ([8]) and the desirable ones in the future ([5], [10]), where serious obstacles were identified; these should be further examined (Table 6.13) whether they were relevant or convergent. Most obstacles were originated from the aspect of ‘service with no exceptions’, which of course was anticipated as it was the dominant one; adding the less frequent transitions, the sum of the ones starting from [8] would exceed 30% of the total.



Graph 6.10: Most strong (frequent) relations and impeded transitions among the 12 elements in all work-groups



Graph 6.11: Undirected Profile Relations - Betweenness Centrality (created with NodeXL)



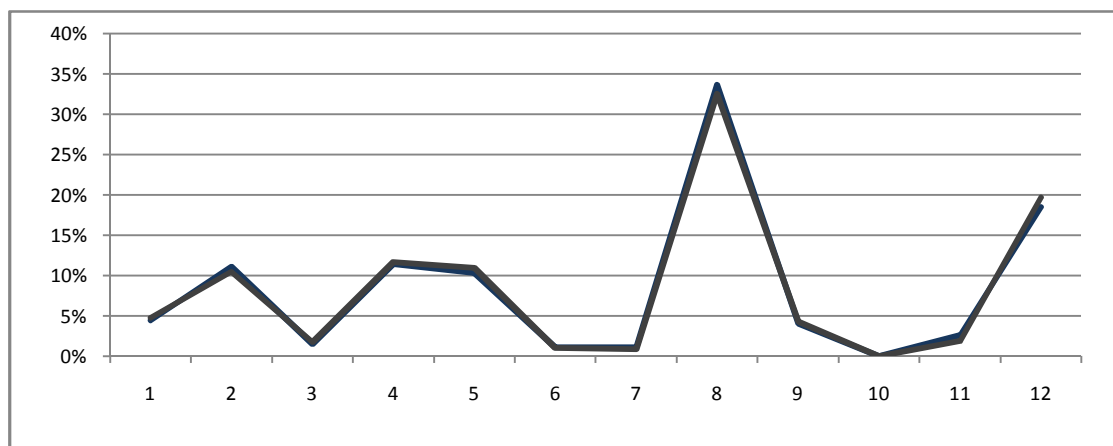
Graph 6.12: Undirected Profile Relations - Eigenvector Centrality (created with NodeXL)

In addition to the above, the network-graphs indicate that some of the strongest elements and the main relationships are verified the network analysis; e.g. the elements [8], [5], [2] are *central*, while the triangle [11-12-3] forms a *clique*. Moreover, among the two strongest elements ([8] in the present and [5] in the future) lies the element [2] (loyal and satisfied customers); [8-2-5]. It should be reminded here that the connections [8] - [5] and [2] - [5] are impeded by obstacles, while the [8] - [2] not.

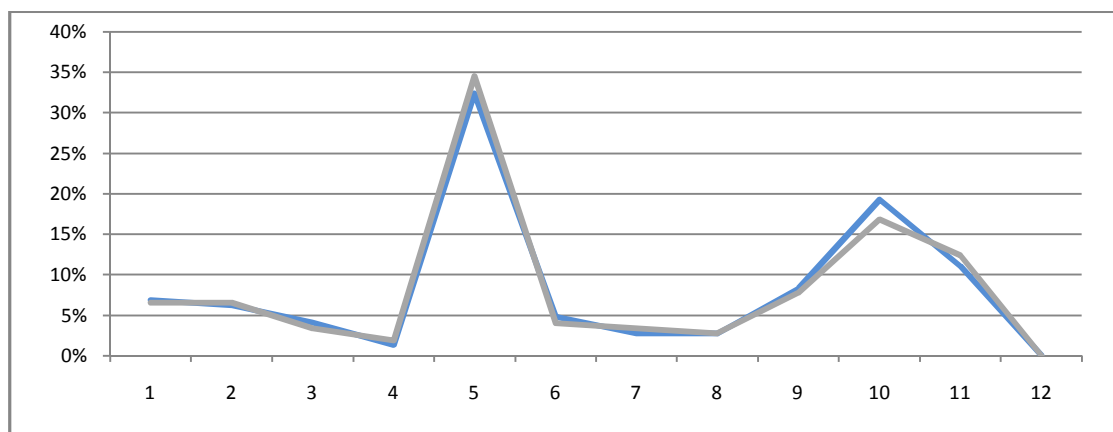
b) Emerged qualities

As it is shown in the next two graphs, the distribution patterns of the chosen aspects (initially presented in graph 6.1) and the emerged properties seemed identically similar, both in present and future aspects.

This means that no element created to the participants the need to get expressed in a relatively richer way than the others; or in other words, no sector stimulated the participants more intensively than the others; or that the participants' attitude during the case was balanced.



Graph 6.13: Comparison of the distribution patterns of the chosen elements and emerged properties (blue: elements, grey: properties – dark color: present, light: future)



Graph 6.14: Comparison of the distribution patterns of the chosen elements and emerged properties (blue: elements, grey: properties – dark color: present, light: future)

The emotional status of the staff is evident by a simple observation of the feelings attributed to it at the time of the case study; joy, satisfaction, dignity and survival for the present and survival, safety, certainty, hope for the future (Table 6.8). The former were mostly related to the (perceived as) social character of the organisation and the latter to their expectation from the company. These findings were common among the different groups (Table 6.9).

Qualities	Present	Qualities	Future
Joy	41%	Survival	27%
Satisfaction	40%	Safety	16%
Survival	30%	Certainty	13%
Dignity	28%	Hope	12%
Safety	10%	Satisfaction	9%
Trust	10%	Dignity	8%
Professionalism	10%	Joy	8%
Responsibility	9%	Optimism	6%
Certainty	8%	Professionalism	4%
Respect	8%	Sustainability	3%
Service	7%	Trust	3%
Pride	7%	Innovation	3%
Friendliness	7%	Adaptability	3%
Recognition	7%	Pride	3%

Table 6.8: Most frequent qualities (manifested / in potentia) among all groups (% of participants)

Group A		Group B		Group C	
Qualities	%	Qualities	%	Qualities	%
Survival	63%	Survival	53%	Joy	41%
Satisfaction	48%	Satisfaction	45%	Satisfaction	40%
Joy	48%	Joy	35%	Survival	30%
Dignity	42%	Safety	33%	Dignity	28%
Hope	23%	Dignity	29%	Safety	10%
Professionalism	23%	Certainty	27%	Trust	10%
Safety	21%	Trust	20%	Professionalism	10%
Responsibility	13%	Pride	16%	Responsibility	9%
Trust	13%	Professionalism	14%	Certainty	8%
Service	13%	Responsibility	14%	Respect	8%
Respect	13%	Hope	12%	Pride	7%

Table 6.9: Most frequent qualities among each group(% of participants)

However, some of the main properties related to the future were somehow inconsistent to the essence of the pursued intangibles (Table 6.10); e.g. feeling safe does not actually push you to innovate, feeling certain will not help you adapt, etc; this could be an oxymoron or a possible blind spot; it looked like (in the first years of the Greek crisis) the participants were caught in the remembering of an organisational ‘paradise lost’ and the hopes for a safer future. It is no coincidence that hope was the property mostly related to the (seemingly) unknown territories of innovation [1] and entrepreneurship [7], which were prerequisites for

the corporate turn towards new markets. It was like they knew that they had to move towards new markets but they were unprepared for what that would require.

Properties emerged	Number of times	Nodes											
		1	2	3	4	5	6	7	8	9	10	11	12
Survival	83	10%	12%	2%	2%	29%	0%	4%	16%	8%	8%	7%	1%
Satisfaction	71	1%	14%	0%	13%	17%	4%	0%	28%	0%	4%	6%	13%
Joy	70	3%	4%	1%	17%	10%	1%	1%	30%	4%	6%	0%	21%
Dignity	52	4%	15%	2%	12%	12%	0%	0%	35%	2%	2%	6%	12%
Safety	38	5%	11%	16%	5%	29%	0%	0%	5%	8%	5%	13%	3%
Certainty	31	3%	16%	6%	0%	45%	0%	0%	6%	3%	6%	10%	3%
Hope	22	18%	0%	0%	0%	23%	0%	14%	5%	9%	14%	9%	9%
Professionalism	20	5%	5%	0%	10%	10%	5%	0%	30%	5%	5%	5%	20%
Trust	19	0%	16%	0%	0%	21%	0%	5%	21%	5%	0%	0%	32%
Responsibility	17	6%	6%	0%	29%	6%	0%	0%	24%	12%	6%	6%	6%
Pride	15	0%	0%	0%	20%	40%	0%	0%	27%	0%	7%	0%	7%
Respect	13	0%	15%	0%	23%	15%	0%	0%	23%	0%	0%	0%	23%
Service	12	0%	8%	0%	17%	0%	8%	0%	25%	0%	0%	25%	17%

Table 6.10: Distribution of the 12 most influential properties of all groups (%)

Properties emerged	Number of times	Nodes related											
		1	2	3	4	5	6	7	8	9	10	11	12
manifested													
Joy	59	2%	3%	2%	19%	5%	2%	2%	36%	5%	0%	0%	25%
Satisfaction	58	2%	14%	0%	16%	14%	3%	0%	34%	0%	0%	2%	16%
Survival	43	14%	19%	2%	0%	16%	0%	5%	28%	12%	0%	2%	2%
Dignity	40	3%	15%	0%	15%	5%	0%	0%	45%	3%	0%	0%	15%
in potentia													
Survival	39	5%	5%	3%	5%	41%	0%	3%	3%	5%	18%	13%	0%
Safety	23	9%	9%	9%	4%	30%	0%	0%	0%	9%	9%	22%	0%
Certainty	19	0%	16%	11%	0%	42%	0%	0%	5%	5%	11%	11%	0%
Hope	17	18%	0%	0%	0%	29%	0%	12%	0%	12%	18%	12%	0%

Table 6.11: A 12-fold distribution of the 5 most influential properties of ALL-groups (%)

The previous observations and interpretations regarding the ‘paradise lost’ and the hope for tomorrow seem to get verified by findings of the next Table: from the pleasant feelings of the existing social character and public status of the corporation one passes to the critical goal of (corporate) survival. Yet, the staff seemed unprepared as the expectances seemed to be driven by an attitude of maintenance and safety rather than of creativity and change.

Present Properties	4-fold				3-fold		
	Company	Customers	Staff	Society	Begin	Maintain	Change
Joy	12%	5%	4%	80%	23%	44%	34%
Satisfaction	16%	17%	2%	66%	18%	64%	19%
Survival	42%	19%	9%	30%	19%	65%	16%
Dignity	11%	15%	0%	75%	18%	65%	18%
Future Properties	4-fold				3-fold		
	Company	Customers	Staff	Society	Begin	Maintain	Change
Survival	51%	23%	19%	8%	31%	62%	8%
Safety	48%	18%	31%	4%	22%	61%	18%
Certainty	47%	27%	22%	5%	11%	74%	16%
Hope	59%	18%	24%	0%	48%	41%	12%

Table 6.12: A 4-fold & 3-fold distribution of the 4 most influential *in-potenti* properties of ALL-groups (%)

Finally, regarding the obstacles emerged (Table 6.13), both groups indicated as main factors impeding the transition towards a desired future: a) the organisational culture of the (Greek) public sector, b) the poor management and c) the economic crisis; additionally, the sense of uncertainty (part of the dominant culture), the non-meritocracy and the rigidity of the public sector; the first two characterize most the impeded transitions, indicating a possible blind spot for the management. All these make perfectly sense for those who know the context of the Greek public sector.

Obstacles	frequency
Public sector mindset (attitude)	17%
Poor management	12%
Economic crisis	12%
Uncertainty - Insecurity	9%
Non meritocracy – political intervention	5%
Rigidity	4%

Table 6.13: Most frequent obstacles(% of participants)

c) Coping experience with critical situations and challenges

On the following charts and tables the collective experience of the organisation in facing turning points and its ability (or not) to manage important challenges are presented. Based on the data, we have come to the most familiar and most improbable of occurring situations among the groups, as well as the skills and deficits related to them:

Situations - challenges	familiar				impossible			
	G-1	G-2	G-3	Tot	G-1	G-2	G-3	Tot
1. Things must change	11%	10%	14%	12%	19%	13%	23%	18%
2. Shaping new abstract notions	0%	0%	1%	0%	32%	25%	19%	25%
3. Exchanging thoughts and ideas	17%	21%	10%	16%	0%	0%	5%	1%
4. Carefully developing (nurturing)	5%	4%	1%	3%	2%	0%	0%	1%
5. Implementation and extension	6%	5%	5%	5%	2%	0%	0%	1%
6. Analyzing data - documenting pathways	9%	6%	7%	7%	2%	0%	5%	2%
7. Balancing the opposites to synergize	8%	14%	10%	11%	6%	6%	7%	7%
8. Transforming experience into consciousness	9%	7%	13%	10%	2%	4%	0%	2%
9. Targeted actions towards new knowledge	5%	6%	13%	8%	4%	8%	2%	5%
10. Organizing & systematic application	23%	21%	20%	21%	2%	0%	0%	1%
11. Questioning & revising	2%	4%	5%	4%	17%	31%	19%	22%
12. Transcending shortages and starting again	5%	1%	2%	3%	11%	13%	21%	14%

Table 6.14: Frequency of selection of the 12 situations as familiar or impossible (% of the total choices)



Graph 6.15: Distribution pattern of the familiar & impossible situations

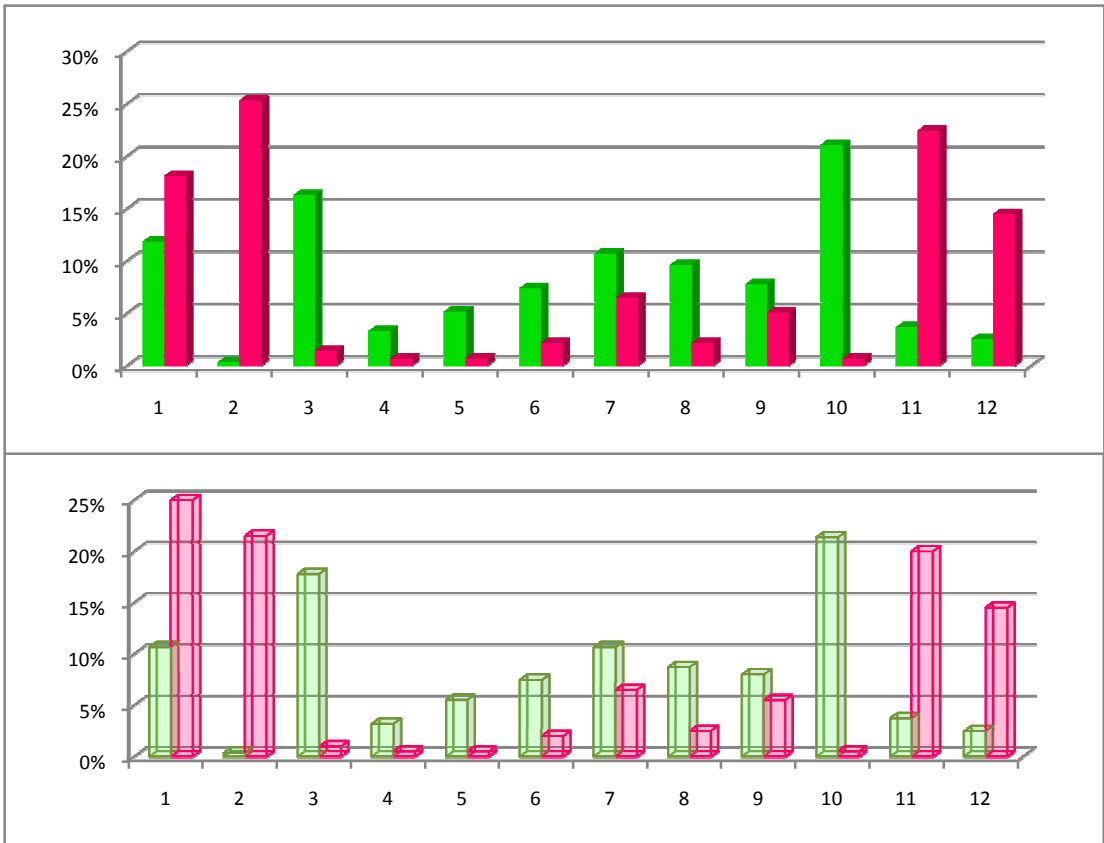
The distribution of the familiar situations is concentrated around two peaks: organisation and communication, while the one of impossible presents four peaks: formation – revision – transcendence – change. The rest of the situations vary in a range of low frequency.

There is a shared belief that the exchange of communication was the most feasible task, with no deficits associated to it. Yet, the conscious lack of any ability to give form and make tangible whatever abstract rises doubts regarding the usefulness of the communicative skills (how can they apply on something non specific?) and informs of a possible blind spot. The same with organizing; although it is considered to be the most feasible task, many issues were raised about disorganisation (Table 6.17); again a potential blind spot.

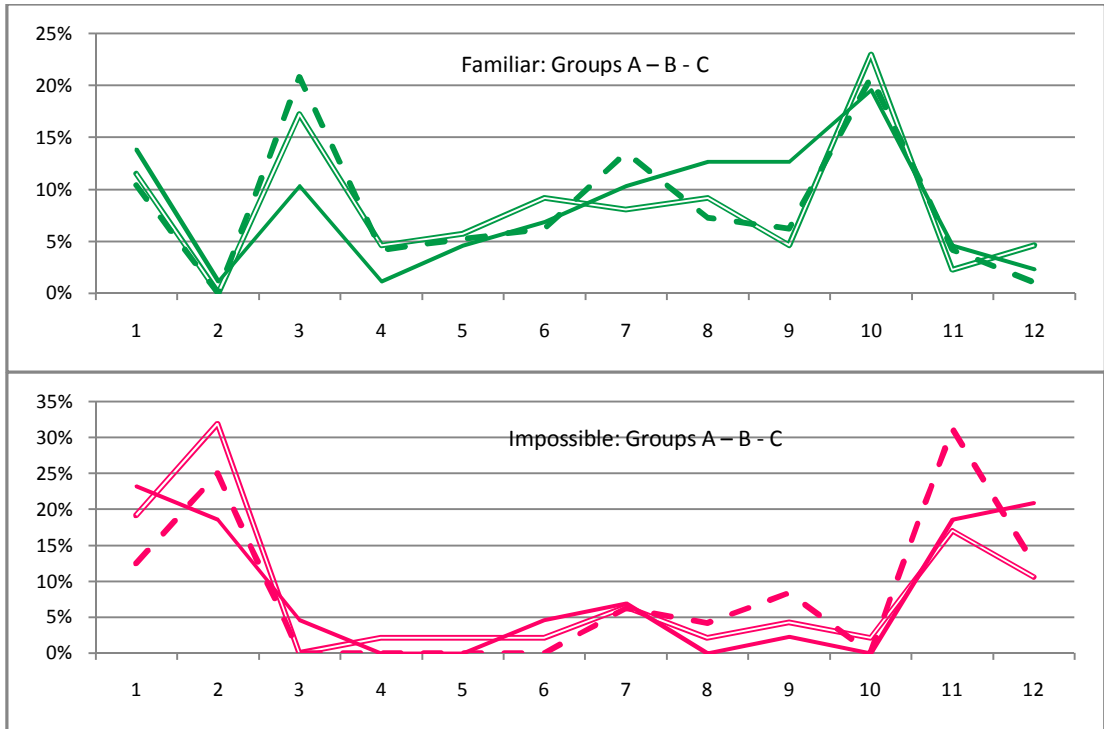
Moreover, revision and transcending seemed almost impossible to happen, especially in a bureaucratic public organisation as the Hellenic Post, with no relevant experience. This was verified by the many properties emerged that referred to rigidity and public sector mindset. Thus, it makes no surprise that change appears to be the most ambiguous situation and a repetitive pattern (as we have seen so far in the trials' results and we will see in the following cases as well). Although recognized as a familiar situation (possibly as a familiar need) at the same time it is characterized as highly impossible to happen! This contradiction is considered to be of particular importance.

Along the situations [11]–[12]–[1]–[2]–[3], one can notice the following sequence: *impossible questioning the authorities – great difficulty in transcending old patterns – mixed attitude regarding change – inability to formulate – openness for exchange*; but in favor of what specifically? Probably, in favor of the existing patterns despite the need for change; this is a blind spot. It should be mentioned here that this finding is repetitive along the research (see also the results of the 2nd case study, as well as of the 2nd and 4th initial trial) and corresponds to a typical pattern that makes perfectly sense in Greece. This can be also considered as an indication of the validity of the results of the tool.

In the following Graph the similarity of the distribution patterns of the selected situation (either as familiar or as impossible) and the emerged properties (skills / deficits) is obvious and confirms the balanced attitude of the participants against the stimuli, just like earlier in Graphs 6.13, 6.14. Furthermore, the choices of the three groups seem to follow relevant patterns but not as much as with the first 12-fold (Graphs 6.3, 6.4).



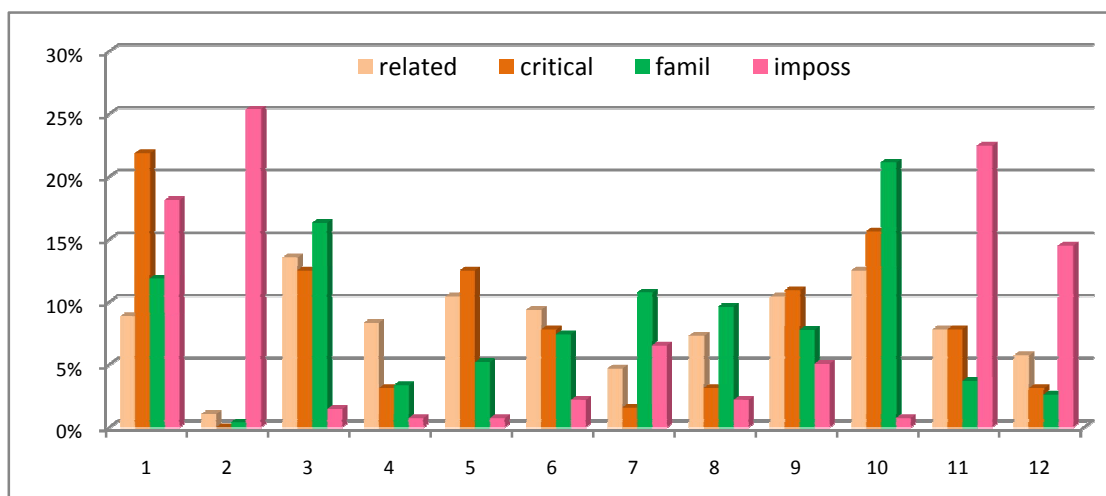
Graph 6.16: Comparison of the distribution patterns of the chosen situations and emerged properties (green: familiar, pink: impossible – solid: situations, transparent: properties)



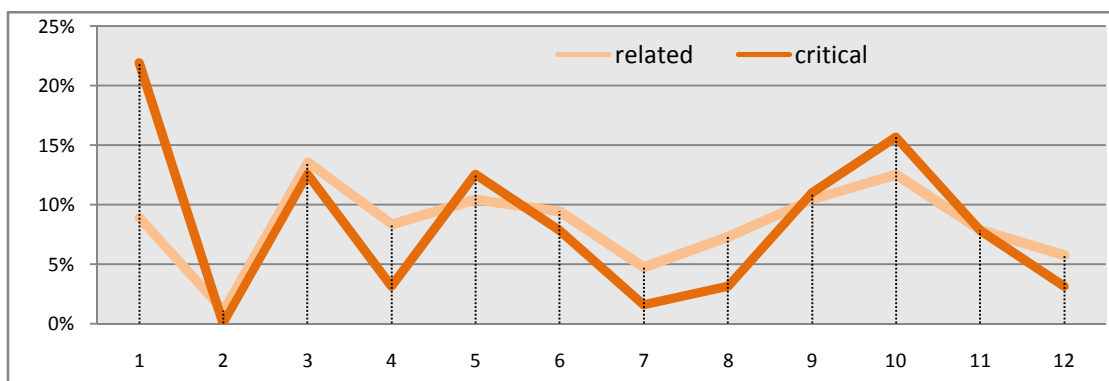
Graph 6.17: Comparison of the patterns of the groups regarding the familiar/ impossible situations (double line: group-A, dotted: group-B, single: group C – green color: familiar, pink: impossible)

Situations	Chosen in present	Desired in future	Related with others	Identified as critical
1. Things must change	4%	7%	13%	15%
2. Shaping new abstract notions	11%	6%	13%	8%
3. Exchanging thoughts and ideas	1%	4%	5%	4%
4. Carefully developing (nurturing)	11%	1%	5%	1%
5. Implementation and extension	10%	32%	5%	8%
6. Analyzing data - documenting pathways	1%	5%	9%	11%
7. Balancing the opposites to synergize	1%	3%	4%	3%
8. Transforming experience into consciousness	34%	3%	12%	14%
9. Targeted actions towards new knowledge	4%	8%	8%	11%
10. Organizing & systematic application	0%	19%	11%	9%
11. Questioning & revising	3%	11%	8%	11%
12. Transcending shortages and starting again	19%	0%	9%	5%

Table 6.15: Comparative frequency of the 12 elements in present – future - triads - critical



Graph 6.18: Comparative frequency of the 12 situations identified as familiar, impossible, compatible to others (combined in triads) and critical.

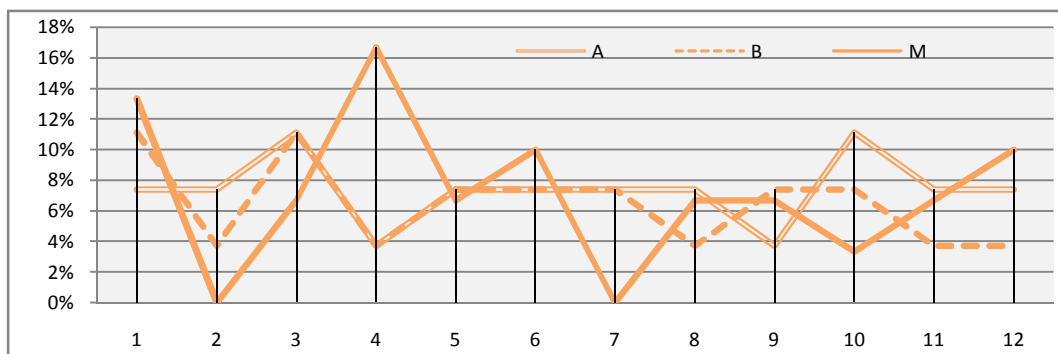


Graph 6.19: Frequency of participation of the 12 situations in compatible triads and of identification as critical

Taking into account the relational triads of these situations, we can note the following three things: a) Although ambiguous, change is concerned as the more critical step and one of the most connected to the others; therefore, it seems that in the given organisation, particular attention should be put on this; b) formation is not considered critical, even if it is recognized as highly impossible to happen; that probably means that the participants don't understand their gap, which informs of a probable blind spot; and c) the impressive absence of attention paid on synergy verifies the very low significance attributed to the teamwork aspect of the corporate profile; probably another blind spot. Furthermore, the combination patterns created by each work-group appeared significant differences; this potentially informs of a non cohesive perception of the organisation's members regarding their collective maturity.

Situations	A	B	M
1. Things must change	7%	11%	13%
2. Shaping new abstract notions	7%	4%	0%
3. Exchanging thoughts and ideas	11%	11%	7%
4. Carefully developing (nurturing)	4%	4%	17%
5. Implementation and extension	7%	7%	7%
6. Analyzing data - documenting pathways	7%	7%	10%
7. Balancing the opposites to synergize	7%	7%	0%
8. Transforming experience into consciousness	7%	4%	7%
9. Targeted actions towards new knowledge	4%	7%	7%
10. Organizing & systematic application	11%	7%	3%
11. Questioning & revising	7%	4%	7%
12. Transcending shortages and starting again	7%	4%	10%

Table 6.16: Frequency of participation of the 12 situations in the combined triads created by work-groups (teams from group-A, group-B, C: Mixed)



Graph 6.20: Comparative patterns of participation of the 12 situations in the combined triads created by work-groups

Skills	Freq.
Persistence	41%
Organisation	28%
Flexibility	26%
Patience	25%
Communication	16%
knowledge	15%

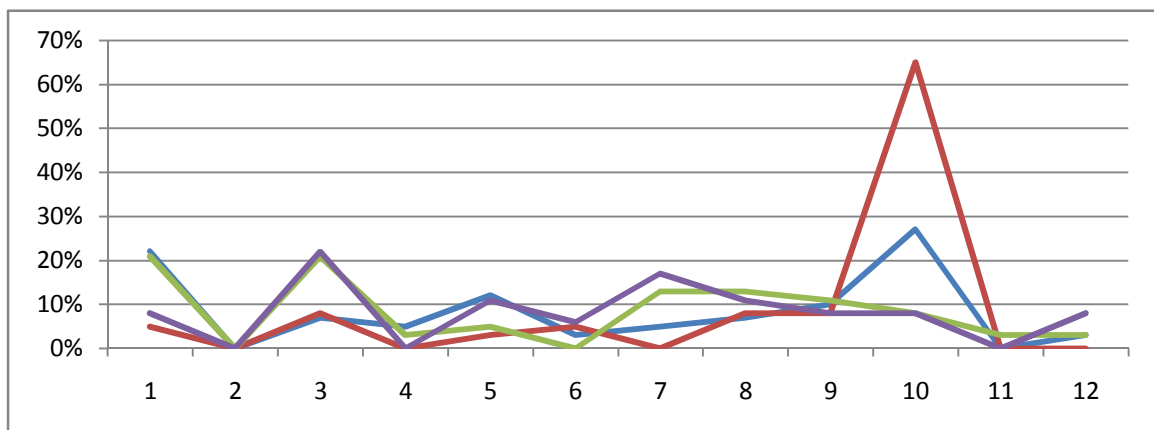
Shortages	Freq.
Disorganisation	19%
Mindset	8%
Double speak	7%
Rigidity	7%
Lack of communication	7%

Table 6.17: Most frequent qualities participated in complexes among all groups (% of participants)

A significant contradiction appears in Table 6.17; it is the simultaneous emergence of opposite properties as characteristic of the organisational context: e.g. organisation vs. disorganisation (28% – 19%), flexibility vs. rigidity (26% - 7%), communication vs. lack of it (16% - 7%). The above definitely inform of a blind spot that should be discussed by the staff and management of the company.

Skills	1	2	3	4	5	6	7	8	9	10	11	12
persistence	22%	0%	7%	5%	12%	3%	5%	7%	10%	27%	0%	3%
organisation	5%	0%	8%	0%	3%	5%	0%	8%	8%	65%	0%	0%
flexibility	21%	0%	21%	3%	5%	0%	13%	13%	11%	8%	3%	3%
patience	8%	0%	22%	0%	11%	6%	17%	11%	8%	8%	0%	8%

Table 6.18: Distribution of the most frequent skills / shortages participated in complexes

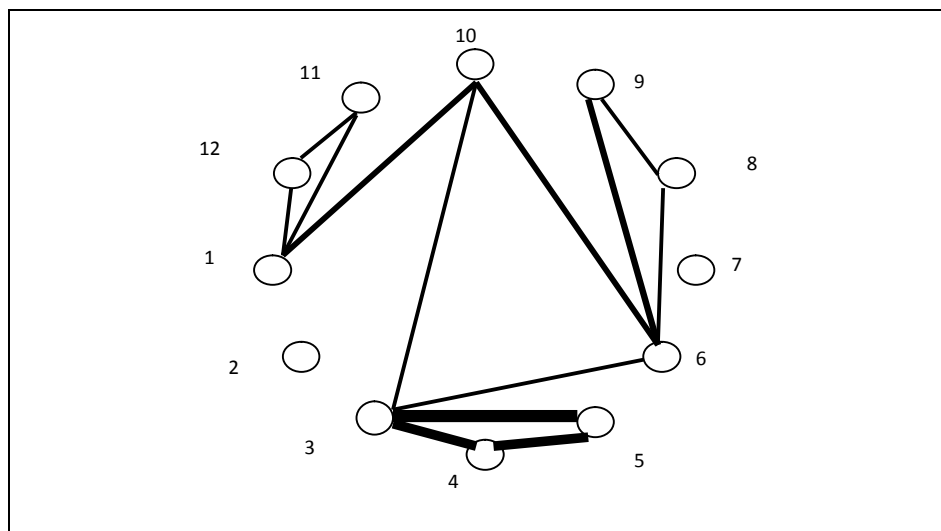


Graph 6.21: Distribution of the most frequent skills / shortages participated in complexes

Finally, the (more or less) balanced distribution of the most frequent skills around the 12 situations seems to follow the criterion of relevance: persistence and flexibility are skills needed for every start; patience and flexibility for communication and synergy; while the peak of the organisation at the 10th situation (organizing & systematic application) is possibly due to their shared notion.

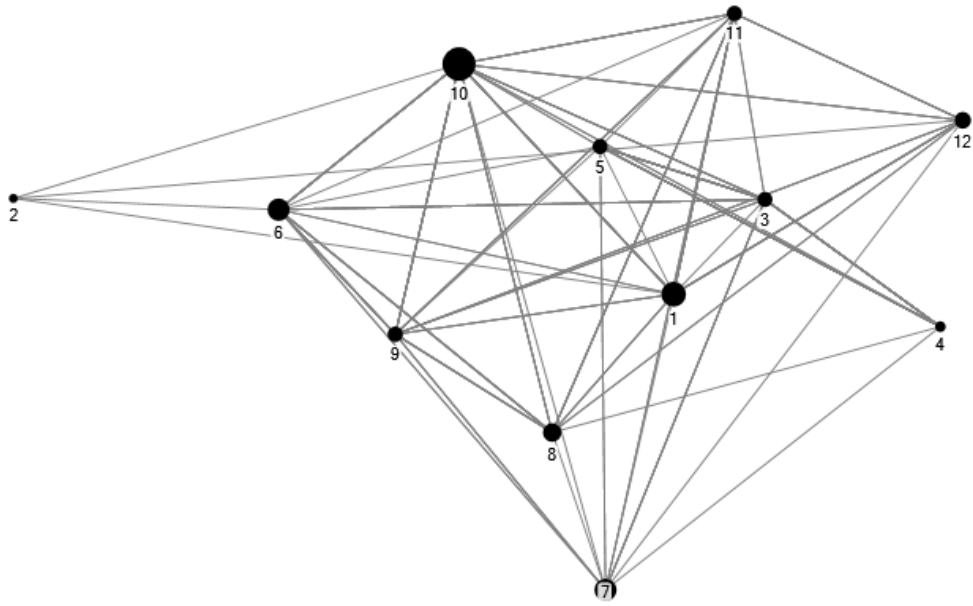
Related aspects		Relations	%
5. Implementation and extension	3. Exchanging thoughts and ideas	18	20%
3. Exchanging thoughts and ideas	4. Carefully developing (nurturing)	14	15%
4. Carefully developing (nurturing)	5. Implementation and extension	14	15%
1. Things must change	10. Organizing & system. application	9	10%
6. Analyze data - document pathways	10. Organizing & system.application	9	10%
9. Targeted towards new knowledge	6. Analyze data - document pathways	9	10%
1. Things must change	12. Transcend shortages & start again	7	8%
1. Things must change	11. Questioning & revising	6	7%
6. Analyze data - document pathways	8. Transf.experience into consciousness	6	7%
8. Transf.experience into consciousness	9. Targeted towards new knowledge	6	7%
3. Exchanging thoughts and ideas	10. Organizing &system.application	5	6%
3. Exchanging thoughts and ideas	6. Analyze data - document pathways	5	6%
11. Questioning & revising	12. Transcend shortages & start again	5	6%

Table 6.19: Most frequent relations among the 12 elements in all work-groups

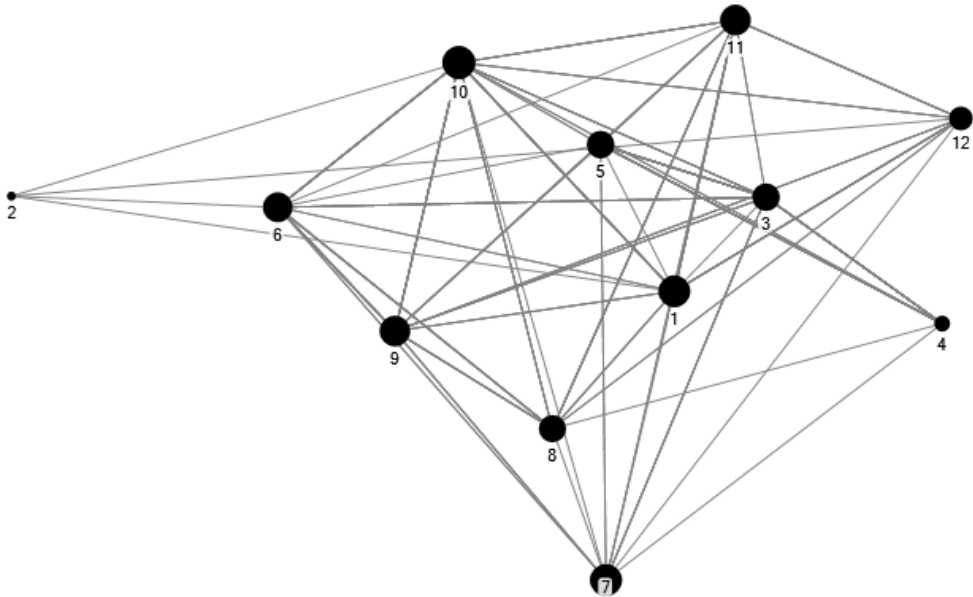


Graph 6.22: Most frequent relations among the 12 situations in all work-groups

Regarding the 12-fold graph of connections, three peripheral triangles are formed by sequential situations ([3-4-5], [11-12-1] and [6-8-9]), around a central one ([3-6-10]), of which the first was the dominant. This pattern could be indicative of a fragmented logic and of a linear attitude; the avoidance of making diagonal connections should be brought for further discussion.



Graph 6.23: Undirected situations Relations - Betweenness Centrality (created with NodeXL)



Graph 6.24: Undirected situations Relations - Eigenvector Centrality (created with NodeXL)

Finally, regarding the network-graphs, one could indicate that: a) the most familiar situations [10], [3], [1] (organisation, communication, and change), marked in the dodecagon as an angle, are here represented as a ‘tight’ triangle, with two of its elements to be rather central, and on the other hand, that b) the most impossible-to-happen situation [2] (formation) is far from the next three ([11], [1], [12]); looking back to the dodecagon graph, [2] is like disconnected from all. So, being the most impossible and the most disconnected, is probably the most ‘forgotten’ or else, a possible blind spot.

d) Social personas & Qualities network

All groups completed this part of the data collection providing 2-3 complexes. In total, 92 complexes of qualities and skills were created indicating organisational personas, to which contextual nicknames were attributed. From these complexes certain clusters of skills emerged. The results are presented in the following tables and a graph of the relations among qualities is aided by the NodeXL application.

Properties combined	Frequency
satisfaction	14%
persistence	11%
flexibility	11%
joy	11%
organisation	11%
dignity	9%
survival	9%
safety	8%
knowledge	8%
professionalism	8%
certainty	8%
disorganisation	5%
responsibility	5%

Table 6.20: Most frequently combined (influential) skills (% of the created complexes)

Properties combined	Frequency
safety - certainty- survival	27%
satisfaction - joy	25%
organisation - disorganisation	16%
professionalism – responsibility - quality	16%
persistence - patience	15%
flexibility – adaptability - rigidity	14%
knowledge - innovation	11%
teamwork - synergy	8%

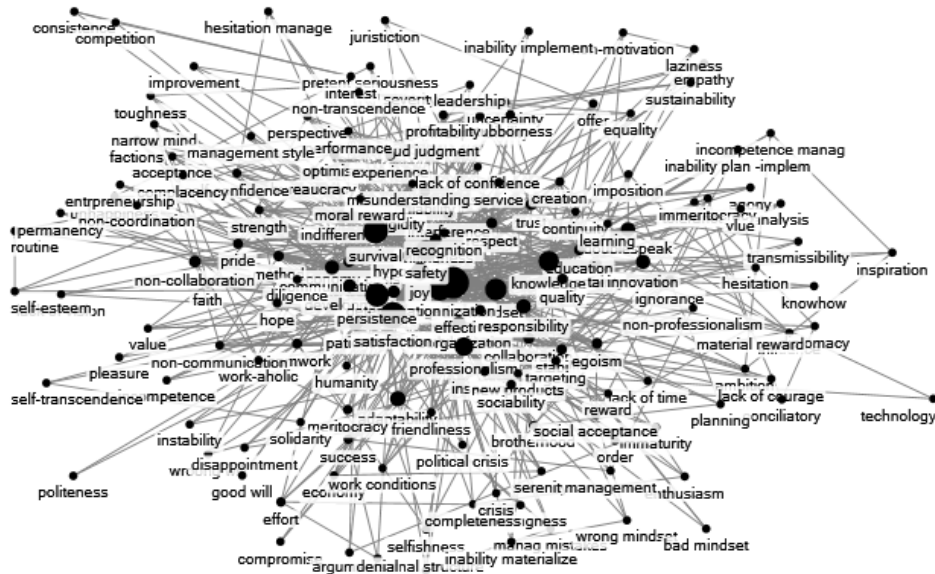
Table 6.21: Most frequently emerged clusters of issues (% of the created complexes)

Two clusters of issues seem to dominate this organisation: a) the issue of professional safety - certainty and b) the feelings of satisfaction and joy in the workplace. As earlier indicated, this is the outcome of an occupational shock that was suddenly applied on employees that were accustomed to the culture of a permanent (for-ever) work stability. The overall similarity of the emerged patterns among the groups indicates the existence of a coherent culture but without different attitudes that could enrich the rather stable patterns.

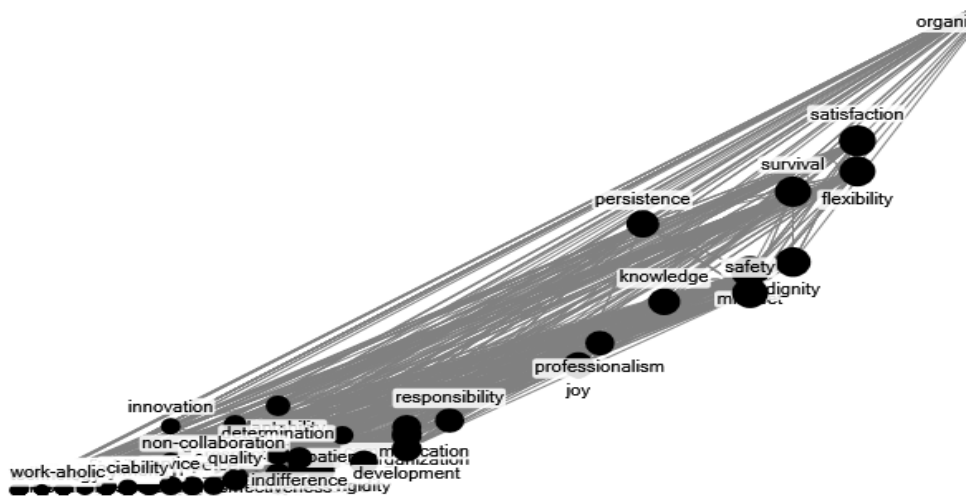
Regarding the network-graphs, one can easily indicate the central position of the core-qualities and the distant (marginalized) of some other qualities, among which one can note: consistency, competition, inspiration, politeness, self-esteem, self-transcendence, and technology.



Graph 6.25: Undirected relations of core-properties - Betweenness centrality



Graph 6.26: Undirected relations of All properties - Betweenness centrality



Graph 6.27: Undirected relations of All properties - Betweenness x Degree x Eigenvector (size) centrality

e) Qualitative findings:

An interesting observation in this case was that the middle and lower staff participated with interest in the workshops, overcoming their initial surprise created by their inexperience in this kind of workshops. On the other hand, the upper staff preferred to monitor, while eventually avoided to set a date for the organisation of their own workshop. As resulted from discussions with the Director of the VTC, there were some reasons for this. Mid-staff are usually accustomed to seminars and have many difficult experiences. Moreover, being practically in the middle, between upper staff and simple employees, but also exposed daily to suppliers, customers etc; they have a greater need to discuss and find solutions to the problems they are facing. Consequently, they are more open to workshops of such kind. Likewise, simple employees with a degree or seminars experience, desire as well to participate in such procedures, especially if the reason is explained to them and thus they feel that they are learning new things. On the other hand, upper staff is more closed up against anything that can 'expose' their thoughts or feelings or put them in an awkward position. Moreover, they mostly prefer to teach their subordinates, rather than learn from them.

Yet, it is worth mentioning that a 'closed up' attitude was exhibited by some of the participants who had trade union membership and throughout the course they were trying to convince the other members of their group about the rightness of their own views and to impose it as a collective position.

The above were faced by the facilitator by employing specific skills that will be discussed in details in Chapter 7.

6.1.4. Validation of results

Based on the above, a summary of the results and conclusions was drafted and sent to the HP Board of Directors and from there distributed to the Management of the Company and to the participants of the workshops. The report included:

- A short description of the objective and the procedure;
- Findings on the receptiveness of the company profile and corporate values, along with the acquired experience in confronting critical situations;
- Charts with the most frequently emerging qualities and competences, the most important obstacles and deficits and the difficult transitions;
- Comparative charts among the three control groups.

The assessment of this program was conducted by the participants using a special questionnaire of the HP-TC, after they were handed the report on the findings of the workshops. Based on the statistic analysis of the answers on a 5-grade scale (not at all, a little, average, enough, much), the HP-TC Director prepared a report indicating the following:

- The participants found the method quite to very interesting and innovating, as it drew their attention and facilitated their meaningful participation;
- The procedure followed allowed them to discuss the problems they are facing from different angles, to investigate different aspects of these problems, to attempt synthesis of these aspects, to exchange experiences and knowledge.
- Additionally, the methodology allowed experiences and different views to emerge and be reported, views that depict to a great extent the complicated organisational culture of the company;
- The trainees considered as positive aspects of this action the group participation technique along with the question-answer system used (90%). They also considered that: a) the program improved enough/greatly their knowledge and effectiveness (82%), b) the practical usefulness of the material, the methods and their techniques left them quite/very satisfied (93%), and c) their view of the trainers were quite/very positive (97%);
- To a great percentage, the trainees asked for such a seminar to also be run for the rest of the employees and HP executives.

Based on the evaluation data, the Director of the Training Centre estimated that the program fulfilled its objectives to a great extent and suggested that some meetings should be held to discuss these findings and a further investigation on the feasibility of carrying out a second cycle of workshops for other target groups should be carried out, based on the findings.

No other step was taken in this direction, such as the planned dialogue with the stakeholders; maybe due to the coincidence of resignation of the CEO two weeks after the end of the workshops and the designation of the new one by the government almost a year after.

6.2. CASE TWO: DIONYSOS MUNICIPALITY

The 2nd case study took place in Dionysos, Attica, in early 2013, and aimed to reveal the needs and feelings of a specific group of residents after two years of the existing leadership, as well as their expectations of a new one.

6.2.1. The social and political context

Dionysos is a small-medium sized municipality (45,000 residents) located in the northern suburbs of Athens and recently (2011) reestablished as the administrative merge of seven neighboring smaller municipalities and communities. During the last decades its population had been rapidly increasing and the old country-side character became a suburban one. This not only affected the outer image of the place but also the coherence of the local communities, as well as their political and administrative status. The intense change created new groups within the communities, which had different views and pursuits and through this diversity many different visions emerged, concerning the future of the area.

The old inhabitants (*locals*) perceived urbanisation as an invasion, while the newcomers (*strangers*) brought with them various urban habits (from which they –ironically- tried to escape) along with new standards of living and new demands. In order to respond to that (perceived) threat and keep their political power, the *locals* used family-concerted voting in the elections and controlled the outcome. The resulting mistrust aggravated the vast diversity of viewpoints, which along with the lack of spare time, led to a generalized apathy and mostly to suspiciousness and distrust towards and among the residents and the local leaders.

The situation became more complex due to the recent administrative merge; the traditional key-players (mainly *locals*) were afraid of losing political control, while the residents (in majority *strangers*) hoped that a broader planning could answer many of the existing needs in a consensus mode. However, due to various reform problems and the leadership shortages, this change had sharpened the existing problems. Most of the key-players continued to operate under a narrow ‘local’ perspective, with hidden agendas and personal dislikes that impeded synergizing. As a result, centrifugal forces appeared both in the leadership team and opposition, blocking and sometimes paralyzing the operation of the municipality.

Such phenomena discouraged people with high standards and expectations from participating in common affairs. However, beneath their conflicting attitudes and beyond their political confrontations, there were still some deeper similarities among them, related to their present pursuits and future visions. The above set the two control groups of the case

study; Group A included those who were already active in public life, while Group B included the indifferent ones, focused mainly on their private life. The social and political context of the second case study is presented in details in Appendix 2.3.

6.2.2. Conduct of workshops

Beginning the session, usually with a small delay because of late arrivals, I briefed the participants on the objective and the nature of the workshop and informed them about the duration and the terms of the session. Some of them, especially in the evening sessions, said from the beginning that they had little time available. In that case study I didn't make use of any power point presentation. I simply guided the participants step by step, orally, through the procedure, taking care again not to leave any space for rationalisation of their choices.

Initially, each participant picked out which of the 12 sectors of municipal jurisdiction he / she considered to be of outmost priority for the present and the desired future of the area one lived on. They recorded their feelings emerging from their positive or negative evaluation regarding the municipality's actions on the selected topics. They also indicated the obstacles they felt existed between today and tomorrow. Then, they indicated which of the 12 situational challenges they felt as being more familiar or highly impossible to happen in their social environment and recorded the skills required or missing.

Following, the participants formed groups, according to their availability and the category they belonged to, in order to continue with the process. The members of each group set their post-its on the chart with the 12 nodes and drew the impediments they had previously located, as diagonals of a dodecagon, which corresponded to impeded transitions from the present to a desired future. Next, through team work, the participants combined into threes the compatible aspects of the company profile and the compatible situational challenges. At this point, noticeable delays presented in some groups, especially those of type A.

The active citizens were not willing to give in from their opinions and so were involved into exchanging arguments, which took time and created a general feeling of discomfort to the group. Finally, based on the directions of the last part, participants used the qualities that had emerged in the first part of the session to form complexes that depicted organisational figures in their social environment. It is worth mentioning, that due to the delay in the previous step of the procedure, there were 3early departures (before the final last part: creation of complexes). Hence, the data collected at this point were rather poor and coming from some of the teams.

During the process, the participants had the immediate chance to discuss the pattern that emerged by their own choices. Then, by rotating among groups, they also had the chance to see the outcome (pattern) and the content (qualities and complexes) that had emerged among the other teams. In most workshops, the session ended with a short discussion among each team. Also, throughout the workshop, the participants were able to set questions and receive answers on matters of the procedure. At the end of the workshop, they filled out a short questionnaire related to their first impressions from the workshop.

6.2.3. Presentation of results

In the following pages the results of the case will be presented through comparative tables and charts with the following order:

a) the residents' priorities and needs among the 12 sectors, based on a 12-fold, 4-fold and 3-fold signification, as well as on the participation of the sectors (elements) in the combinations,

b) the residents' satisfaction / dissatisfaction per sector, as derived from the emerged qualities related to the sectors,

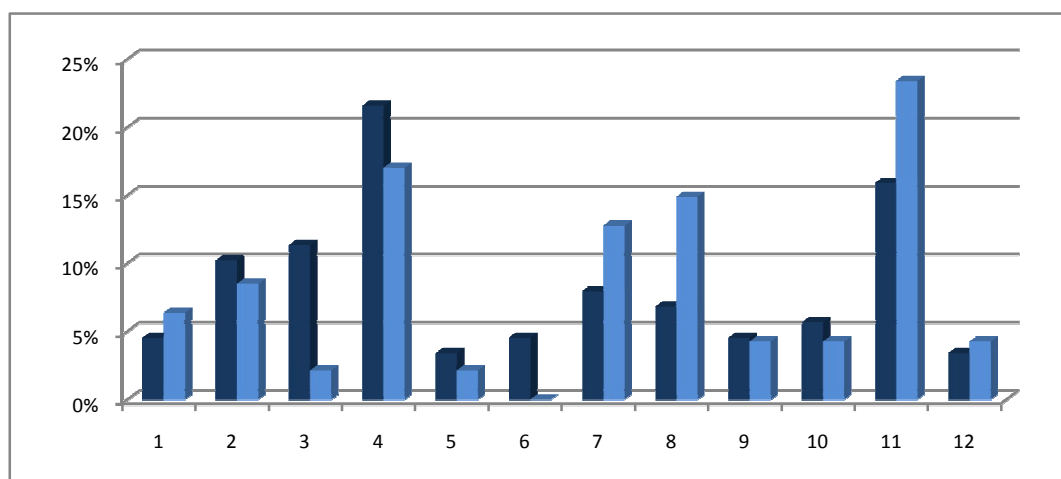
c) the collective (social) experience in facing turning points and the ability (or not) to manage important challenges of their field, and

d) the characteristics of existing social personas and the key-issues of social qualities networks.

a) Priorities and needs of the residents

Operation fields (indicated as most important)	Present (current)			Future (desired)		
	G-1	G-2	Tot	G-1	G-2	Tot
1. Local development and innovation	4%	5%	5%	8%	4%	6%
2. Nature protection & eco-thinking	10%	10%	10%	4%	13%	9%
3. Consultation and accountability	13%	10%	11%	0%	4%	2%
4. Infrastructure (education-sports-welfare)	23%	20%	22%	13%	22%	17%
5. Local traditions and social cohesion	2%	5%	3%	0%	4%	2%
6. Safety and aesthetics of public spaces	2%	8%	5%	0%	0%	0%
7. Planned & evaluated operation	6%	10%	8%	13%	13%	13%
8. Serving and solving everyday issues	4%	10%	7%	17%	13%	15%
9. Active social solidarity	6%	3%	5%	8%	0%	4%
10. Guarding citizens' fortunes	2%	10%	6%	0%	9%	4%
11. Virtuous administration	23%	8%	16%	29%	17%	23%
12. Promotion of culture	4%	3%	3%	8%	0%	4%

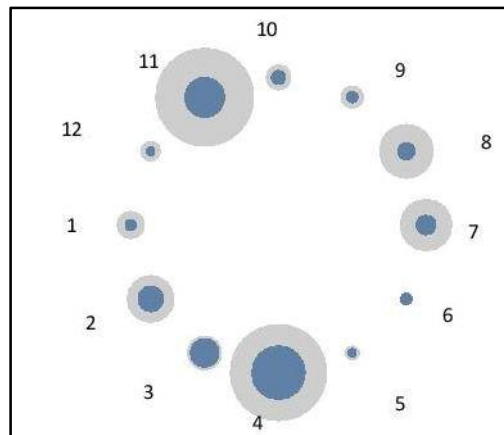
Table 6.22: Frequency of selection of the 12 elements in present / future (% of the total choices made by the participants of each group)



Graph 6.28: Distribution of the elements selected by all participants (dark color: present, light: future)

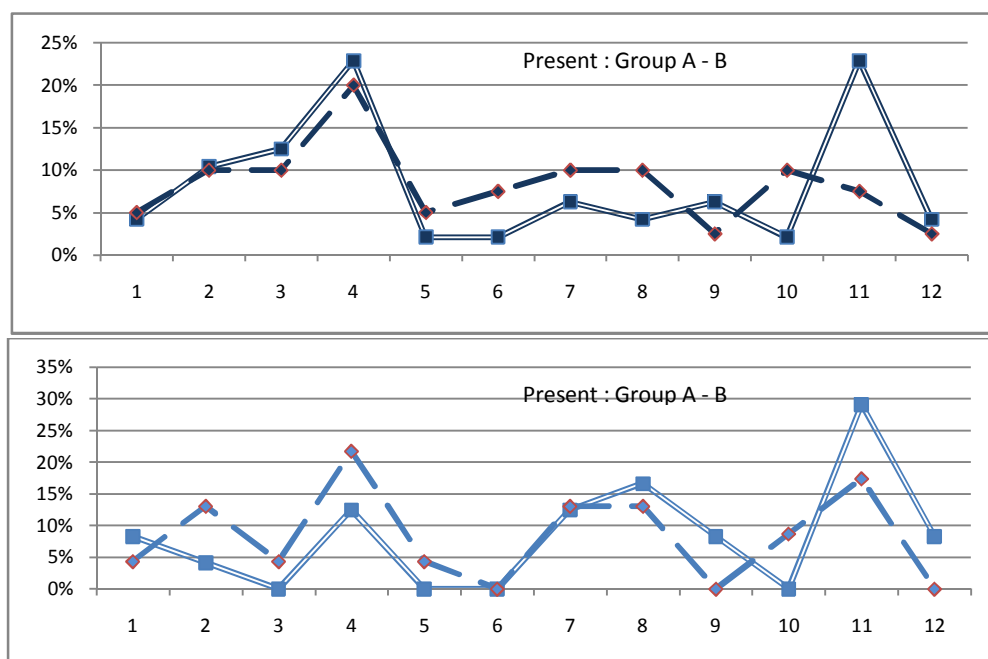
At the time of the case study, the participants seemed interested mainly in issues related to the existing infrastructure (of education, athleticism, welfare) and to virtuous administration; and secondarily to the ecological thinking and practice and to consultation and accountability issues. Whether they were satisfied or not from the existing status results from the meaning of the properties attributed to those sectors; as it will be shown in paragraph ‘b’ (Table 6.28), they were highly dissatisfied. On the other hand, some sectors seemed to be of little or no priority at all - and thus, seemed to be considered as not important - at the time of the research; e.g. the issues of local development and innovation, local traditions and social cohesion, safety and aesthetics of public space, active social solidarity, and promotion of culture were chosen no more than 5% by the participants.

The future expectations of the residents seemed focused on the same two sectors (infrastructure and virtuous administration), but in a reversed order, as well as on dealing with the everyday (casual) problems and on matters of a well operating Municipality. Again, the properties indicate their feelings (which in this case were positive – see again Table 6.28). Moreover, except of the above mentioned sectors that remained low in the priorities list, the issue of consultation and accountability seemed to decline too, especially among the active residents (group-A). On the other hand, the issue of virtuous administration seemed to be a future concern for the non-active residents of group-B.



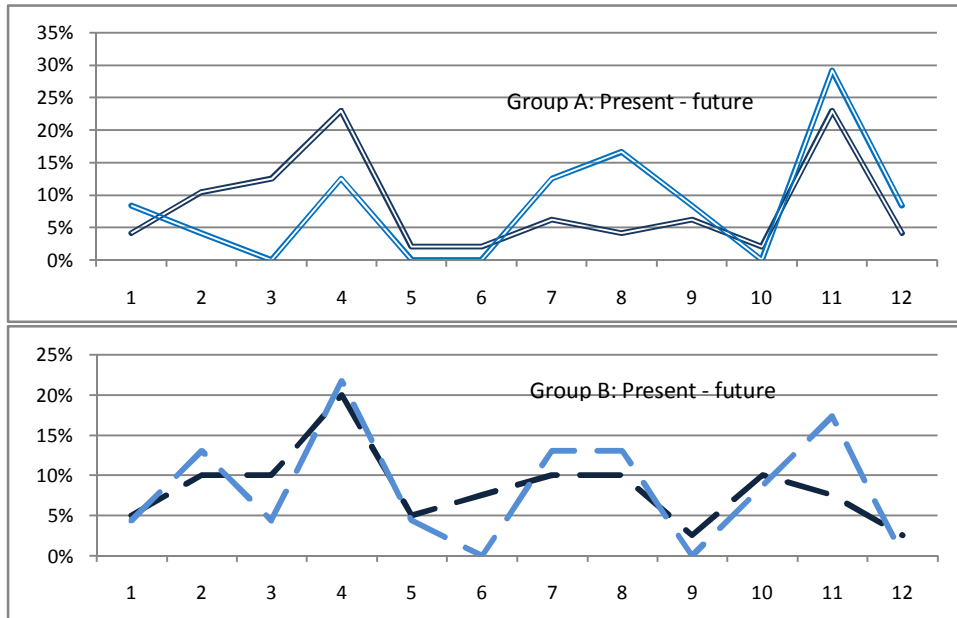
Graph 6.29: Distribution (on the dodecagon) of the elements selected by all participants

The existing priorities of the two groups seemed to follow rather similar patterns. Their main differences referred mainly to the virtuous administration (23% in group-A and just 8% in group-B) and secondarily to the issues of fortune guarding (2% vs. 10% respectively) and solving casual problems (4% vs. 10%).



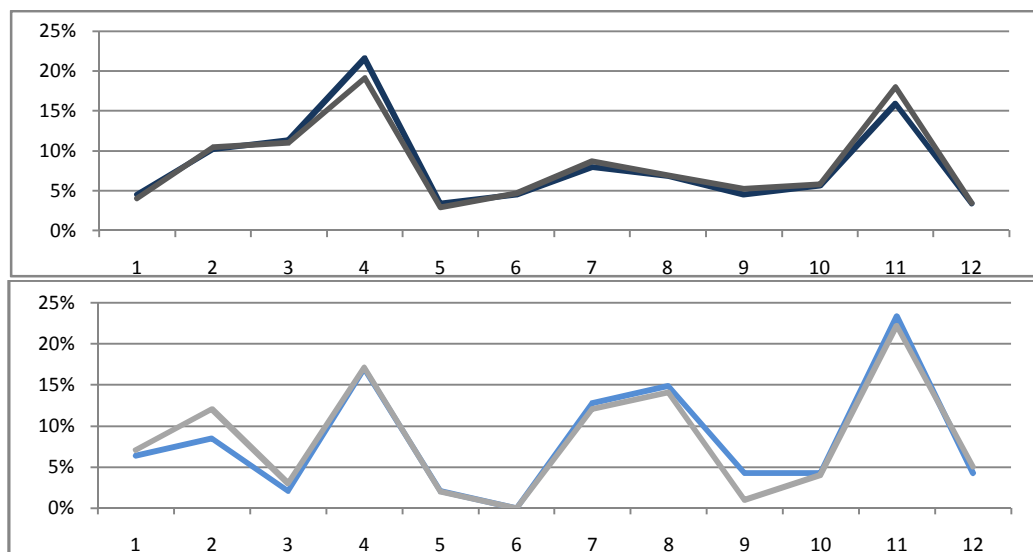
Graph 6.30: Comparison of the patterns emerged from the groups regarding their future priorities (double line: group A, dotted: group B; dark color: present, light: future)

There were some interesting similarities and differences among the two groups regarding the changes in their future priorities list. In group-A there was rise of interest in the issues of public infrastructure and solving casual problems, while in group-B in the issues of virtuous administration (already mentioned). On the other hand, consultation and accountability and safety aesthetics in public spaces were respectively diminished in the two groups.



Graph 6.31: Comparison of the patterns emerged from group-B regarding the present/ future priorities (double line: group A, dotted: group B, dark color: present, light: future)

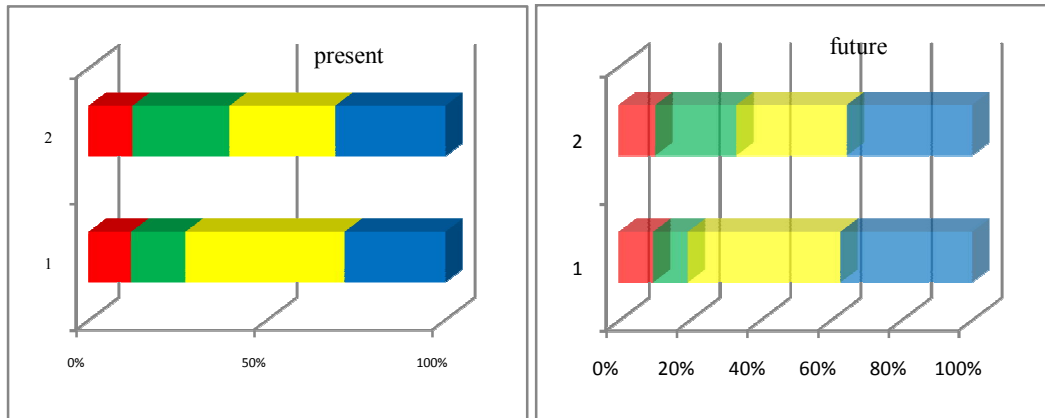
Finally, the distribution patterns of the chosen sectors and the emerged properties seemed identically similar, both in present and future aspects; no element created to the participants the need to get expressed in a relatively richer way than the others. This means that no sector stimulated the participants more intensively that the others; or that the participants' attitude during the case was balanced.



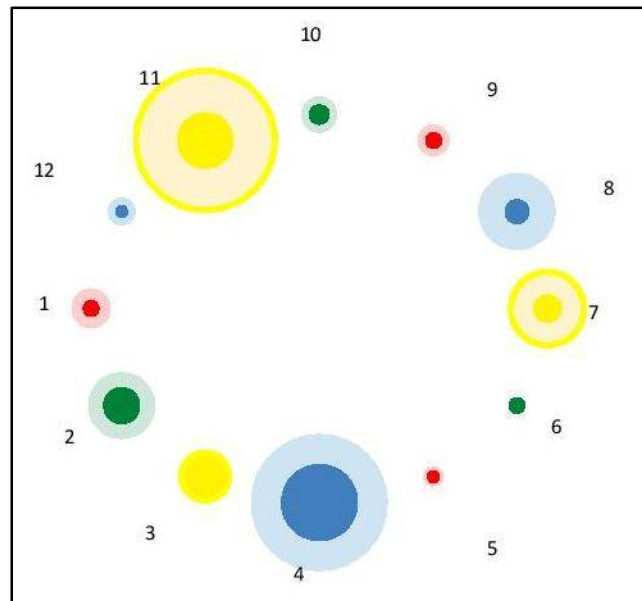
Graph 6.32: Comparison of the distribution patterns of the chosen elements and emerged properties (blue: elements, grey: properties – dark color: present, light: future)

Categories of Municipality's activity sectors	Present (current)			Future (desired)		
	G-1	G-2	Tot	G-1	G-2	Tot
Leading vision (<i>red</i>)	12%	12%	12%	10%	10%	10%
Safe environment (<i>green</i>)	15%	27%	21%	10%	23%	16%
Management (<i>yellow</i>)	45%	30%	38%	43%	31%	37%
Social services (<i>blue</i>)	28%	31%	29%	37%	35%	36%

Table 6.23: Distribution of the choices made on a 4-fold basis in present / future (% of the total choices made by the participants of each group)



Graph 6.33: Comparative distribution of the present and future priorities of the groups on a 4-fold basis (dark color: present, light: future)



Graph 6.34: Distribution (on the dodecagon) of the elements selected by all participants on a 4-fold basis (dark color: present, light: future)

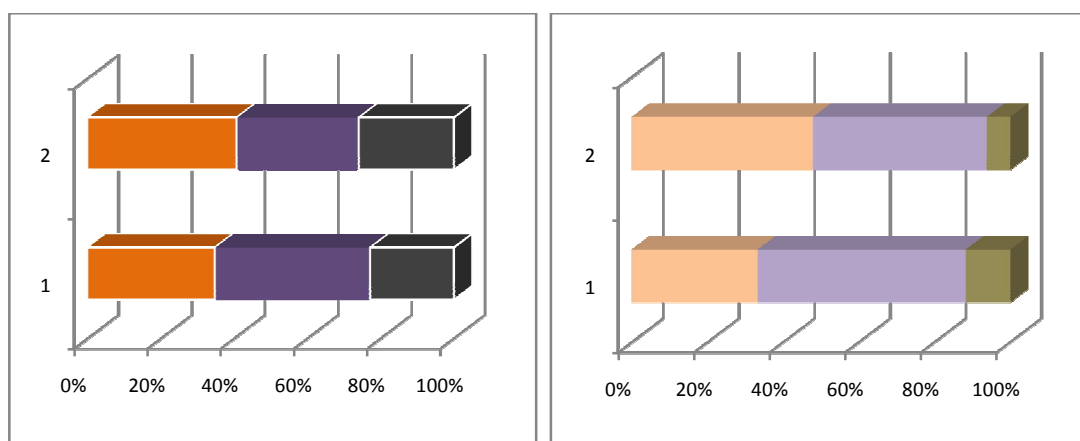
Regarding the 4-fold classification of the elements (categories / fields of the Municipality activities), one can notice that at the time of the case study, Group-A was focusing its attention on issues related mainly to the management of the Municipality and secondarily to the services provided to the public. On the other hand, Group-B seemed to be interested, almost equally, in public services, municipality's management and safety issues. The

leadership vision was of a marginalized impact in both groups. Moreover, the main change occurred between present and future priorities was the significant rise of the importance of social services in Group-A.

Regarding the 3-fold classification of the elements (types of the Municipality activities) the two groups had relatively different orientations: Group-A looked towards implementation and group-B towards ignition; yet cumulatively, these two types of actions were equally inspiring the sum of the participants. These orientations seemed to become more strengthened regarding the future.

Types of the Municipality's activities	Present (current)			Future (desired)		
	G-1	G-2	Tot	G-1	G-2	Tot
1. Create requisites	35%	41%	38%	33%	48%	40%
2. Implement & sustain	42%	33%	38%	55%	46%	51%
3. Use & maturate	23%	26%	24%	12%	6%	9%

Table 6.24: Frequency Distribution of the choices made on a 3-fold basis in present / future (% of the total choices made by the participants of each group)



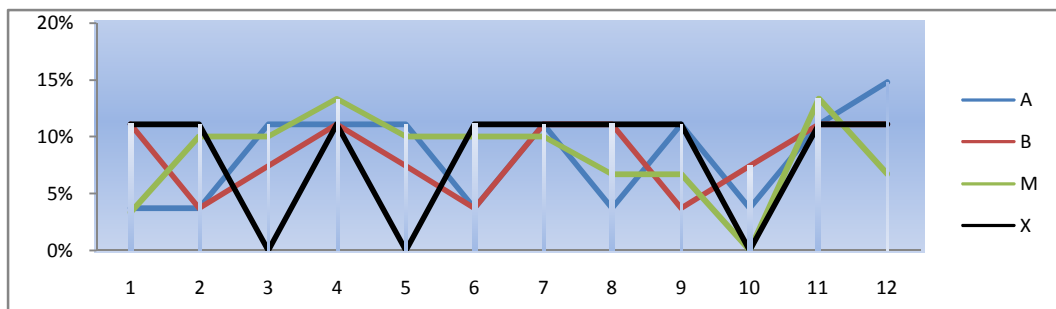
Graph 6.35: Comparative distribution of the present / future priorities of the groups on a 3fold basis (dark color: present, light: future)

Regarding the participation of the elements in the combined triads (see Table 6.25), one can notice that the most combined sectors concerned the issues of public infrastructure, culture, virtuous administration, and organized municipality's operation; in most of them, their 'connectivity' was almost the same among all control and work-groups. This could mean that all participants considered that they should be the center of leadership's attention. On the other hand, the issues of citizens' fortunes guarding, development & innovation, eco-protection, and public safety & aesthetics were the most 'disconnected'.

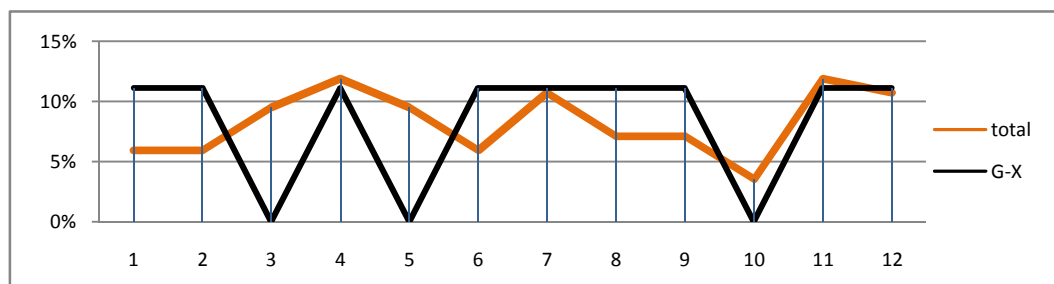
Element	A	B	M	X
1. Local development and innovation	4%	11%	3%	11%
2. Nature protection & eco-thinking	4%	4%	10%	11%
3. Consultation and accountability	11%	7%	10%	0%
4. Education - athletics -welfare infrastructure	11%	11%	13%	11%
5. Local traditions and social cohesion	11%	7%	10%	0%
6. Safety and aesthetics of public spaces	4%	4%	10%	11%
7. Planned & evaluated operation	11%	11%	10%	11%
8. Serving and solving everyday issues	4%	11%	7%	11%
9. Active social solidarity	11%	4%	7%	11%
10. Guarding citizens' fortunes	4%	7%	0%	0%
11. Virtuous administration	11%	11%	13%	11%
12. Promotion of culture	15%	11%	7%	11%

Table 6.25: Frequency of participation of the 12 elements in the combined triads created by work-groups (teams from group-A, group-B, Mixed, and group-X)

Comparing the patterns of the sum of participants and of Group-X, one can indicate significant convergences and divergences. For example, in the four sectors that are mentioned as the first finding of Table 6.25 (public infrastructure, planned organisation, virtuous administration, culture) the estimations of the members of Group-X converge to the estimations of the participants in total. Furthermore, three of the sectors that are mentioned as second finding (except guarding private properties) were considered by the members of Group-X as being most-connected while all the others had found them as most disconnected.



Graph 6.36: Comparative patterns of the participation of the 12 elements in the combined triads (work-groups: A, B, Mixed and X)



Graph 6.37: Comparative patterns of the participation of the 12 elements in the combined triads (all-participants and members of group-X)

Finally, in two sectors (consultation & accountability and local tradition & social cohesion) the estimation of connectivity was completely different (polar): the participants considered those sectors of high connectivity, while the Group-X as being ‘absent’ (zero connectivity).

Related aspects		Relations	%
7. Planned & evaluated operation	11. Virtuous administration	8	80%
5. Local traditions & social cohesion	12. Promotion of culture	7	70%
3. Consultation and accountability	7. Planned & evaluated operation	6	60%
3. Consultation and accountability	11. Virtuous administration	6	60%
4. Educ.-athlet.-welfare infrastr.	6. Public safety & aesthetics	5	50%
2. Nature protection & eco-thinking	4. Educ.-athlet.-welfare infrastr.	3	30%
2. Nature protection & eco-thinking	6. Public safety & aesthetics	3	30%
4. Educ.-athlet.-welfare infrastr.	8. Serving & solving daily issues	3	30%
5. Local traditions & social cohesion	9. Active social solidarity	3	30%
8. Serving & solving daily issues	11. Virtuous administration	3	30%
9. Active social solidarity	12. Promotion of culture	3	30%

Table 6.26: Most frequent relations among the 12 elements in all work-groups

Present → Future aspects	Times impeded	Emerged by % of partic.	Present → Future aspects	Times impeded	Emerged by % of partic.
3 → 11	4	9%	11 → 4	2	4%
7 → 4	3	6%	11 → 8	2	4%
11 → 7	3	6%	6 → 2	2	4%
7 → 11	2	4%	4 → 4	1	2%
3 → 1	2	4%	10 → 10	1	2%
4 → 8	2	4%	11 → 11	1	2%

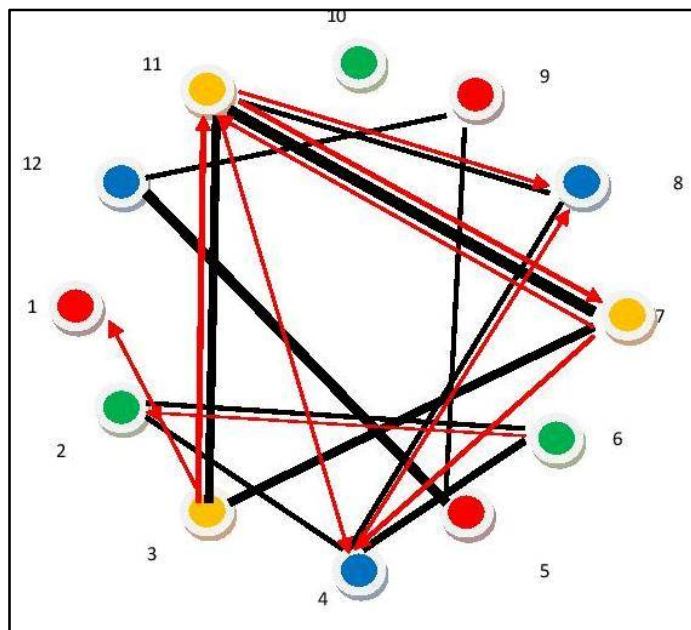
Table 6.27: Most impeded transitions between (current & desired) elements in all groups

With regards to Table 6.26 – 6.27 and Graph 6.38, which visualizes the strongest relations and the most impeded transitions among the sectors, some interesting observations can be made. First, one major relational triangle [3-7-11] and two lesser [5-9-12], [2-4-6] are formed. The first triangle contains elements of the same category (it connects the 3 ‘yellow’ that refer to the management sector of Municipality’s activities.) It seems that the citizens make sense the interrelation that exists between virtuous administration (as a result of consultation - accountability and organisation; these issues often remain unrelated by a lot of people. Yet, in most of these significant relations (sides of the triangles) there are parallel obstacles: [3→11], [11→7], [7→11], [11→8], [4→8], and [2→6]. Actually the most related sectors [7-11] (planned & organized operation - virtuous administration) seemed to be the most problematic; the obstacles among them are two both ways. This can be interpreted as follows: the participants identified the (inner) connection between the 3 elements and at the

same time indicated that this relation was mostly problematic; this makes perfectly sense for the Greeks.

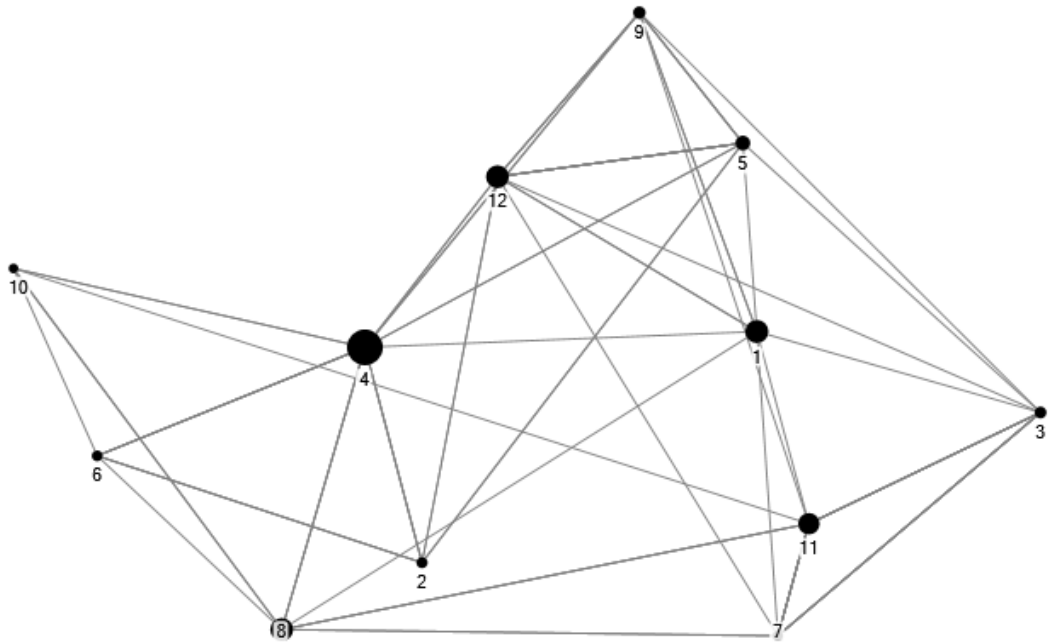
On the other hand, the second triangle (consisted of culture, local tradition & social cohesion and social solidarity) was the only with unimpeded relations (sides without obstacles); perhaps due to the close meaning of the specific elements.

The elements of (non) virtuous administration [11] and planned organisation [7] seemed to generate obstacles to public infrastructure [4] and daily problems solving [8] that were the recipients of these problems. The most usual obstacles are mentioned in the following paragraph (Table 6.30).

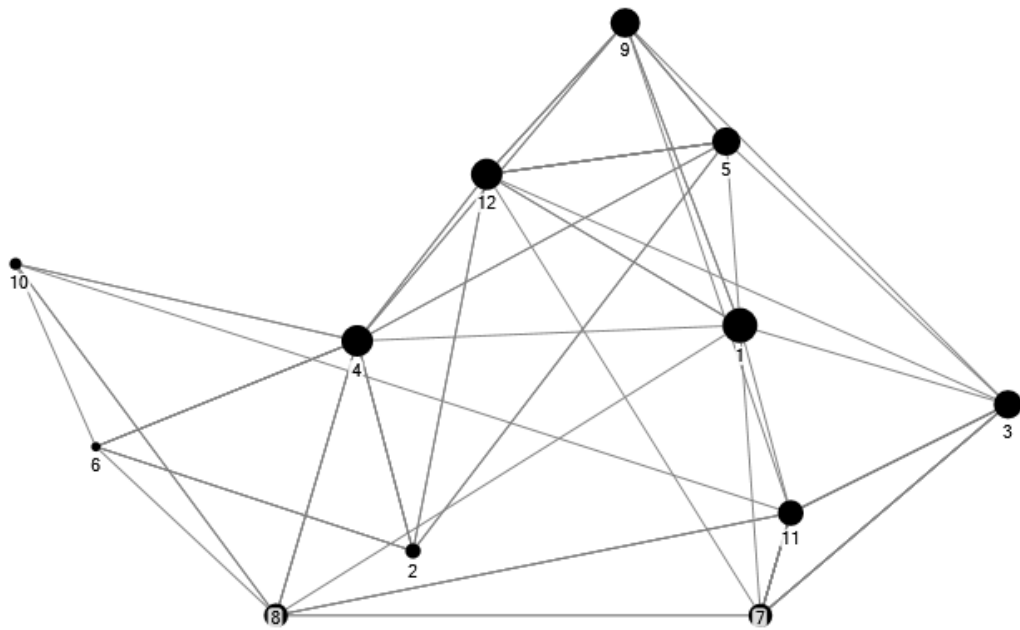


Graph 6.38: Most frequent relations and impeded transitions among the 12 elements in all work-groups

Finally, regarding the network-graphs (Graphs 6.39, 6.40), one can indicate that most of the main triangles or angles of the dodecagon form triangles as well in the network graph (e.g. [11]-[3]-[7], [2]-[4]-[6], [5]-[9]-[12], [11]-[3]-[1], [2]-[4]-[8], [4]-[6]-[8]) or sequential nodes of a line ([12]-[4]-[8]). In one case, the elements of an impeded transition here are totally unconnected ([4] and [7]).



Graph 6.39: Undirected Priorities Relations - Betweenness Centrality (created with NodeXL)



Graph 6.40: Undirected Priorities Relations - Eigenvector Centrality (created with NodeXL)

b) Emerged qualities indicating satisfaction / dissatisfaction per sector

Qualities (Present)	Group-A	Group-B
Anger	25%	38%
Disappointment	13%	46%
Indignation	13%	46%
Indifference	4%	38%
Injustice		38%
Non-transparency	29%	
Safety	4%	23%
Rage	17%	8%
Impunity	8%	15%
Insecurity		23%
Sadness		23%
Ineffectiveness	14%	
Shame	14%	
Incompetence	14%	
Lack of organisation	10%	
Reliability	10%	
Qualities (Future)	A	B
Safety	4%	54%
Justice	13%	23%
Joy	4%	31%
Satisfaction	17%	15%
Hope	8%	23%
Optimism	4%	15%
Relief	4%	15%
Transparency	17%	
Service		15%
Egalitarianism	13%	

Table 6.28: Most frequent present / future qualities

The dissatisfaction of the participants from the existing status of the municipality is evident by a simple observation of the feelings attributed to it at the time of the case study; the most frequent of them (anger, indignation, disappointment, rage and shame) leave no doubt for it. Particularly, the properties attributed to the most important sectors were the following: the status of public infrastructure [4] produced disappointment, anger and indignation; the (virtue) administration [2] was mainly addressed by: non-transparency, injustice and rage; disappointment and non-transparency were attributed to consultation & accountability [3]; and disappointment and anger to eco-thinking & practice [2].

Yet, the two groups indicated different issues as causes of this situation. Group-A focused on lack of transparency and on ineffectiveness-incompetence, while Group-B focused on injustice, safety–insecurity and impunity. As for the feelings of the participants regarding the municipality’s activities (provided services) at the time of the research leave no doubt, as one can see in the Table below. On the other hand, the perspective of a desired future created in both groups positive attitude and feelings, like: joy, satisfaction, hope, optimism, relief, etc. They were hoping for justice (all), transparency (Group-A) and better service (Group-B).

Qualities (present)	volume	1	2	3	4	5	6	7	8	9	10	11	12
Anger	11	0%	18%	9%	27%	0%	9%	18%	9%	9%	0%	0%	0%
Indignation	9	0%	0%	0%	22%	0%	11%	33%	22%	0%	0%	0%	11%
Disappointment	9	0%	11%	33%	33%	0%	11%	0%	0%	0%	11%	0%	0%
Non-transparency	7	0%	0%	29%	0%	0%	0%	0%	0%	0%	0%	71%	0%
Indifference	6	0%	17%	0%	33%	17%	0%	17%	0%	0%	17%	0%	0%
Injustice	5	0%	20%	0%	0%	0%	0%	0%	20%	0%	0%	60%	0%
Rage	5	0%	40%	0%	0%	0%	0%	20%	0%	0%	0%	40%	0%
Qualities (future)	volume	1	2	3	4	5	6	7	8	9	10	11	12
Safety	8	0%	13%	0%	38%	0%	0%	13%	13%	0%	13%	13%	0%
Justice	6	0%	0%	0%	0%	0%	0%	0%	17%	0%	0%	83%	0%
Satisfaction	6	0%	0%	0%	17%	0%	0%	0%	17%	0%	17%	50%	0%
Hope	5	0%	20%	0%	40%	0%	0%	20%	0%	0%	0%	0%	20%
Joy	5	20%	0%	0%	40%	0%	0%	0%	20%	0%	20%	0%	0%
Transparency	4	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	75%	0%

Table 6.29: Distribution of the most influential present / future properties among all groups (%)

Obstacles	A	B
Personal interest	8%	23%
Education	4%	15%
Mentality	13%	8%
Politicians	4%	8%

Table 6.30: Most frequent obstacles

Regarding the obstacles emerged, both groups indicated as factors impeding the transition towards a desired future the attitude of selfishness and the established mentality, as well as the (lack of) education; the latter is perhaps the most usual scapegoat in Greece.

Finally, attention should be given to certain clusters of (positive or negative) properties that seemed to form critical issues in the local society: safety–security, justice–egalitarianism, transparency, effectiveness–competence, education, corruption-politicians, selfishness, indifference, humanity–solidarity, and organisation.

Critical issues	Times emerged
Safety - security	34%
Justice - egalitarianism	32%
Transparency	28%
Effectiveness - competence	26%
Education	26%
Corruption - Politicians	23%
Selfishness	23%
Indifference	19%
Humanity – solidarity	17%
Organisation	17%

Table 6.31: Critical issues that emerged among all groups

b) Coping experience with critical situations and challenges

On the following charts and tables the collective experience of the local society in facing turning points and its ability (or not) to manage important challenges are presented. Based on the data, we have come to the most familiar and most improbable of occurring situations among the groups, as well as to the related skills and deficits:

Situations - challenges	familiar			impossible		
	G-1	G-2	Tot	G-1	G-2	Tot
13. Things must change	29%	36%	33%	9%	26%	17%
14. Shaping new abstract notions	4%	3%	3%	9%	0%	5%
15. Exchanging thoughts and ideas	29%	22%	25%	5%	0%	2%
16. Carefully developing (nurturing)	0%	6%	3%	0%	0%	0%
17. Implementation and extension	0%	3%	2%	5%	5%	5%
18. Analyzing data - documenting pathways	8%	6%	7%	5%	0%	2%
19. Balancing the opposites to synergize	4%	3%	3%	45%	21%	34%
20. Transforming experience into consciousness	8%	14%	12%	0%	0%	0%
21. Targeted actions towards new knowledge	0%	0%	0%	5%	5%	5%
22. Organizing & systematic application	4%	6%	5%	0%	5%	2%
23. Questioning & revising	13%	0%	5%	5%	5%	5%
24. Transcending shortages and starting again	0%	3%	2%	14%	32%	22%

Table 6.32: Frequency of selection of the 12 situations as familiar or impossible (% of the total choices)

The distribution of the familiar and impossible situations possesses an impressive clarity: the participants' choices are concentrated around 4 challenges only: change – exchange – synergize – transcend. On the other hand, one should indicate the following repetitive findings that create a typical pattern, which makes perfectly sense in Greece.

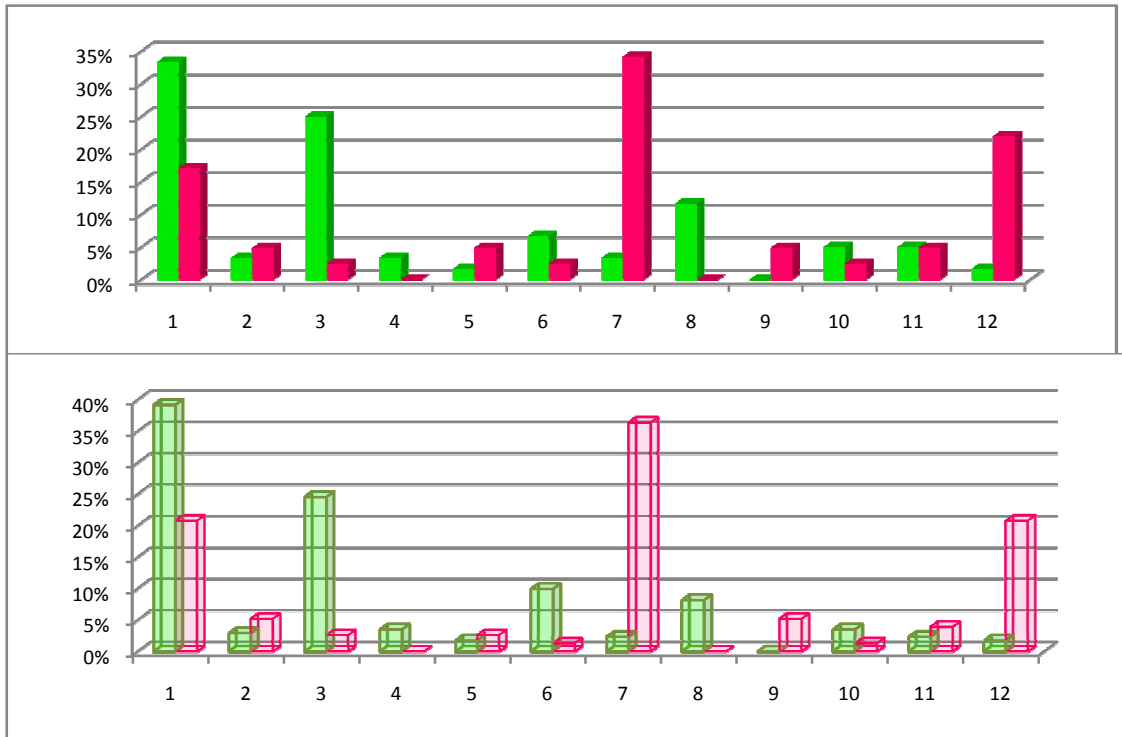
Once more, change was the most interesting challenge of all. That time was characterized as the most familiar (need), although with a high degree of impossibility! Yet, the two groups have different percentages with the non-active residents to wish change more but also to doubt more if it could really happen. Due to the dual character of change (at the same time was a familiar-manageable and impossible-unknown challenge), the skills required for it were also missing; this could be a blind spot.

Exchanging (communicating) was again one of the most familiar situations with no deficits associated to it. Furthermore, synergy and counterbalance was, once again, the most impossible thing that was (hoped) to happen in that local community, which didn't possess any relevant experience on how to do it. Yet, this problem proved bigger among the active citizens; as the field review had previously indicated, it was almost impossible for them to synergize (45%). Transcending was as well almost impossible, with no experience as well. Yet, this time, transcending was a lot more difficult challenge for the ordinary citizens than the active in common affairs and politics (14%-32%).

Along the situations [12]-[1]-[2]-[3], one can notice (again) the following sequence: impossible transcending – mixed attitude regarding change – inability to formulate – openness for exchange; but in favor of what specifically? Probably, in favor of the existing patterns despite the need for change; this is a probable blind spot. (See also the results of the 2nd and 4th initial trial, as well as of the 1st case study).

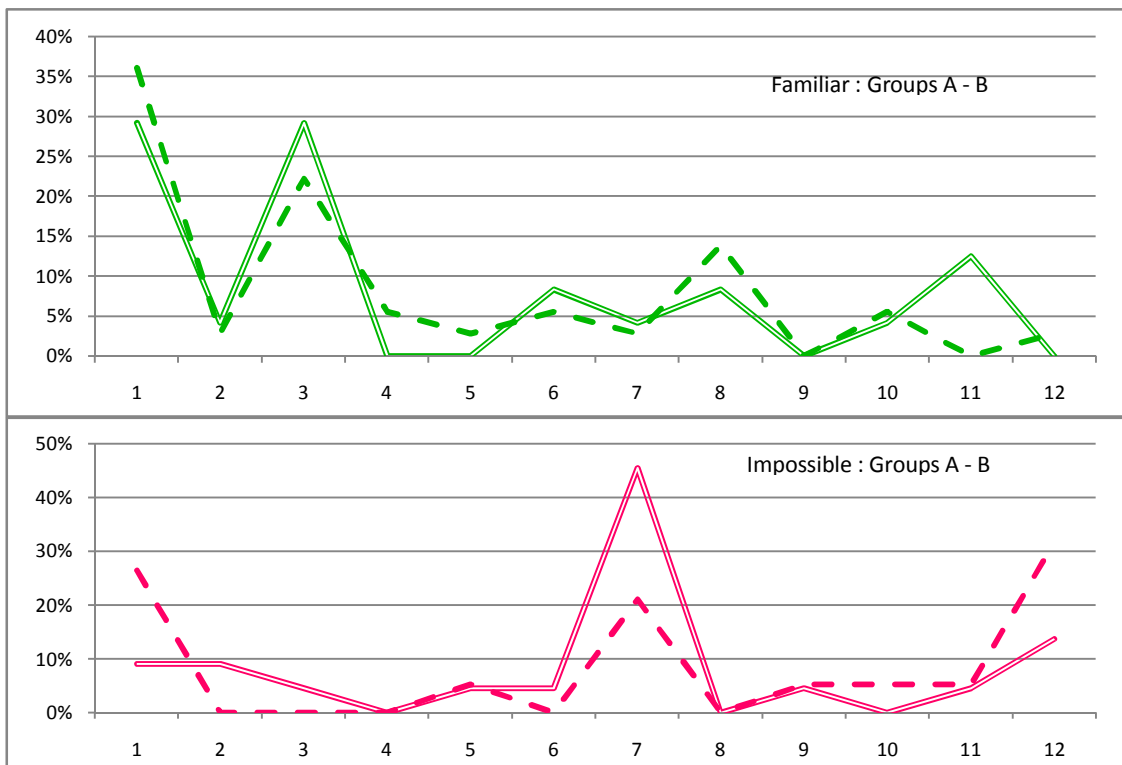
Although the impossible situations were concentrated in very few cases (only 3), the shortages of skills / deficits that emerged were too many; the most frequent (egoism) was identified only by 8% of the participants. In the contrary, the two more frequent skills that were attributed to familiar - manageable situations emerged from the 17-19% of the participants.

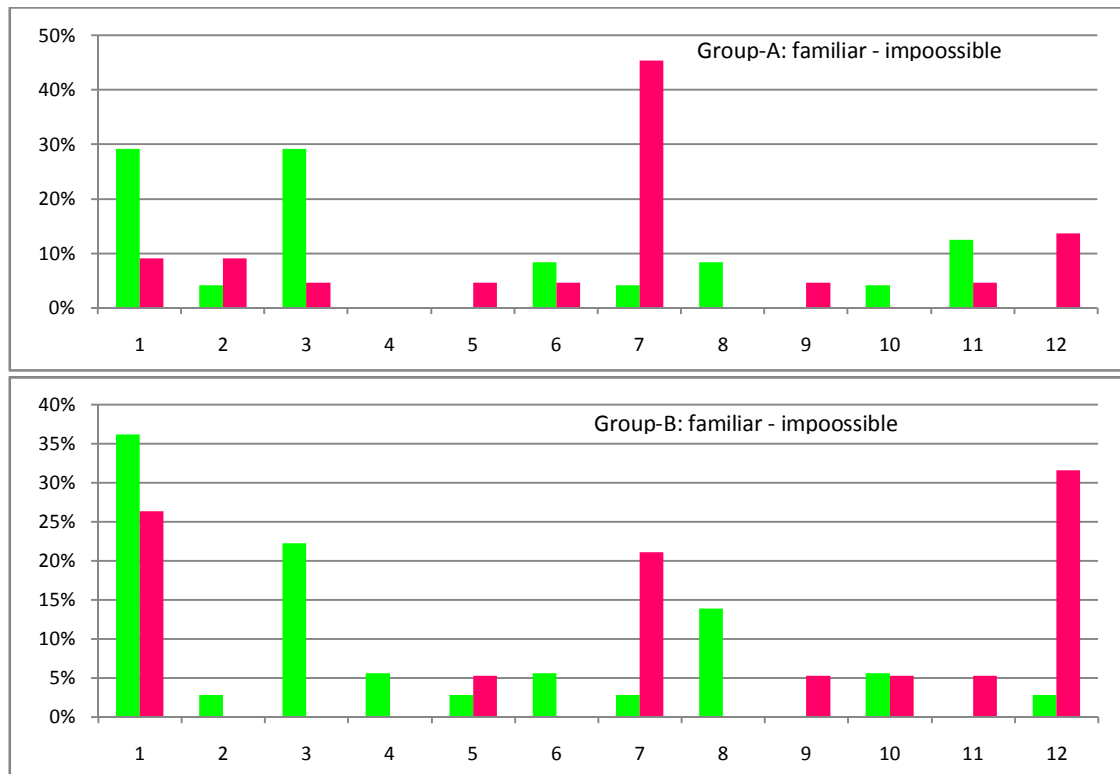
Finally, the patterns of the chosen sectors and the one of the emerged properties seemed again identically similar, both in present and future aspects, leading to the same interpretation as before: no situation stimulated the participants more intensively than the others; or that the participants' attitude during the case was balanced.



Graph 6.41: Distribution patterns of the chosen situations and the emerged properties (green: familiar, pink: impossible – solid: situations, transparent: properties)

Yet, one could not say the same for the comparison of the patterns between the two groups, especially regarding their perception of what situation constitutes an impossible event. For active citizens synergy is impossible, while for the ordinary ones transcendence and change; perhaps this is the way the latter interpret the inability of the former.





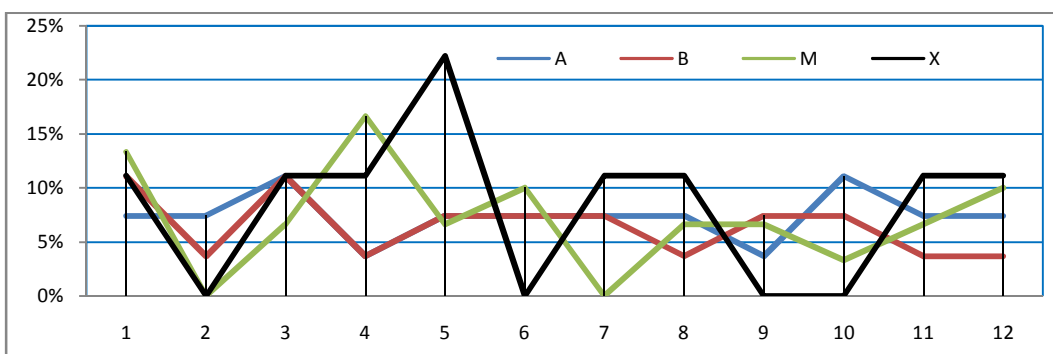
Graph 6.42: Comparison of the patterns of the groups regarding the familiar/ impossible situations (double line: group-A, dotted: group-B – green color: familiar, pink: impossible)

Situations	A	B	M	X
1. Things must change	7%	11%	13%	11%
2. Shaping new abstract notions	7%	4%	0%	0%
3. Exchanging thoughts and ideas	11%	11%	7%	11%
4. Carefully developing (nurturing)	4%	4%	17%	11%
5. Implementation and extension	7%	7%	7%	22%
6. Analyzing data - documenting pathways	7%	7%	10%	0%
7. Balancing the opposites to synergize	7%	7%	0%	11%
8. Transforming experience into consciousness	7%	4%	7%	11%
9. Targeted actions towards new knowledge	4%	7%	7%	0%
10. Organizing & systematic application	11%	7%	3%	0%
11. Questioning & revising	7%	4%	7%	11%
12. Transcending shortages and starting again	7%	4%	10%	11%

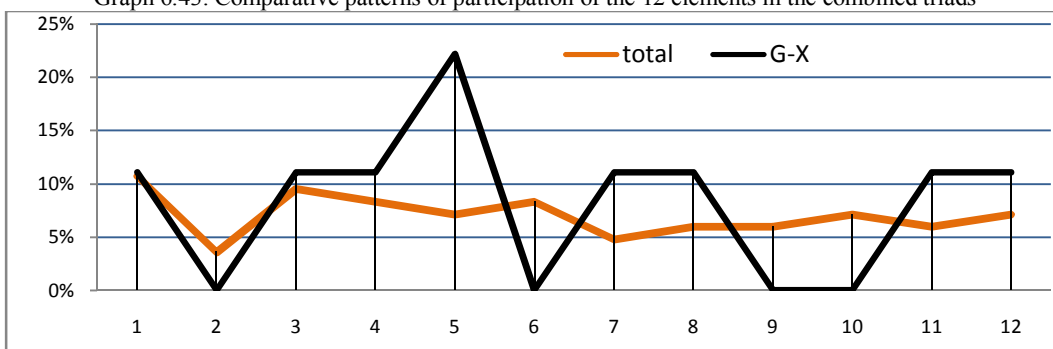
Table 6.33: Frequency of participation of the 12 elements in the combined triads created by work-groups (teams from group-A, group-B, Mixed, and group-X)

Comparing the patterns of the participants and of Group-X, one can indicate that there are significant convergences among the two groups of citizens (Group-A and Group-B) and divergences among them and Group-X. The most indicative (and unfortunately most meaningful) example of this divergence is the significant importance (centrality) that the members of Group-X ('future-politicians') attributed to the ability of implementing and extending (power) ([5]), while they considered formation, analysis, goal-setting and

organizing ([2], [6], [9] and [11]) as totally disconnected; on the other hand, these situations were considered by the members of Groups A and B in a totally different (polar) way.



Graph 6.43: Comparative patterns of participation of the 12 elements in the combined triads



Graph 6.44: Comparative patterns of the total of participants and the members of group-X

Skills	Times	1	2	3	4	5	6	7	8	9	10	11	12
Organisation	9	56%	11%	11%	11%	0%	0%	0%	0%	0%	11%	0%	0%
Willingness	8	75%	0%	0%	13%	0%	0%	0%	13%	0%	0%	0%	0%
Determination	7	43%	0%	14%	0%	14%	0%	0%	14%	0%	14%	0%	0%
Communication	7	0%	0%	86%	0%	0%	14%	0%	0%	0%	0%	0%	0%
Knowledge	4	25%	0%	50%	0%	0%	0%	0%	0%	0%	25%	0%	0%
Being conciliatory	4	0%	0%	75%	0%	0%	0%	25%	0%	0%	0%	0%	0%
Dialogue	4	25%	0%	25%	0%	0%	25%	0%	25%	0%	0%	0%	0%
Patience	4	25%	0%	25%	0%	0%	25%	0%	0%	0%	0%	0%	25%

Table 6.34: Most frequent skills

Deficits	Times	1	2	3	4	5	6	7	8	9	10	11	12
Egoism	4	25%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	50%
Indifference	3	67%	0%	0%	0%	0%	0%	33%	0%	0%	0%	0%	0%
Lack of self-awareness	3	0%	0%	0%	0%	0%	0%	33%	0%	0%	0%	33%	33%
Determination	2	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%
Lack of education	2	0%	0%	0%	0%	0%	0%	50%	0%	50%	0%	0%	0%
Lack of willingness	2	0%	0%	0%	0%	0%	0%	50%	0%	0%	50%	0%	0%

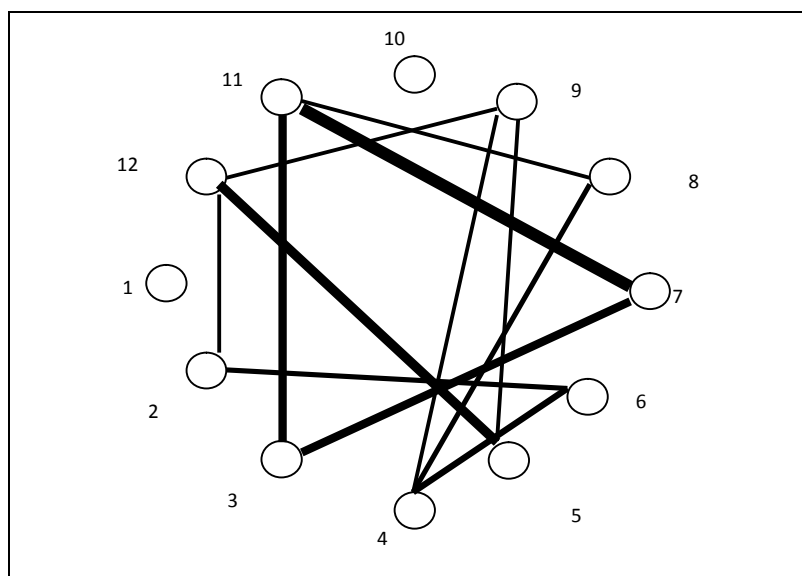
Table 6.35: Most frequent shortages / deficits

Incompatible pairs of skills and deficits emerged from Tables 6.34-35 above. For example, although there was willingness and determination for change, at the same time there were as well indifference and lack of determination.

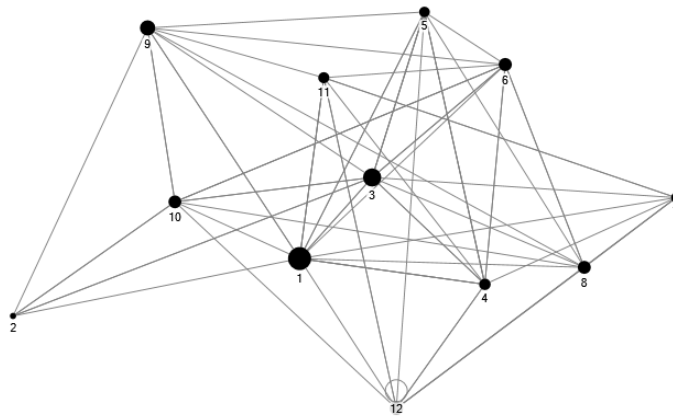
Related aspects		Relations	%
7. Balancing the opposites to synergize	11. Questioning & revising	9	90%
5. Implementation and extension	12. Transcend shortages & start again	7	70%
3. Exchanging thoughts and ideas	7. Balancing the opposites to synergize	6	60%
3. Exchanging thoughts and ideas	11. Questioning & revising	6	60%
4. Carefully developing (nurturing)	6. Analyze data - document pathways	5	50%
2. Shaping new abstract notions	6. Analyze data - document pathways	4	40%
4. Carefully developing (nurturing)	8. Transform experience to conscious.	4	40%
2. Shaping new abstract notions	12. Transcend shortages & start again	3	30%
4. Carefully developing (nurturing)	9. Targeted actions - new knowledge	3	30%
5. Implementation and extension	9. Targeted actions - new knowledge	3	30%
8. Transform experience to conscious.	11. Questioning & revising	3	30%
9. Targeted actions - new knowledge	12. Transcend shortages & start again	3	30%

Table 6.36: Most frequent relations among the 12 elements in all work-groups

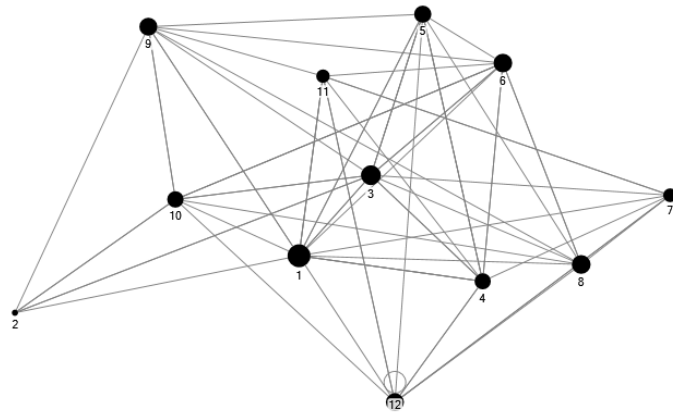
But perhaps the most interesting finding was the resemblance of the pattern emerged from the relations between the 12 priorities and the 12 situations, as viewed in the dodecagon-based graphs (6.38 and 6.45). In any case, this resemblance is not observed in the relevant network graphs (6.39, 6.40 and 6.46, 6.47), where some of the most related elements seem unconnected (e.g. [3]-[11], [5]-[11], [11]-[8] or [2]-[12]).



Graph 6.45: Most frequent relations among the 12 situations in all work-groups



Graph 6.46: Undirected situations Relations - Betweenness Centrality (created with NodeXL)



Graph 6.47: Undirected situations Relations - Eigenvector Centrality (created with NodeXL)

c) *Social personas & Qualities network*

Four out of the ten groups did not complete this part of the data collection because of lack of time. The rest created 11 complexes of qualities and skills indicating local social personas, to which contextual nicknames were attributed. The results are presented in the following tables, while a graph of the relations among qualities is given, aided by the NodeXL application.

Group	Qualities - Skills			Deficits		Extra
A	Organisation	Conciliatory	Creation	Egoism	Interests	
A	Vision	Willingness	Knowledge	Lack of education	Change of attitude	Indetermination
A	Critical attitude	Virtue	Transparency	Fear	Misery	
A	Communication	Socialisation	Hope	Vanity	Non transparency	Lack of respect
B	Organisation	Honesty	Determination	Narrow-minded		
B	Insight	Communication	Experience	Absolute		
B	Courage	Patience	Leadership	Vanity		Respect
B	Education	Organisation	Determination	Improper communication		Stubbornness
M	Dignity	Willingness	Self-awareness	Egoism	Selfishness	Insecurity
M	Respect	Honesty	Sociability	Egoism	Wrong priorities	Listen
M	Creation	Willingness	Bold	Selfishness	Incompetence	Open mind

Table 6.37: Emerged complexes of qualities

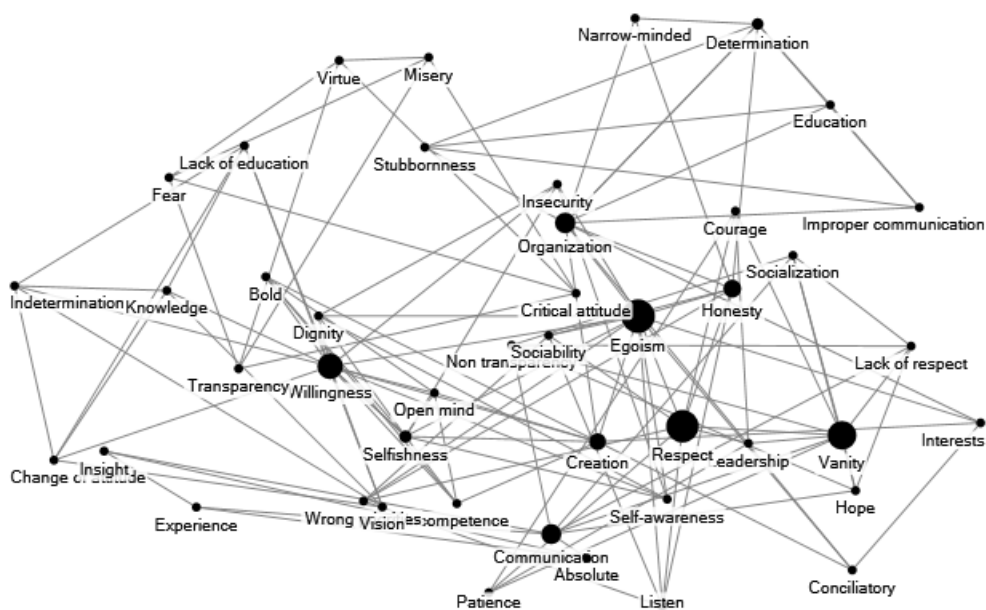
Properties combined	Frequency
Willingness	27%
Egoism	27%
Selfishness	18%
Determination	18%
Creation	18%
Organisation	18%
Vanity	18%
Communication	18%
Respect	18%
Socialisation	18%

Table 6.38: Most frequently combined (influential) properties (% of complexes created)

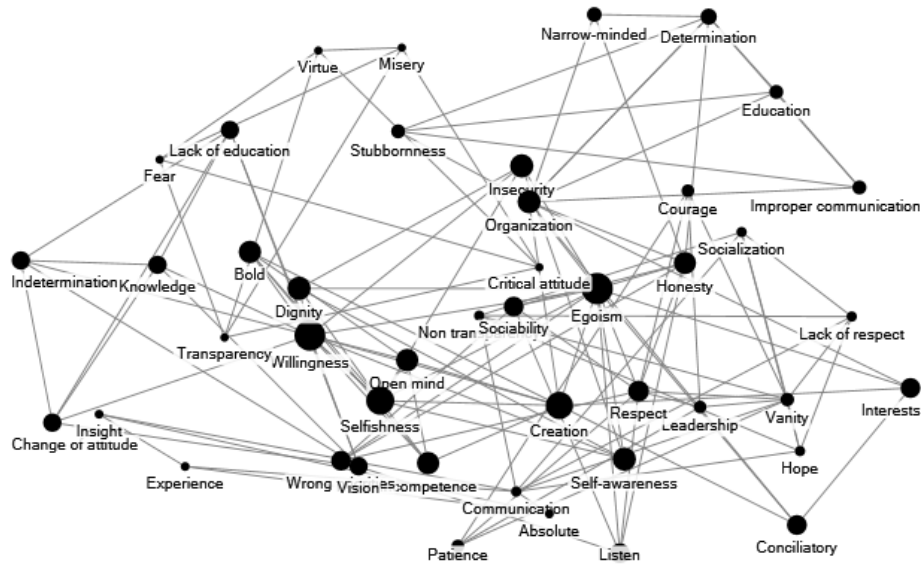
Three pairs of positive and negative painted qualities / skills seem to dominate this suburban community: willingness - determination (45%) and sociability- communication (36%) on the one hand and egoism-selfishness (45%) on the other. This finding is in accordance with the social and historical context that was earlier described.

These properties are more skills that qualities oriented. Nevertheless, the qualities selected seem to be related rather to the desired future than to the existing that time present.

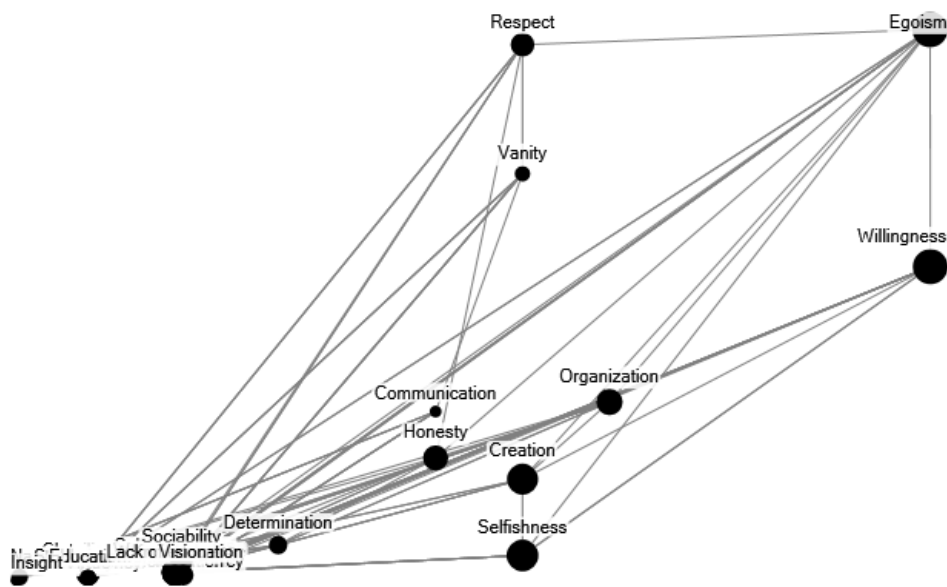
Regarding the graph of the properties' network, the core properties seem here more 'opened' (spread) with regards to the relevant graph of the 1st case study. On the other hand, the peripheral qualities/skills are not that disconnected as before.



Graph 6.48: Undirected relations of All properties - Betweenness centrality



Graph 6.49: Undirected relations of All properties - Eigenvector centrality



Graph 6.50: Undirected relations of All properties - Betweenness x Degree x Eigenvector (size) centrality

d) Qualitative findings

In the second case study, it appeared that the collaboration among the groups of the politically indifferent citizens was without problems, while in some groups of active citizens the procedure was seriously stuck. More specifically, the residents who were not politically active easily picked up a pace and cooperated loosely. It is worth mentioning that in their assessment almost all of them mentioned the final convergence of their different views. Residents actively involved in clubs or politics, originally showed a reservation towards what would come out of the research and a special interest as to explain to the other

members their reasoning for their choices. In some cases, there was a great delay in the step 2.4 (a & b), where they had to negotiate in order to be able to select common 3-folds or determine the profiles of the protagonists. The adopted method was one of analytical debate, based on rationalism, which though, proved to be of a very personal nature! As a result, some of the phases resulted incomplete, due to the time expiration and the withdrawal of the other members. Finally, it is worth mentioning the case of the “busy participants”, who had very limited time to start with, and some of them either arrived in delay, or didn’t show up at all. Although they contributed to the process significantly with their accurate observations, they weren’t able to participate to the discussion on the outcome. Therefore, in order to deal with such challenges, the facilitator has to employ certain skills, which will be discussed in more details in the next chapter.

6.2.4. Validation of the results

After the end of the data collection, the participants evaluated (most of them in groups) their whole experience of the procedure and the way they collaborated. Based on the group answers, the most frequent characterisations attributed to the process were (in order of frequency) the following:

Most frequent characterisations	frequency
interesting-very interesting	90%
cooperative	90%
pleasant - fun	50%
in need of more time	30%
disclosing – food for thought	30%
well organized / facilitated	30%
innovative - creative	20%

Table 6.39: Characterisation of the process according to the participants’ opinion

Besides the indications for the limited time available, all evaluation remarks were highly positive. Most of the participants indicated that it was interesting to converge different opinions and that they found that although strangers, they shared many things. Finally, with regards to the validity of the outcome, their answers were:

Do you think the results were close to the truth?	%
Yes	60%
Rather yes	20%
Close to our truth	20%

Table 6.40: Plausibility of results according to the participants’ opinion

One year after the conduction of the workshops and after a new Mayor had been elected in the local elections (May 2014), there was a chance to discuss with four of the members of the Group-X that initiated the case study. Three of them were representing equivalent political groups that took separately part in the elections, while the fourth was representing a group of people that did not take part in the elections either as candidates or in any other way. At the time of the discussion, one of them was Vice-Mayor, the other two were in the leadership teams of their parties and the last one a journalist; thus, they could easily consider being representatives of the political stakeholders.

After reminding them the process and presenting the results (only tables and graphs without my notes) I asked them to make their own comments to what they were seeing. The participants had a nice dialogue session and their remarks were very interesting, while some of them had not previously fallen into my account; in this way, they indirectly revealed the significance of this step of the sensemaking process.

Among the issues that emerged during that session, the most worthy to mention was the realisation that there was no actual change between the present and future needs and priorities of the residents. They kept focusing on the same tangible issues that had mainly to do with the basic responsibilities of any fair administration, without being interested in soarer ideas or empathy visions. Yet, it was evident that they considered the previous leadership as failed and that was the reason of the defeat of the previous Mayor.

Furthermore, the local society seemed to continue possessing deep individualistic features; actually, this was verified by the secondary research on the local history and narrative. The residents are trained to claim their individual rights but neglect their collective responsibilities that form other kinds of (social) rights. Thus, the dominance of selfishness over solidarity makes no surprise. The reduction of the importance of consultation & accountability in a desired future is relevant to the above, as the residents seem to understand it more like an instrument rather than an institution.

Finally, what was identified as communication refers rather to small talk (café conversation) which is useless and costless in terms of the collective needs. This makes the absence of formation skills almost frightening for the future.

All in all, the stakeholders' representative estimated that the results constituted a very good representation of the local society and suggested that a more extended research should take place in the following months, in order to picture the current situation after two years of austerity; yet, for that an automated - digital version of the tool would be definitely needed.

6.3 CASE THREE: ENTREPRENEURIAL STUDIES

The third case study was part of a research project commissioned by the Greek Ministry of Education and aimed at revealing the critical causes and parameters that facilitated or impeding the successful implementation of entrepreneurship programs in secondary education. In particular, it aimed at imprinting the common ground and differences between three stakeholders of these programs, i.e. pupils, teachers and administrative staff, in issues concerning:

- a) their personal and group perceptions of entrepreneurship
- b) their educational priorities, the orientation and the goals of the new programs of entrepreneurship in secondary education; and
- c) the necessary educational practices that these programs have to adopt.

The sensemaking tool was applied on the first research objective with all the target groups.

6.3.1. The wider context

While more than half of the EU the countries have explicitly incorporated entrepreneurship in the curricula of secondary education, in Greece, entrepreneurial teaching is based on EU funded programs and left to the initiative of teachers, schools and the Boards of Education. According to assessments of these programs, they focus mainly on delivering knowledge upon management rather than cultivating entrepreneurial qualities and skills. Yet, entrepreneurship is about a different way of life, which requires first and foremost change of thinking among teachers. On the other hand, the acceptance of entrepreneurship by young Greeks is still in the foundation, due to the some obstacles that are restricting the development of entrepreneurship in Greece. Among these barriers one of the most important was the ambivalent attitude of Greek society towards entrepreneurship. Moreover, one of the major weaknesses detected on a strategic level, concerned the non reliable implementation of the programs in terms of non-distortion of their scope and spirit. Both factors were relevant to the non-understanding or non-attribution of importance to the differences of perceptions that exist among the designers of the projects, the teachers who coordinate them and the pupils - protagonists, but also of their fundamental practices, perceptions and values.

In this direction, the research aimed at imprinting the common ground and differences between three stakeholders of these programs, i.e. pupils, teachers and administrative staff, in issues concerning: a) their personal and group perceptions of entrepreneurship, b) their

educational priorities, the orientation and the goals of the new programs of entrepreneurship in secondary education; and c) the necessary educational practices that these programs have to adopt. The results of the entire research project could be of great help for the design of the new forthcoming programs. The sensemaking tool was applied on the first research objective with all the target groups.

6.3.2. Conduct of workshops

In total, 23 workshops were conducted in 10 schools and 12 administrative departments, with the participation of 376 persons (220 pupils of the second class and 51 of the first, 51 teachers and 54 administrative employees). Due to the anonymity of the research, no signed consent form was signed from any of the participants; only a signed and dated affirmation by the school / service director confirming the date and place of the workshop and the number of participants. The workshops were carried out in phases, according to the emended procedure that was earlier described. Phase one aimed at the emergence of values and competences that the participants considered as fundamental and their correspondence to the five domains of the Cynefin model. Phase two aimed at the creation of profiles of actual and desired business people and consumers, which can be used in educational scenarios.

6.3.3. Presentation of results

In the following pages there will be presented through comparative tables and charts the results of the 1st part of the case which covers:

- a) the positive and negative aspects of entrepreneurship,
- b) the signification of the emerged qualities based on their distribution in the 5 areas of the model and the corresponding principle-attitude, which indicated their way in addressing various issues,
- c) the experience in facing turning points and the ability (or not) to manage the most important challenges of their field and
- d) the businessmen and consumers profiles.

a) The most important positive & negative models and critical issues that emerged.

The most powerful qualities (most frequent in appearance) among the participants are presented in the following tables, in absolute numbers and percentages (of the participants per control group). Where resulted on green or yellow post its (existing or admired qualities), they are recorded as positive, while otherwise, negative (characteristics blocked or repelled).

positive	negative
<ul style="list-style-type: none"> • Politeness • persistence-patience • willingness-determination • hard work • knowledge • truthfulness • honesty-sincerity • consistency • communication-sociability 	<ul style="list-style-type: none"> • rudeness • selfishness, egocentrism • arrogance, conceit • laziness-boredom • ignorance • phony • dishonesty • inconsistency
<ul style="list-style-type: none"> • cleverness • flexibility- adaptability • organisation-planning • methodical-systematic 	<ul style="list-style-type: none"> • bureaucracy • money-avarice

Table 6.41: The most frequent qualities that emerged among all groups

Positive qualities	Times	%	Negative qualities	Times	%
Politeness	76	27%	egoism	95	34%
Cleverness	71	25%	rudeness	93	33%
Persistence	60	22%	phony	39	14%
Willingness	55	20%	laziness	30	11%
hard work	53	19%	weakness	26	9%
knowledge	46	16%	fear	26	9%
willingness	44	16%	pessimism	23	8%

Table 6.42: The most frequent qualities among the pupils

Positive qualities	Times	%	Negative qualities	Times	%
knowledge	15	29%	rudeness	12	24%
politeness	13	25%	egoism	11	22%
hard work	10	20%	phony	9	18%
consistency	10	20%	conceit	8	16%
cleverness	9	18%	indifference	7	14%
perceptiveness	8	16%	inconsistency	7	14%
organisation	8	16%	hypocrisy	6	12%

Table 6.43: The most frequent qualities among the teachers

Positive qualities	Times	%	Negative qualities	Times	%
flexibility	12	21%	egoism	8	14%
Knowledge	9	16%	rudeness	7	12%
creativity	9	16%	bureaucracy	5	9%
Organisation	9	16%	ignorance	4	7%
Consistency	8	14%	non reliability	4	7%
hard work	7	12%	inconsistency	4	7%
effectiveness	6	11%	selfishness	4	7%

Table 6.44: The most frequent qualities among the adm.staff

In all control groups, the most frequently emerged qualities had the same sign and therefore there was common perception in relation to the respective values and skills. Yet, the significance that the groups attributed to the qualities varied. This means that the way of establishing these positive qualities or of facing the negative ones was different with each target group; this is fair and relevant to the different attitude that each group has towards things. Despite this, there is enough common ground between two or even three groups. Among these qualities only four negative ones (boredom, avarice, being phony, egoism/selfishness) correlated to the principal of non-involvement (31-24-13-12% respectively), a fact which shows ignorance of the way to face tough things or no desire to face them.

Furthermore, some interesting similarities and differences emerged from the replies of the participants. For example, it seems that the factors that all agree as required for a successful entrepreneurship are: knowledge, determination, honesty, industriousness and communication. Students and teachers attach greater importance in relation to the rest, to kindness-rudeness and to persistence and patience. Among the students, the issues of organisation-method, consistency and flexibility – adaptability-open-mind do not appear to be of priority to them or haven't caught their attention. The rest of the groups attach particular importance to these issues. On the contrary, the elements of optimism, intelligence and fear are detected only or mainly among the students, while missing or falling short in the other groups consisting of adults. Finally, insight and creativity go unnoticed (as critical qualities) by teachers and students, which means that attention and training are needed there.

Critical issues	Times
politeness – rudeness	237
egoism –selfishness – arrogance – conceit	160
persistence - patience	128
willingness-determination	115
sincerity – being phony	104
knowledge - ignorance	101
communication-sociability	81
hard work – laziness-boredom	74
honesty - dishonesty	62
flexibility – adaptability – open mind	57
organisation – planning – method - system	53
consistency – inconsistency	48

Table 6.45: The most frequent clusters of qualities (critical issues) among all groups

Special attention must be also given to certain quality clusters, which are formed either in antithesis or complementary, and which correspond to some critical issues of entrepreneurship. While some of these issues constitute commonplace for all control groups, some others appear mainly or solely to certain ones, as it appears on the following table. This fact must be attentively evaluated, as it constitutes proof of possible underestimation of the importance of these issues by some groups involved in the programs of entrepreneurship.

Critical issues	pupils	teachers	admin.
politeness – rudeness	√√	√√	√
persistence - patience	√√	√√	√
willingness-determination	√	√√	√
sincerity – being phony	√	√	√
knowledge - ignorance	√	√	√
communication-sociability	√	√	√
hard work – laziness-boredom	√	√	√
honesty – dishonesty	√	√	√
persistence - patience	√	√	-
flexibility – adaptability – open mind	-	-	√
organisation – planning – method - system	-	√	√
consistency – inconsistency	-	√	√

Table 6.46: The most frequent clusters of qualities (critical issues) among all groups

The participation of students in the new programs could be ensured if these include issues that are familiar to them or others that they themselves recognize as important. But their training should not be left at that but focus on: a) the qualities and skills that depict gaps of knowledge or underestimated experience. Likewise, the teachers could be sensitized to comprehend their own lack of qualities, which seemed to correspond to a single-sided interpretation of entrepreneurship and to see its overall picture. Otherwise, it would not possible for them to facilitate the students into discovering their own relevant skills.

The designers of the programs should take seriously into consideration the qualities and skills which mainly or solely the students depicted, in order to synthesize them with the basic characteristics of entrepreneurship. For example, politeness and consistency constitute both elements of the customer-oriented approach. Thus, by using a customer service story, we can reach from the first characteristic (which was the protagonist among students) to the understanding of the importance of the second one, which was absent. Also, equally the designers of the programs as the teachers who will implement them, should manage their cynicism (which at that period seemed to be increasing), in order not to cancel the optimism which showed only among the students and which is a classic feature of entrepreneurship.

Special attention should be given to the training of the students in facing the major deficits emerged that were dealt with the logic of non-interference (I don't care, this doesn't concern me, I don't know). Finally, administrators and teachers must keep in mind that, if this which appears as a deficit and difference is dealt with successfully, the trainees learn how to synthesize creatively the oppositions that they will later meet in their careers and lives.

b) Qualities signification-attitude imprint

The participants self-signified the emerged qualities by using the Cynefin template that was related to 5 principles, which functioned as the classification key; they corresponded to the following ways of facing situations or even attitudes in life:

- A. Compliance with the one sole truth that we all know
- B. Obedience to the specialists who know better than us
- C. Acceptance of diversity and use of dialogue
- D. In need of / waiting for a savior to make things right.
- E. Non-involvement, non-interference.

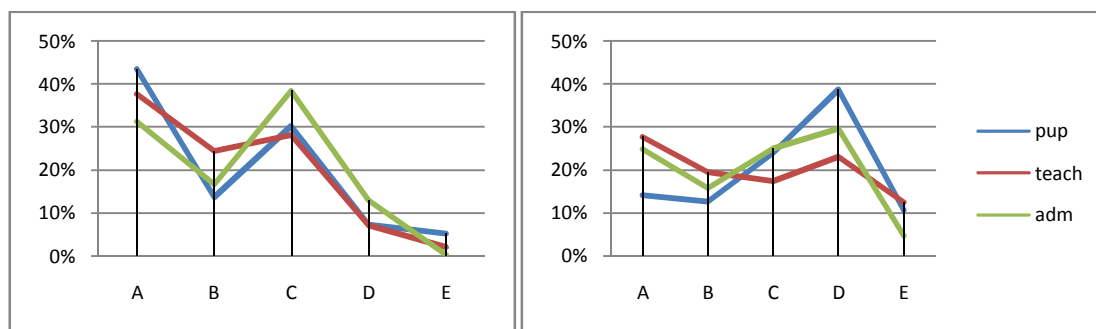
Domains - Borders	Pupils			Teachers			Adm. staff		
	Pos.	Neg.	Tot.	Pos.	Neg.	Tot.	Pos.	Neg.	Tot.
A	42%	12%	27%	36%	26%	31%	29%	21%	25%
AB	2%	1%	2%	2%	1%	1%	4%	3%	3%
B	12%	11%	11%	23%	18%	20%	14%	13%	14%
BC	1%	1%	1%	1%	1%	1%	1%	1%	1%
C	29%	21%	25%	27%	15%	21%	36%	22%	29%
CD	1%	3%	2%	1%	1%	1%	4%	2%	3%
D	6%	36%	21%	7%	22%	14%	10%	28%	19%
DA	1%	1%	1%	0%	0%	0%	0%	1%	0%
E	5%	11%	8%	2%	12%	7%	0%	5%	3%
AC	1%	1%	1%	2%	2%	2%	0%	4%	2%
BD	0%	2%	1%	1%	2%	1%	1%	1%	1%

Table 6.47: Qualities correlation with the 5 principles/distribution on the 5 fields of the Cynefin per control group.

Note: In order to make some of the next graphs more comprehensive, the sum of the properties located on the borders was split in two and each half was added to the nearing principal areas; e.g. the 2% of neg. in BD was calculated as +1% in B and +1% in D.

The positive characteristics of entrepreneurship seem to arise (with relevant uniformity among the different groups): a) with the compliance with some simple and steady rules and standards, b) with the creative use of dialogue for the acquaintance with the different,

c) without the intervention of expertise or an action-based logic. That is to say, the good aspects of entrepreneurship seem to be regulated easily (simple standards) or by themselves (complex regulation).

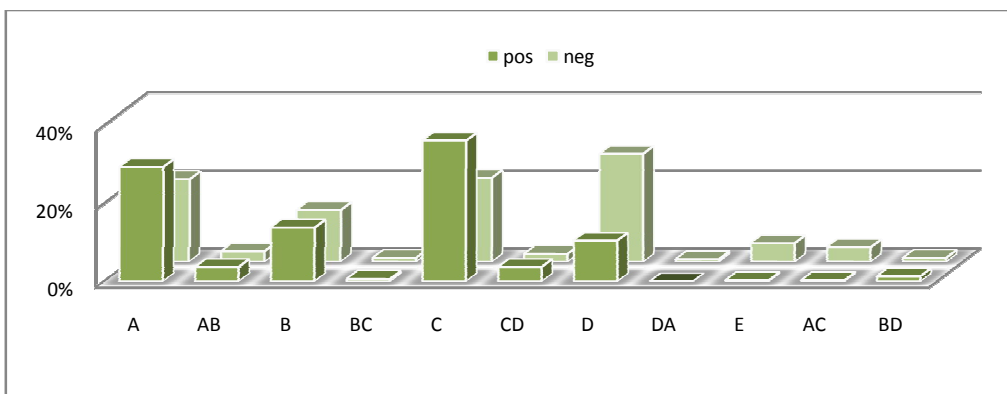
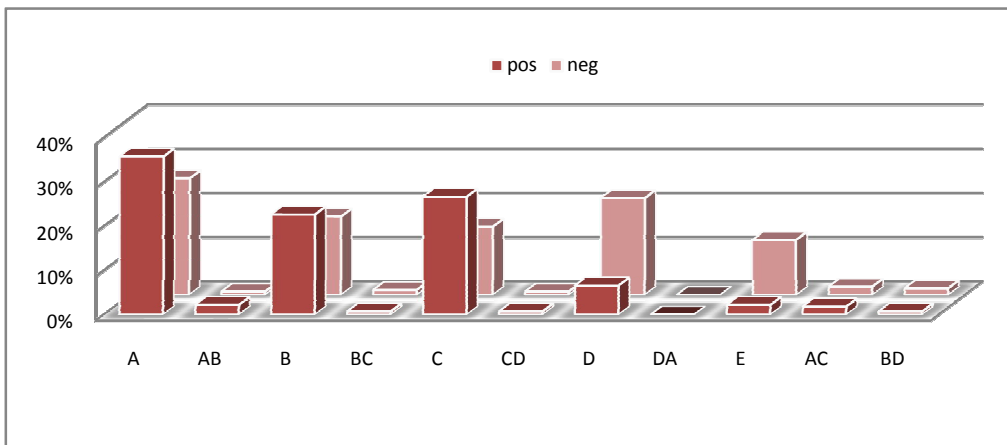
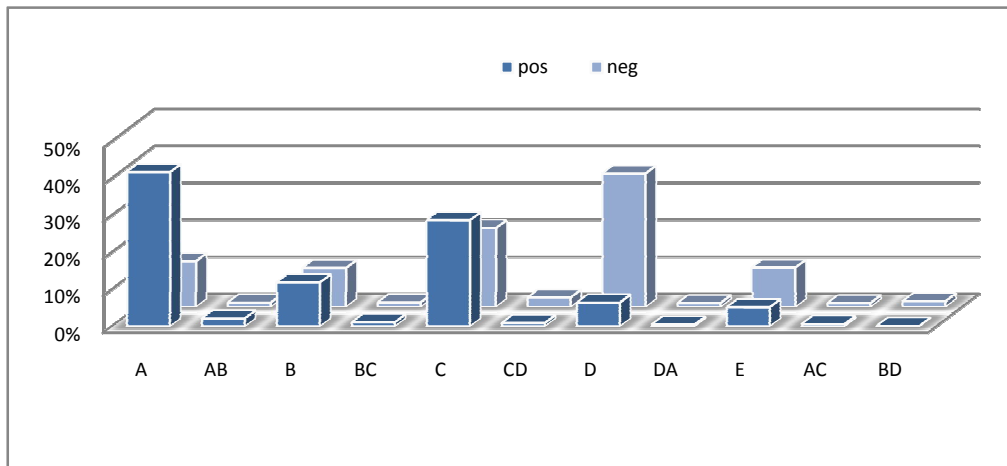


Graph 6.51: Managing positive issues - Dealing with negative aspects

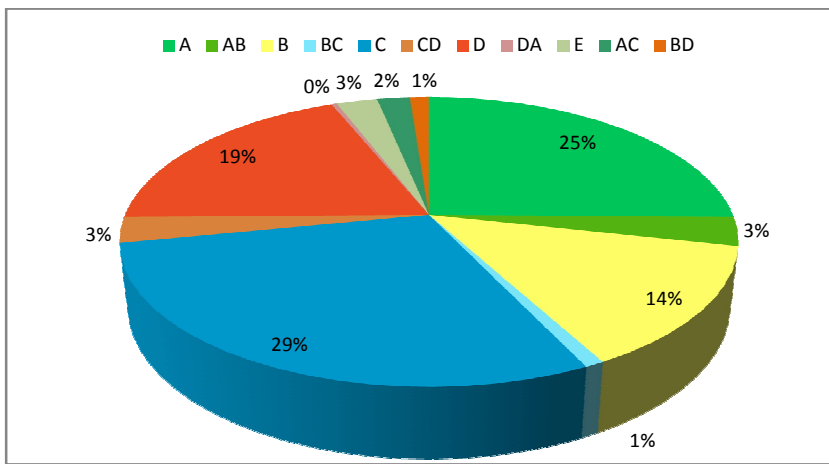
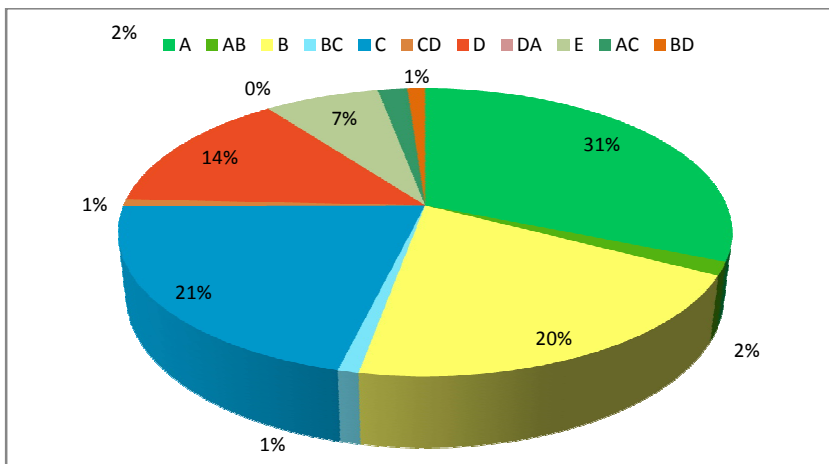
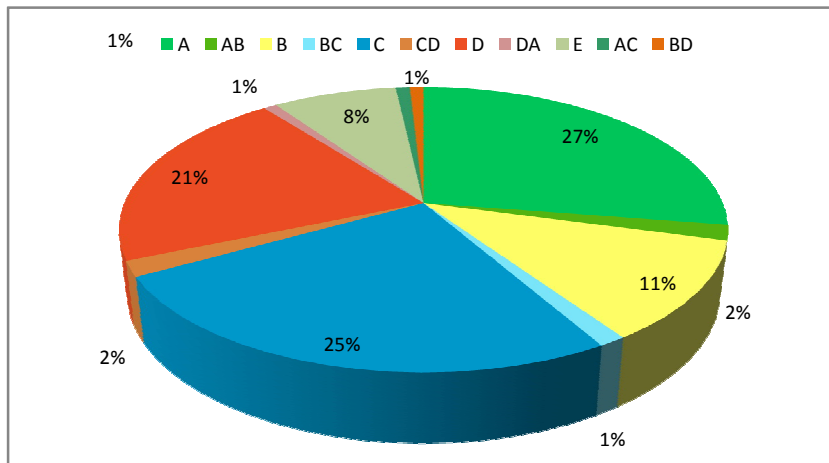
When it comes to the negative aspects though, things change and the ways to react differentiate as follows: a) overall, taking action (punishing or restoring) seemed to emerge as the dominant way of facing problems, the initiative of which is assigned to “someone else”. This occurred mainly with students and administrators; b) the rules and the dialogue subside as methods of handling problems: pupils seemed to withdraw their confidence from the rules as a means to resolve differences and keep up with dialogue; teachers withdraw uniformly but slightly their confidence from both these ways; as for the administrators, what subsides is mainly the dialogue; and c) the “do not touch” principle (area E) gains ground everywhere, as the practice to “deal” with problems.

It is remarkable that taking action as a means for creation-spreading positive qualities was an almost zero choice. The creative action (which relates to innovation and entrepreneurship) ranges among percentages below 10%, while, when it comes to punitive action, it launches to 22-36%. It is also remarkable the especially limited (but stable) presence of the role of the experts, especially if we take in consideration that the research took place in a learning environment. Possibly, this constituted an indication of question or depreciation of the institutional role of teachers. The pupils’ attitude seemed to be divided between abiding by basic rules and the dialogue. The acceptance of commonly known & acceptable rules characterized the teachers’ attitude, the dialogue and the expertise, being their second choices. Finally, the overall attitude of the administrators was more balanced, with the dialogue (or at least its pursuit), being first and the rules coming second.

The above findings are shown in the following graphs.

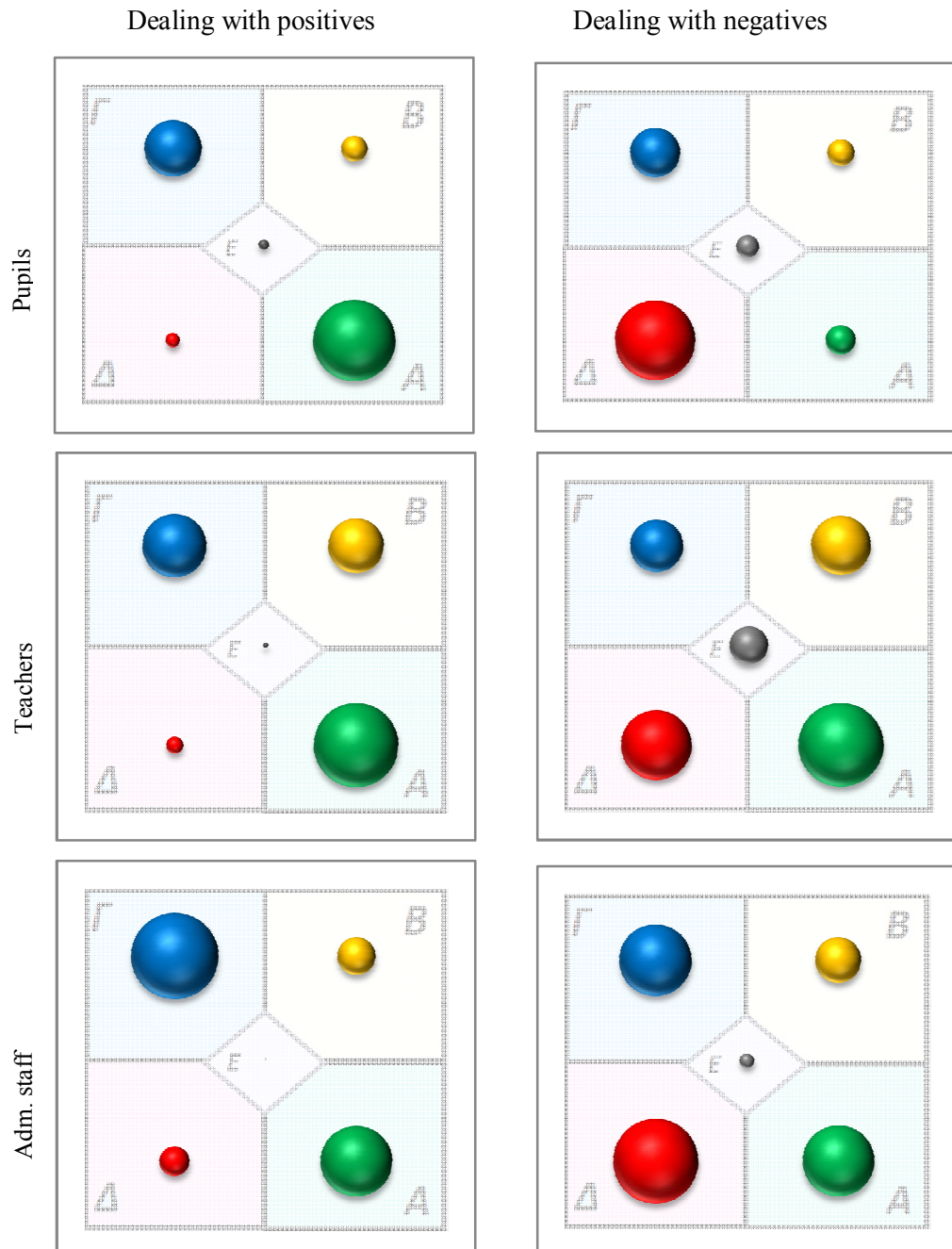


Graph 6.52: Ways of treating positive&negative characteristics by the various groups (positive: dark color – negative: light, pupils: blue - teachers: red - admin.: green)



Graph 6.53: Overall attitude of pupils – teachers – adm.staff

Another presentation mode of these differentiations could be aided by the Cynefin template under the following terms: a) the size of the spheres corresponds to the percentage of the principle (A, B, C, D, E) adopted by each group in addressing the positive and negative issues, and b) keeping the colors of the research tool, green corresponds to A, yellow to B, blue to C, red to D and grey to E.



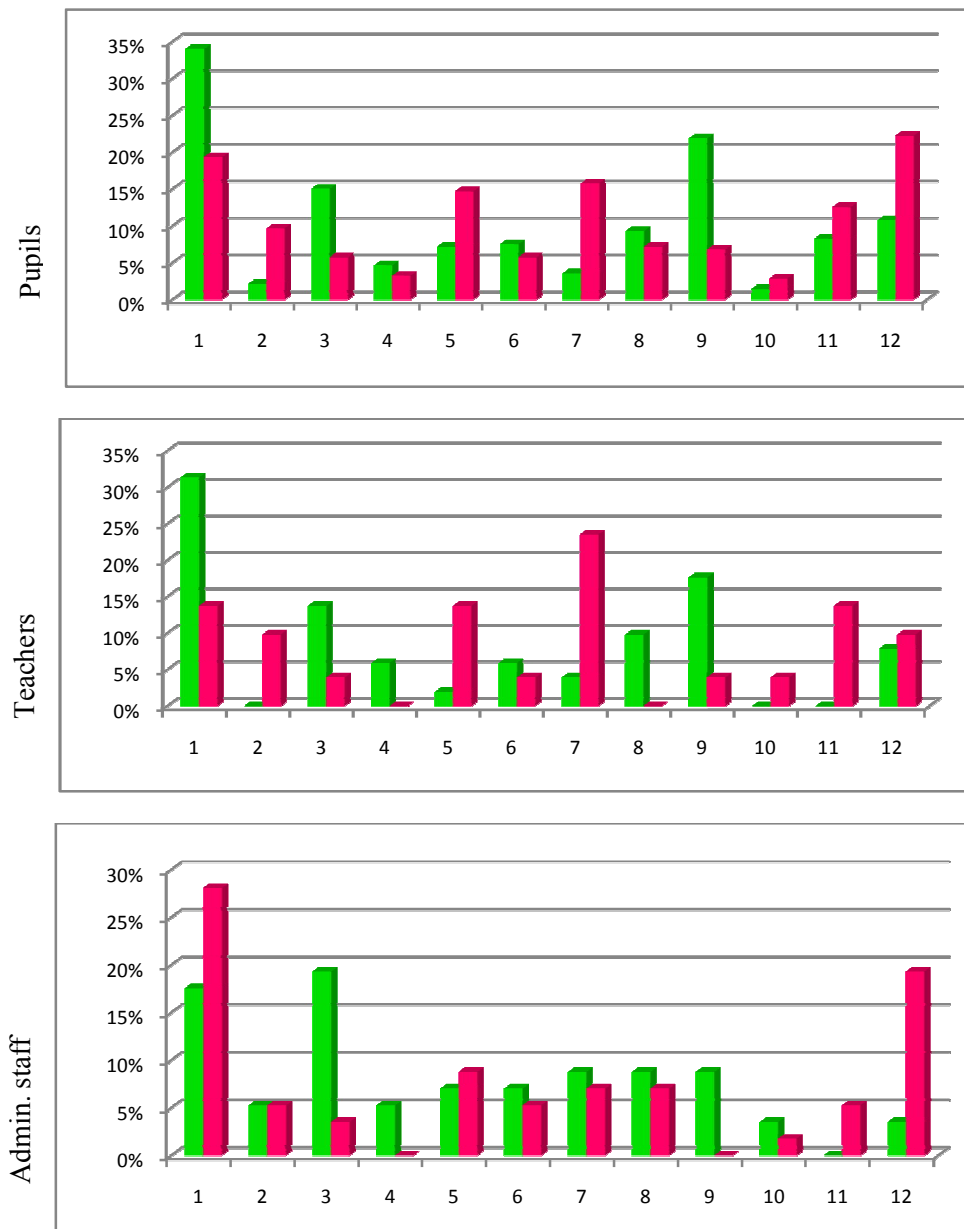
Graph 6.54: Comparative representation of addressing positive and negative issues per control group

c) Coping experience with critical situations-challenges

On the following charts and tables the collective experience of the local society in facing turning points and its ability (or not) to manage important challenges are presented. Based on the data, we have come to the most familiar and most improbable of occurring situations among the two groups, as well as the skills and deficits related to them:

Situations - challenges	familiar			impossible		
	pup	teach	adm	pup	teach	adm
1. Things must change	34%	31%	18%	19%	14%	28%
2. Shaping new abstract notions	2%	0%	5%	10%	10%	5%
3. Exchanging thoughts and ideas	15%	14%	19%	6%	4%	4%
4. Carefully developing (nurturing)	5%	6%	5%	3%	0%	0%
5. Implementation and extension	7%	2%	7%	15%	14%	9%
6. Analyzing data - documenting pathways	8%	6%	7%	6%	4%	5%
7. Balancing the opposites to synergize	4%	4%	9%	16%	24%	7%
8. Transforming experience into consciousness	9%	10%	9%	7%	0%	7%
9. Targeted actions towards new knowledge	22%	18%	9%	7%	4%	0%
10. Organizing & systematic application	1%	0%	4%	3%	4%	2%
11. Questioning & revising	8%	0%	0%	13%	14%	5%
12. Transcending shortages and starting again	11%	8%	4%	22%	10%	19%

Table 6.48: Frequency of selection of the 12 situations as familiar or impossible (% of the total choices)



Graph 6.55: Comparison of the patterns of the groups regarding the familiar/ impossible situations (familiar: green – impossible: pink)

We will examine the findings on the situations first on a cluster base and then considering the whole patterns.

a) *Formatting* and *questioning* form a cluster: they are inexistent as collective experiences and declared deficiencies and thus, they constitute a field of attention and a possible blind spot. *Expansion* could be also included in this cluster, even if the adm. staff appears to have a low level of relevant experience.

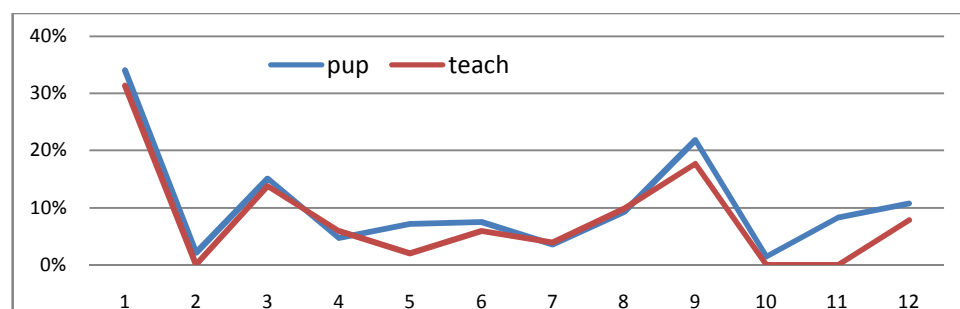
b) On the other hand, *exchange (communication)* and *goal setting* form a polar cluster: there is significant to big experience by all, with a small to non-existent confirmed deficit; they constitute a possible common reference.

- c) A third cluster is formed by *preparation, documentation, conscious choices* and *organizing*: low collective experience and even lower confirmed deficit, with no significant fluctuation is noted among the 3 “educational” groups’.
- d) *Counterbalance* and *transcending* form the last cluster: small to nonexistent experience with a declared significant (but fluctuated) deficiency for all.
- e) Finally, *change* is again the most interesting case; unusual and unfeasible at the same time, for all control groups. Among students and teachers the declared experience outweighed the declared deficiency, while among administrative was vice-versa. This contradiction could be subject of special attention on the new programs.

From all the situations totally, the following are derived: *Communication* and secondly *Change* and *Goal Setting* constitute common base (of experience) for all the groups. On the other hand, *Transcending, Counterbalance* and *Change* constitute another common base (of declared deficiency). The above situational “families” can be taken into consideration when creating educational goals, relevant scenarios, etc.

In examining the consecutive existence of experience and deficiencies, one can note that along the sequence of situations [12]-[1]-[2] (*transcending – change – formatting*) there are consecutive important deficiencies, which function as serious obstacles in the beginning of a new venture. Furthermore, there can be observed portions of the entire route, wherein, after an area with high concentration of experience, there is a gap, alongside with a declared deficiency, operating as an inhibitor. E.g. among students and teachers: between [1] and [3] (*change and exchange/communication*), [4] and [6] (*preparation and documentation*), and [6] and [8] (*documentation and counterbalance*).

While exploring the existence of common patterns among the control groups, we observe that pupils and teachers are the only ones with an almost uniform pattern of collective experience, with sole exceptions the [11]: questioning and secondly the [5]: expansion. The greatest dissimilarity is presented in the choices patterns of teachers-administrators, regarding their declared deficiencies.



Graph 6.56: Comparison of patterns of impossible situations (deficiencies) between pupils and teachers

By detecting the collective experience and competence of the various groups to face these inevitable challenges, along with the existence of common patterns, appropriate empowerment measures can be designed. For example, highlighting the familiar and unfamiliar gaps (deficiencies and non-experience respectively), can be treated educationally differently, as the deficiencies may conceal fear too. Moreover, the main two clusters, meaning, the consecutive significant deficiencies and gaps of experience, which operate as obstacles in a new endeavor, must constitute secondary educational goals (development of relevant skills-competences).

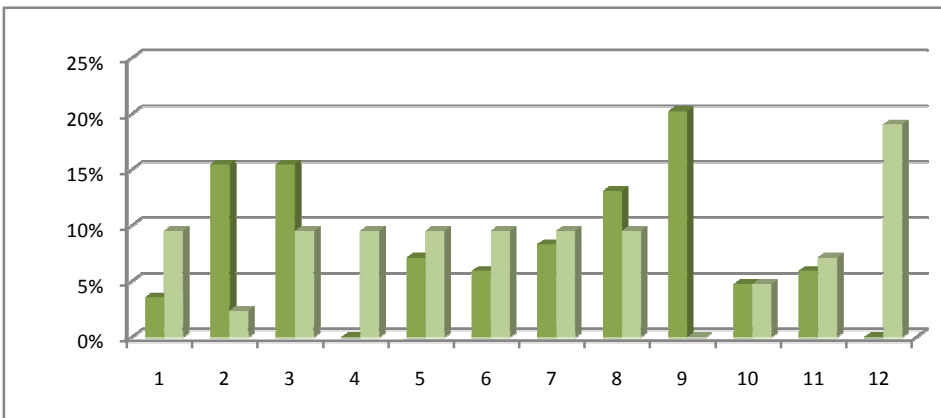
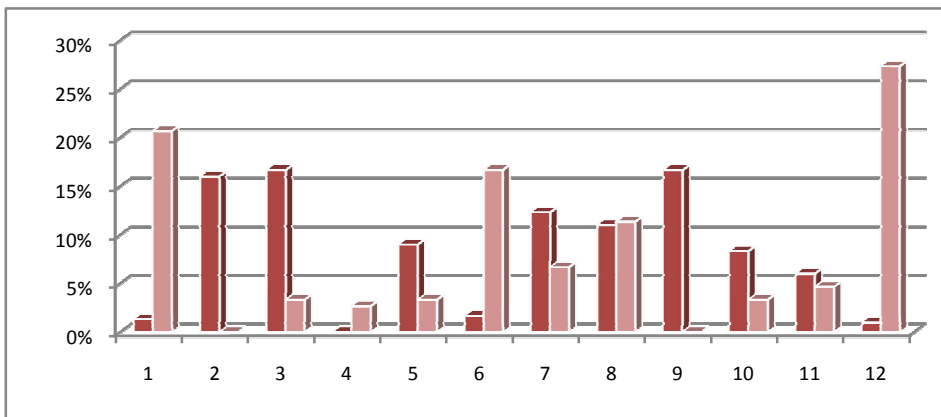
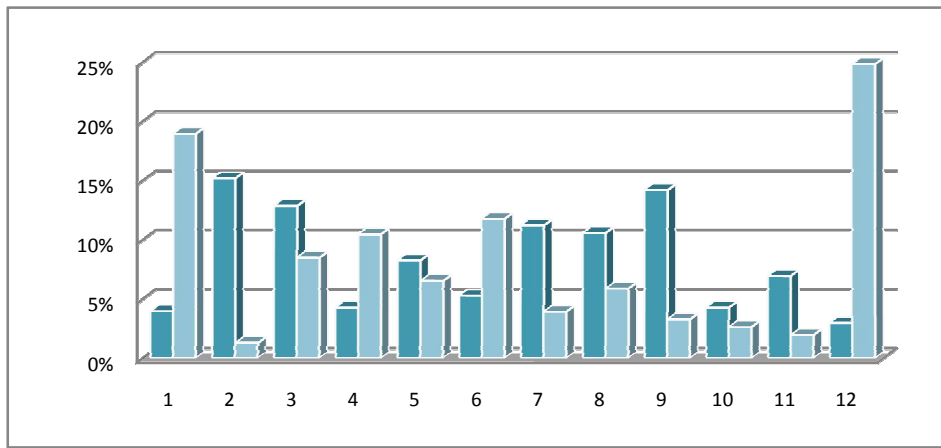
d) Businessmen and Consumers' Profiles

Archetypal characteristics of businessmen	Present			Desired future		
	pup	teach	adm	pup	teach	adm
1. devotion & generosity	4%	1%	4%	19%	21%	10%
2. survival & interdependence	15%	16%	15%	1%	0%	2%
3. courage & fighting spirit	13%	17%	15%	8%	3%	10%
4. idealism & trust	4%	0%	0%	10%	3%	10%
5. creative expression	8%	9%	7%	7%	3%	10%
6. passion & sensitivity	5%	2%	6%	12%	17%	10%
7. rapture & overthrow	11%	12%	8%	4%	7%	10%
8. search-exploration	11%	11%	13%	6%	11%	10%
9. domination & control	14%	17%	20%	3%	0%	0%
10. pleasure & challenges	4%	8%	5%	3%	3%	5%
11. transformation-magical solutions	7%	6%	6%	2%	5%	7%
12. wise & fair choices	3%	1%	0%	25%	27%	19%

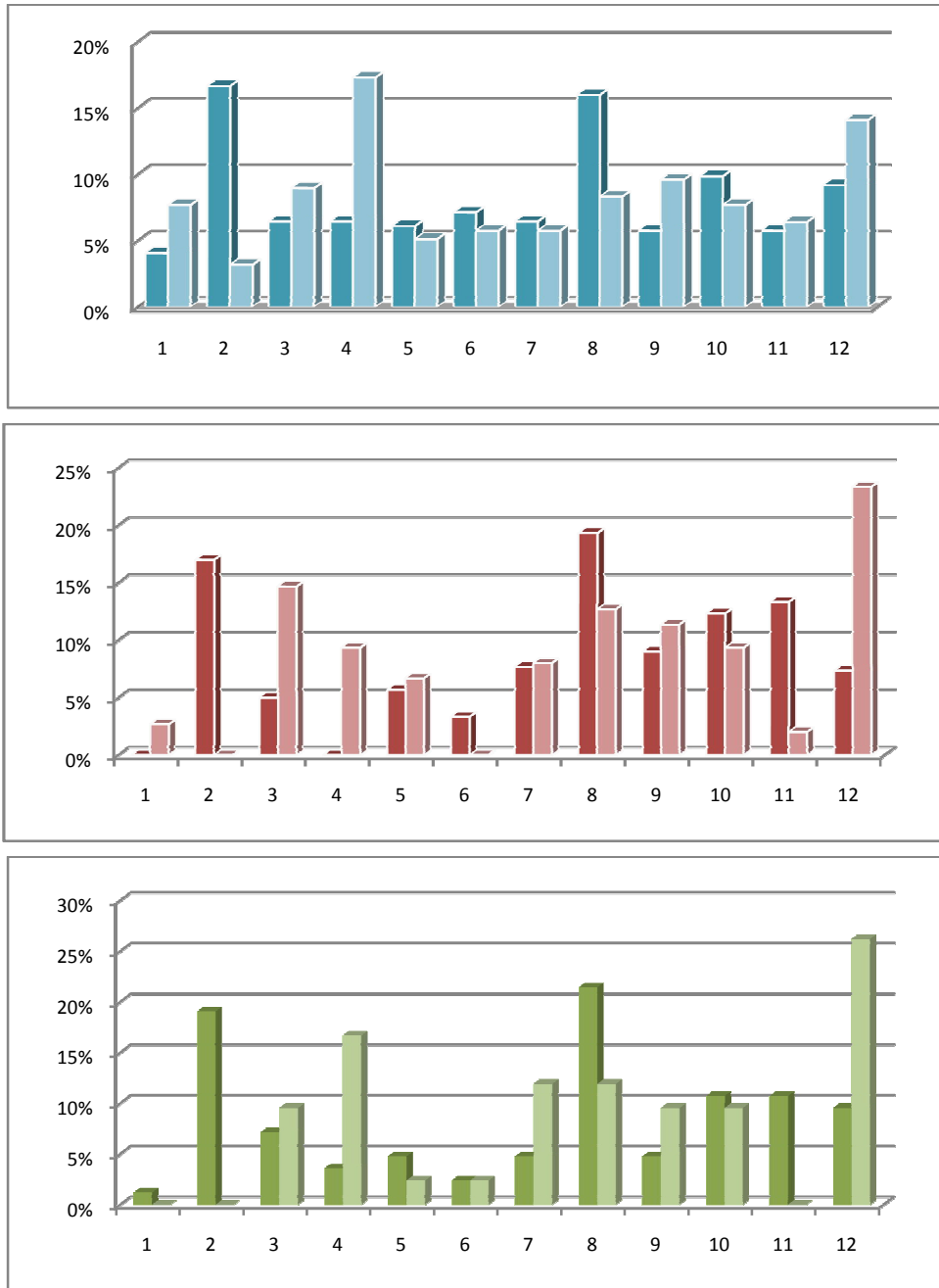
Table 6.49: Frequency of appearance of archetypal characteristics in the present / future profiles of businessmen (% on the total combinations made by students, teachers, adm.staff)

Archetypal characteristics of consumers	Present			Desired future		
	pup	teach	adm	pup	teach	adm
1. devotion & generosity	4%	0%	1%	8%	3%	0%
2. survival & interdependence	17%	17%	19%	3%	0%	0%
3. courage & fighting spirit	6%	5%	7%	9%	15%	10%
4. idealism & trust	6%	0%	4%	17%	9%	17%
5. creative expression	6%	6%	5%	5%	7%	2%
6. passion & sensitivity	7%	3%	2%	6%	0%	2%
7. rapture & overthrow	6%	8%	5%	6%	8%	12%
8. search-exploration	16%	19%	21%	8%	13%	12%
9. domination & control	6%	9%	5%	10%	11%	10%
10. pleasure & challenges	10%	12%	11%	8%	9%	10%
11. transformation-magical solutions	6%	13%	11%	6%	2%	0%
12. wise & fair choices	9%	7%	10%	14%	23%	26%

Table 6.50: Frequency of appearance of archetypal characteristics in the present / future profiles of consumers (% on the total combinations made by students, teachers, adm.staff)



Graph 6.57: Appearance of archetypal characteristics in the present / future profiles of businessmen (pupils: blue – teachers: red – adm.:green , present: dark – future: light)



Graph 6.58: Appearance of archetypal characteristics in the present / future profiles of consumers (pupils: blue – teachers: red – adm.:green , present: dark – future: light)

Two main findings are derived from this sector of the research. First, there is relative consensus among the control groups, as to the dominant archetypal characteristics of today’s businessmen and consumers. And second, in relation to the future, students, teachers and administrators exhibit uniformity in preferences as for businessmen and for consumers too.

The dominant characteristics of today and their evolution in a desired tomorrow are as follows:

a) Survival & interdependence [2], while dominant today among businessmen and consumers as well, is an ephemeral characteristic, as it disappears in the desired tomorrow. Likewise, courage and fighting spirit [3] exit the picture of tomorrow's businessmen.

b) Search & exploration [8], which are dominant today among consumers and present among businessmen, remain both with an element of desired tomorrow. Likewise, pleasure & challenges [10] among consumers remain stable.

On the other hand, the most significant emerging characteristics (in-potentia) are: a) wise and fair choices [12], as for businessmen, so for consumers, b) devotion and generosity [1], as an expectation for businessmen, and c) Idealism & trust [4] for tomorrow's consumers.

Conclusively, the rather painful experience of certain dominant characteristics of today seems to lead to their "banishment" from a desired tomorrow, even if they constitute cornerstones of entrepreneurship. E.g. survival & interdependence; they shows rather ephemeral, equally for businessmen, as for consumers. On the other hand, there are some characteristics which appear stable equally for today, as for tomorrow, such as e.g. search-exploration. Finally, there is domination & control, which, except being the characteristic of today's businessman, it is potentially the characteristic of tomorrow's consumer.

Businessman of today								
Pupils			Teachers			Adm. staff		
Arch.Charact.	Freq.	Freq.	Arch.Charact.	Freq.	Freq.	Arch.Charact.	Freq.	Freq.
3	9	52%	2	9	61%	2	9	64%
2	7	37%	2	3	49%	3	9	50%
7	9	33%	7	9	41%	2	3	36%
2	3	25%	5	10	39%	6	8	29%
Businessman of tomorrow								
Pupils			Teachers			Adm. staff		
Arch.Charact.	Freq.	Freq.	Arch.Charact.	Freq.	Freq.	Arch.Charact.	Freq.	Freq.
1	12	48%	1	12	63%	8	12	29%
4	12	29%	1	6	43%	1	12	21%
6	12	27%	6	12	43%	1	4	14%
1	4	19%	7	8	20%	4	12	14%

Table 6.51: The most frequent combinations of archetypal characteristics of present/future businessmen made by each group

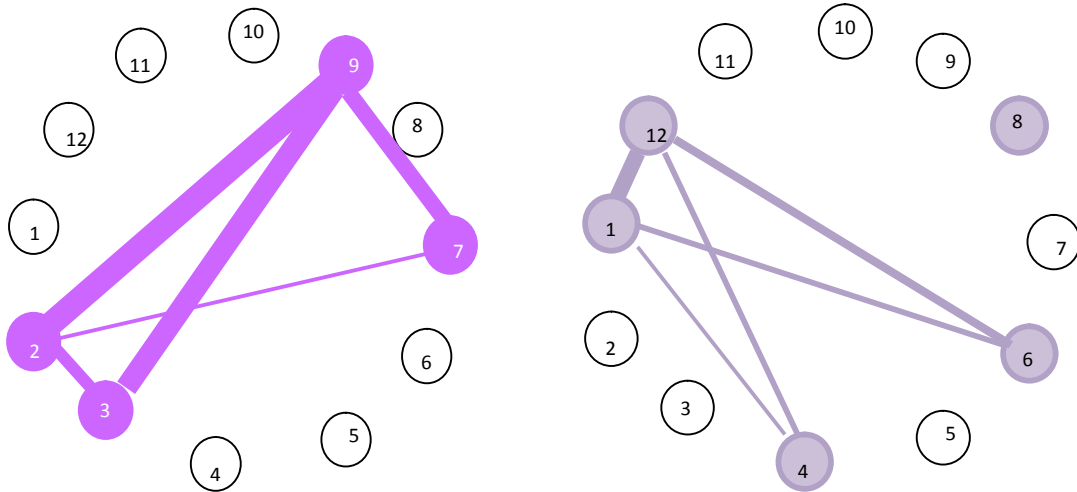
Consumers of today								
Pupils			Teachers			Adm. staff		
Arch.Character.	Freq.		Arch.Character.	Freq.		Arch.Character.	Freq.	
2	8	46%	2	10	55%	2	8	69%
8	12	23%	2	8	47%	2	10	54%
2	7	19%	2	11	41%	8	10	54%
2	10	19%	10	11	41%	8	11	54%
Consumers of tomorrow								
Pupils			Teachers			Adm. staff		
Arch.Character.	Freq.		Arch.Character.	Freq.		Arch.Character.	Freq.	
4	12	19%	3	8	27%	4	12	38%
4	10	15%	3	12	24%	8	12	31%
1	4	13%	4	12	24%	9	12	31%
4	8	13%	7	12	24%	3	12	23%

Table 6.52: The most frequent combinations of archetypal characteristics of present/future consumers made by each group

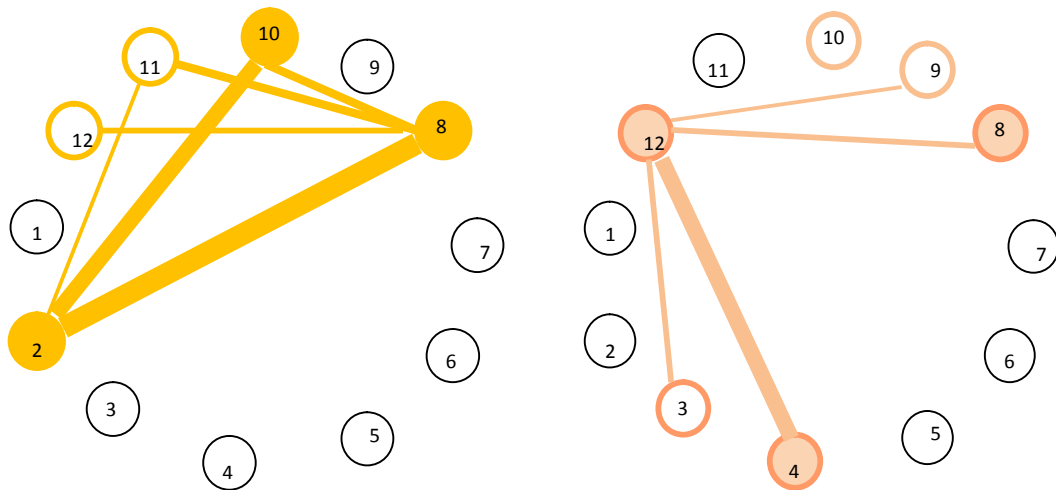
With regards to the profiles of businessmen and consumers, as emerged from the combinations of their archetypal characteristics, the findings are the following:

- a) Today's businessmen are characterized by: survival & interdependence [2], courage & fighting spirit [3], attempt for) domination & control [9] and secondarily by search-exploration [8] and rapture & overthrow [7].
- b) Today's consumers are characterized by: survival & interdependence [2], search-exploration [8] and secondarily by: pleasure & challenges [10], transformation-magical solutions [11] and wise & fair choices [12].
- c) The figure of tomorrow's businessman (as an expectation) includes: wise & fair choices [12] (dominant), devotion & generosity [1], search-exploration [8] and secondarily: passion & sensitivity [6] and idealism & trust [4].
- d) The figure of tomorrow's consumer (as an expectation) includes: wise & fair choices [12], idealism & trust [4] and secondarily: search-exploration [8], (attempt for) domination & control [9] and pleasure & challenges [10].

The above are depicted on the following graphs.



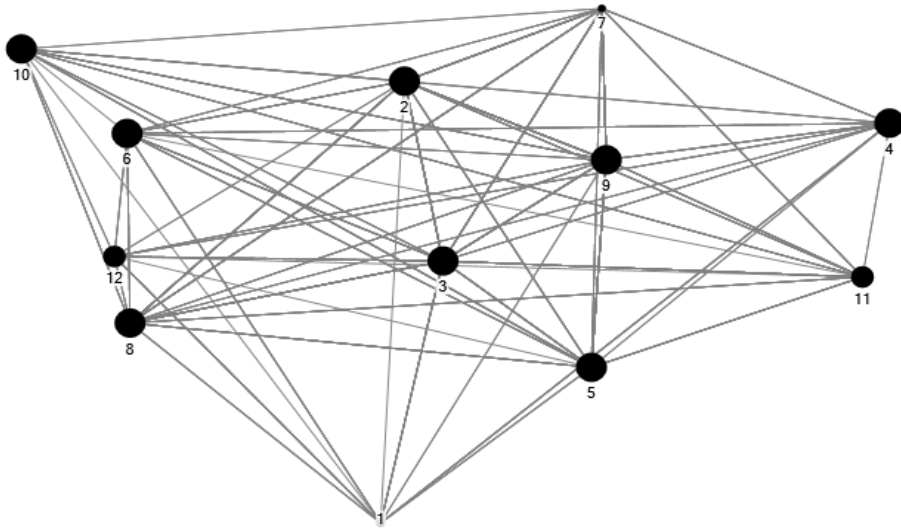
Graph 6.59: Businessman and consumers' profile (today/tomorrow)



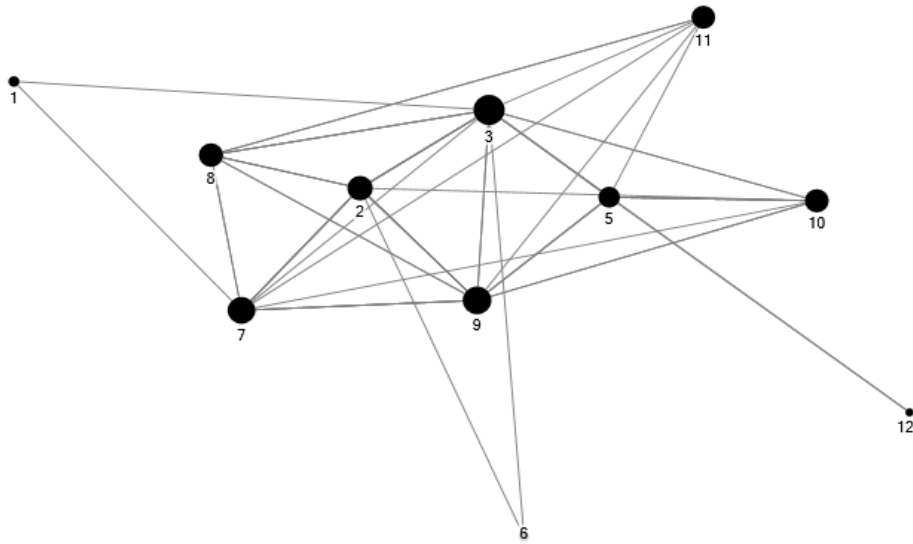
Graph 6.60: consumer's profile today/tomorrow

As it appears on the above charts, it is remarkable how the patterns of businessmen and consumers change almost similarly from today to tomorrow. Especially, tomorrow presents 2 common points between businessmen and consumers [12] and [4], which probably refer to common expectations. The data of these combinations and shifts can be used to produce figures of learning scenarios and case studies.

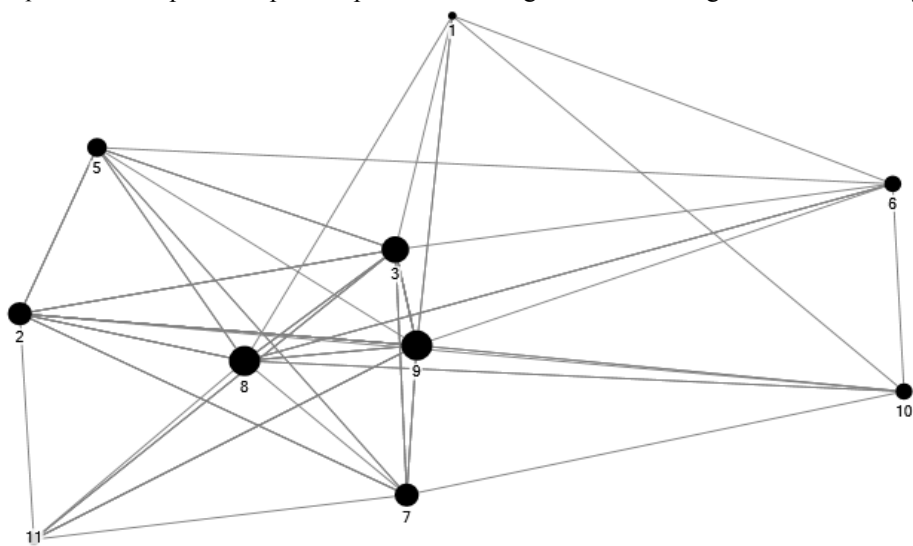
Finally, with regards to the relevant network-graphs of the 4 profiles, one can note the following:



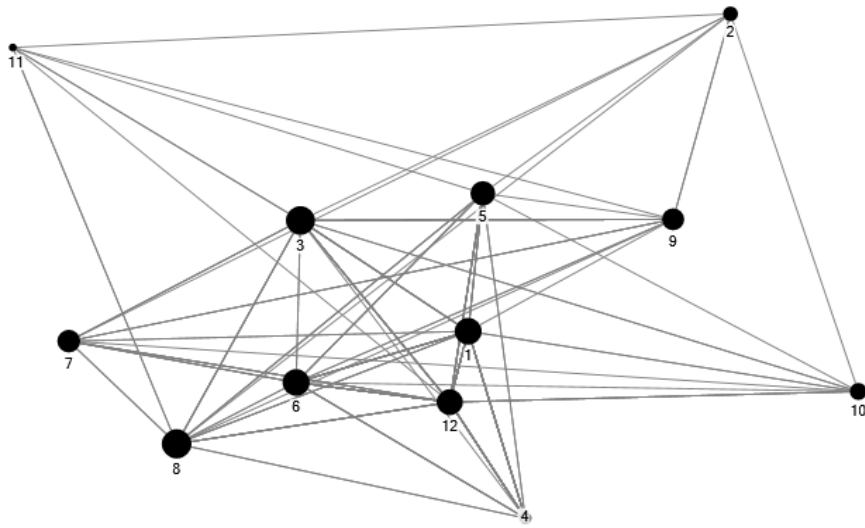
Graph 6.61: Entrepreneurs' present profile according to Pupils - Eigenvector Centrality



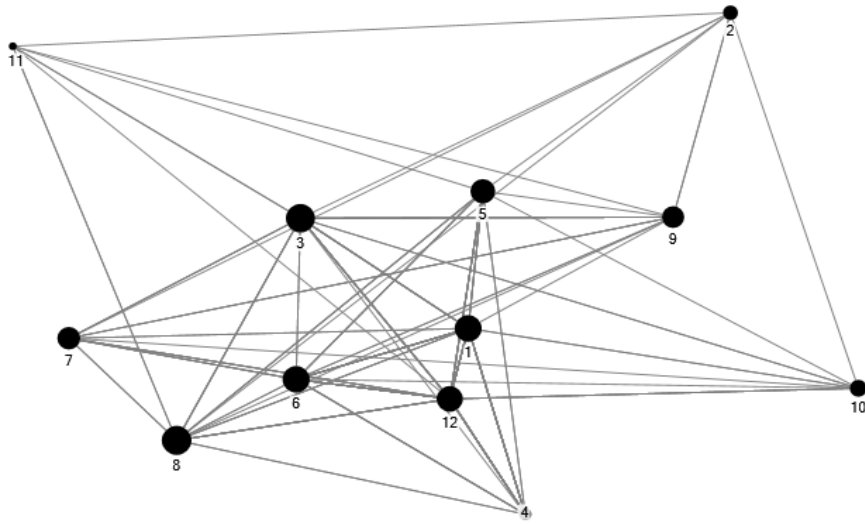
Graph 6.62: Entrepreneurs' present profile according to Teachers - Eigenvector Centrality



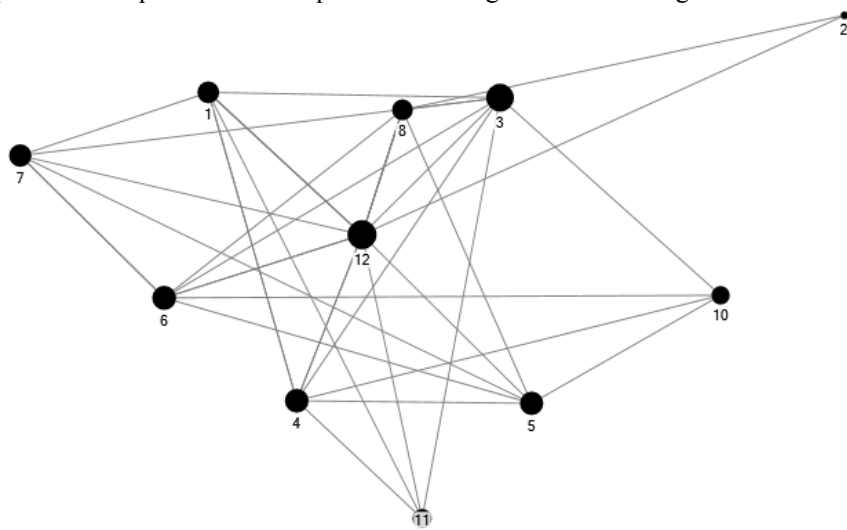
Graph 6.63: Entrepreneurs' present profile according to Admin.staff - Eigenvector Centrality



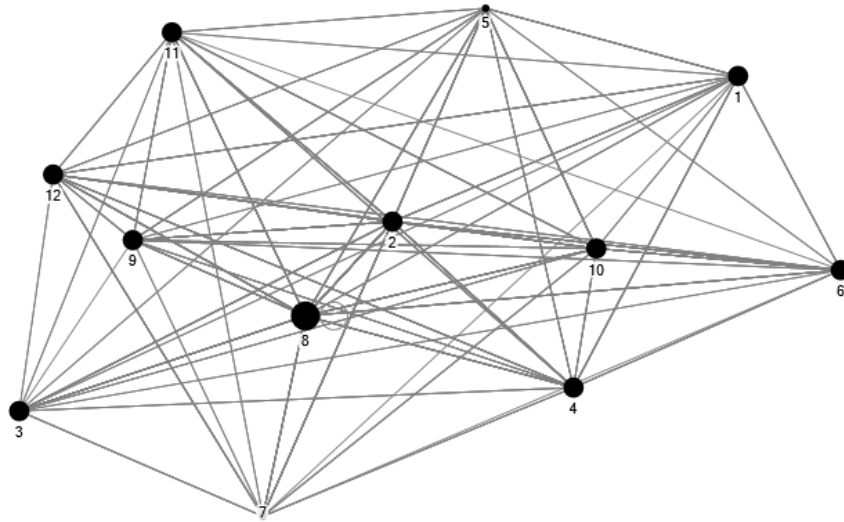
Graph 6.64: Entrepreneurs' desired profile according to Pupils - Eigenvector Centrality



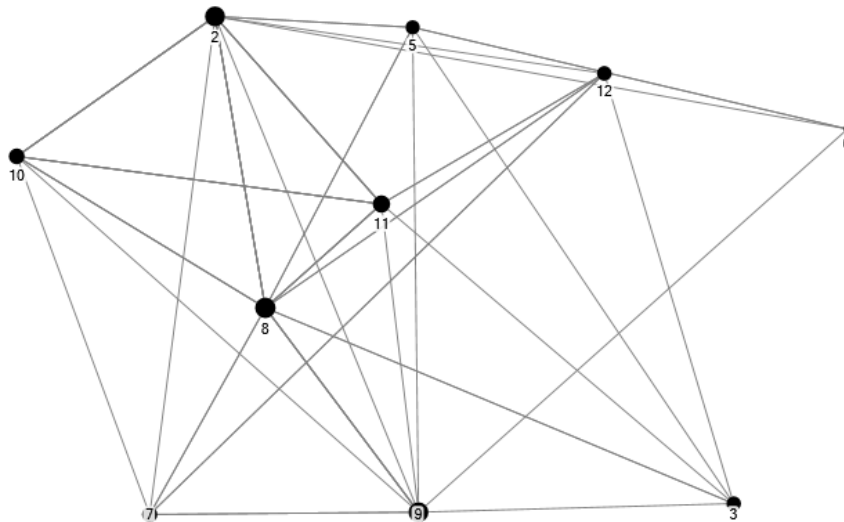
Graph 6.65: Entrepreneurs' desired profile according to Teachers - Eigenvector Centrality



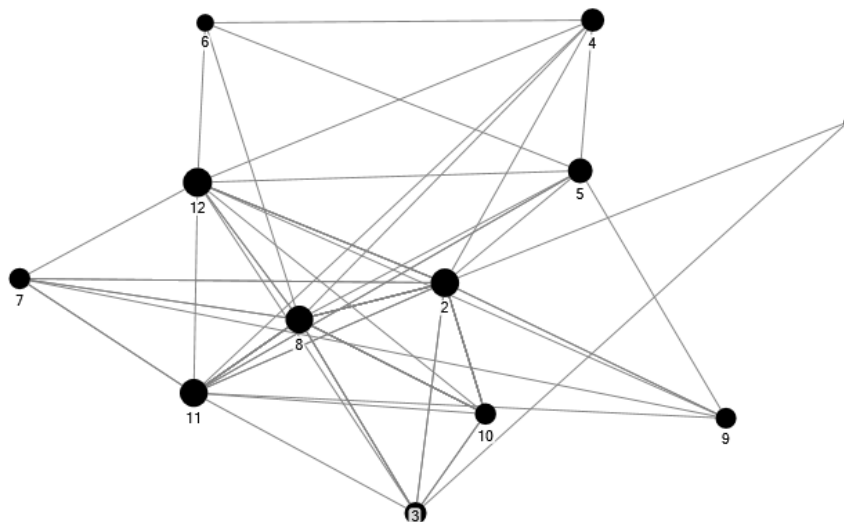
Graph 6.66: Entrepreneurs' desired profile according to Admin. staff - Eigenvector Centrality



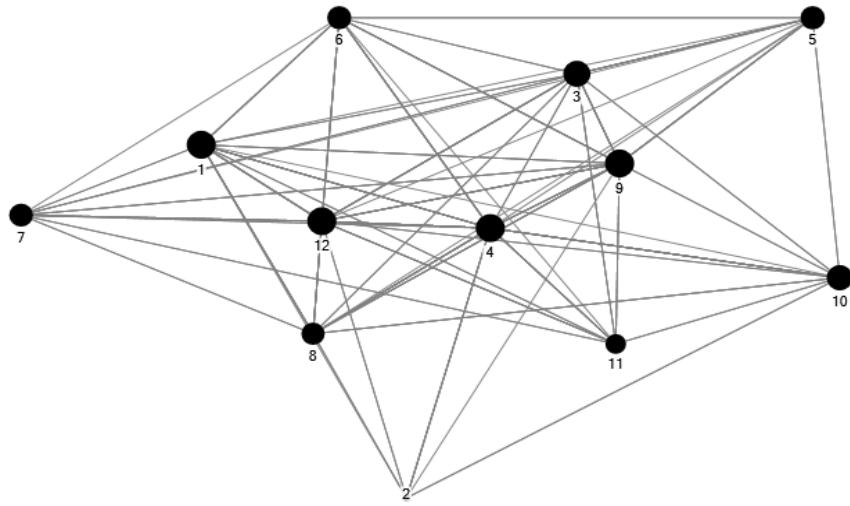
Graph 6.67: Consumers' present profile according to Pupils - Eigenvector Centrality



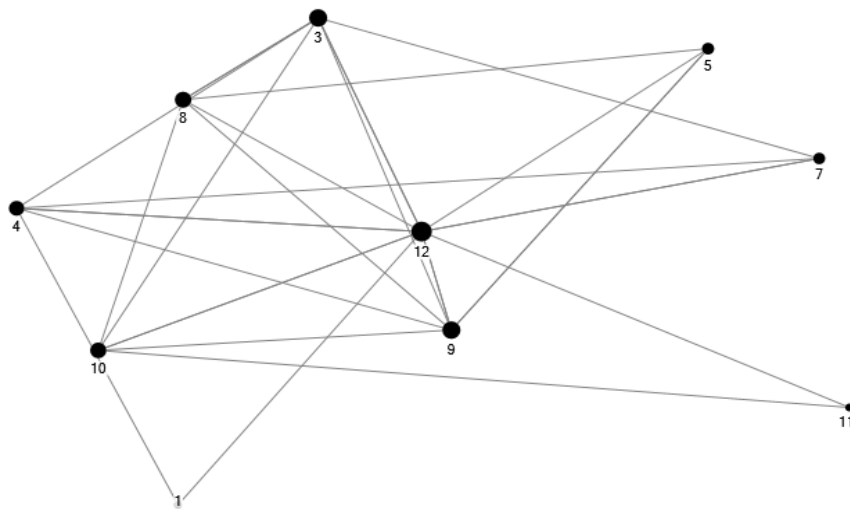
Graph 6.68: Consumers' present profile according to Teachers - Eigenvector Centrality



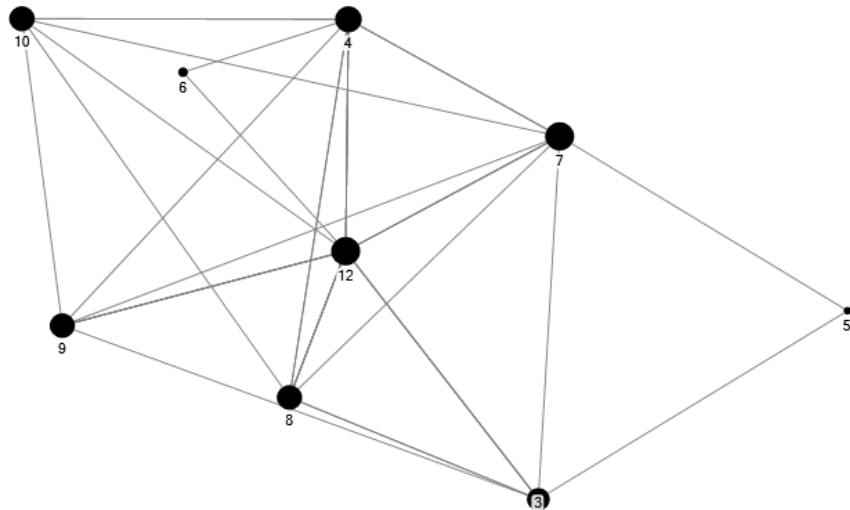
Graph 6.69: Consumers' present profile according to Admin. staff - Eigenvector Centrality



Graph 6.70: Consumers' desired profile according to Pupils - Eigenvector Centrality



Graph 6.71: Consumers' desired profile according to Teachers - Eigenvector Centrality



Graph 6.72: Consumers' desired profile according to Admin.staff - Eigenvector Centrality

- a) Although the 3 graphs of the present entrepreneurs' profile are different, the main connections are kept and are the same as in the dodecagon graph; e.g. ([2]-[3]-[9]-[5] and [8]).
- b) The pupils' and teachers' graphs of future (desired) entre-profiles are impressively the same and corresponding to the dodecagon graph (e.g. the relation [1]-[12]-[4]-[6]).
- c) Regarding the present customers' profiles, although different, the 3 graphs keep consistent with the main relations identified in the dodecagon graph ([2]-[8]-[10] and [11]-[12]). Yet, the elements [1] and [4] are not represented in the teachers' graph.

Finally, regarding the desired consumers' profiles, we have the same verification of the dodecagon result: ([4]-[8]-[11] and [3]-[9] are close connected here. Again, some elements are not represented in the teachers' and staff's graphs ([2], [6] and [1], [2], [11] respectively).

e) Qualitative findings

An interesting finding of the evaluation was that although the administrative staff and the teachers found the process interesting and original, they indicated their difficulty in dealing with ambiguous issues instead of clear cut questions. To a lesser degree, some teachers expressed their doubts regarding the real scope of the research; this makes sense taking into consideration the hostile relationships between the teachers syndicate and the Ministry at the time of the research. Yet, in case like that, the facilitator should pay particular attention and employ specific skills that will be discussed in more details in the following chapter (section 7.2)

6.3.4. Validation actions

After the end of the data collection, the participants evaluated (most of them in groups) their whole experience of the procedure and the way they collaborated, according to the template included in the data collection sheet.

As documented in the Table below, the process was evaluated very positively, particularly by students. Yet, an interesting finding of the evaluation was that although the administrative staff and the teachers found the process interesting and original, they indicated their difficulty in dealing with ambiguous issues instead of clear cut questions. To a lesser degree, some teachers expressed their doubts regarding the real scope of the research. This makes sense taking into consideration the hostile relationships between the teachers syndicate and the Ministry at the time of the research.

Most frequent characterisations	students	teachers	admin. staff
	% of groups	% of groups	% of groups
interesting-very interesting	87%	50%	73%
good-very good-impressive	83%	20%	27%
pleasant	43%	20%	36%
original-innovative	39%	50%	18%
created concern	48%	10%	18%
cooperative	30%	30%	18%
need for clarity	26%	30%	45%
Type of characterisations	% of tags	% of tags	% of tags
Positive (in total)	81%	71%	72%
Negative (in total)	19%	29%	28%

Table 6.53: Participants' evaluation data from the 3rd case study

After the assessment of the data a detailed report was sent to the Ministry officials who approved it as valid. Moreover, the Special Secretary in charge of the project on behalf of the Ministry was enthusiastic regarding the findings and particularly interested in the methodology.

6.4 SYNOPSIS OF RESULTS OF THE THREE CASES

Summarizing the results of the three case studies, a synopsis of qualitative findings from the application of the process during the preparation and materialisation phase of the workshop, followed by Tables of deliverables and evaluation data are presented below.

6.4.1. Qualitative findings from the application of the process

Starting from the preparatory actions, the control groups were determined by the ones who order the case studies and corresponded to subgroups of the main target population, such as: different thematic or regional organisational departments, hierarchical levels; complementary stakeholders etc.

Regarding the organisation of the workshops, the problems encountered varied and concerned: a) the poor availability of the participants due to their personal, family or professional obligations and the relatively long duration of the process (1 hour and 15 minutes), which left not much room for dialogue and b) the skepticism that some of them expressed about the objectives of the research and the use of the findings; the latter led to indifference or even denial to contributing to research activities without any return.

Particular attention should be given to the ways for addressing these problems; as such, the following are proposed: ensure assistance from key-persons of the organisation or company or community; form of a directory with alternative sources for data collection; create and distribute in time information material about the research objectives; point out of the participatory character of the research and the experience of a new way of dialogue; or even a certification that could be given to the participants; and highlight the briefing on the results and the leadership's commitment of seriously considering on them.

Regarding the data collection phase, the main difficulties encountered concerned:

- a) The participants' expectation for a detailed description in advance of what will follow and their concern to protect themselves from disclosing 'improper' information to outsiders. Such incidents were treated by politely refusing to provide a rational description of the forthcoming session or a mental analysis of what has occurred and by suggesting to the participants to make sense on their own.
- b) The established (wrong) assumption on seriousness; for this a nice and informing welcome that sets the right frame and introduces to the necessary informal atmosphere is necessary. Actually, to my opinion, the fact that there were no problems during any of the workshops has to do with the successful welcome sessions, and

c) The dominating attitude of some people with a strong personality or a set viewpoint, trying to impose their views on the more conciliatory persons, especially in the stages of negotiation and synthesis. It was noticed also that when two individuals of such mentality were found in the same group, the process was turning into a continuous exchange of meaningless arguments and eventually it “got stuck”. This happened mostly in the second case with the groups of the so-called 'active citizens' whose disagreement brought serious delay and led to the withdrawal of other members and non-completion of the last stage of the process. There are two ways for the facilitator to deal with this problem; either to stay completely away of the fact and let it evolve, in order to represent real life conditions and reactions or to intervene and remove the ‘bossy’ individual, possibly by assigning him/her other kind of duties.

Moreover, based on the experience from the case studies, we could say that there are certain target groups that are more proper than others for using the tool; or better, this kind of tools. Like for example, in the first two case studies, the control groups did not share the same attitude towards their participation to the workshop; neither did all the participants demonstrate the same quality characteristics as to the procedure. Yet, despite such circumstantial hold backs, the majority of the participants seemed to enjoy the process and work together effectively. As it will be shown in the next paragraph, the overall satisfaction was very high among the members of the groups who characterized the process as interesting, pleasant, innovative, game-like, and relaxing. It should be also mentioned here there was no unique or suggested way for the teamwork phase. Each team decided its own rules and practice for the creation of the combinations and complexes and, most important, spent different amount of time in dialogue.

Finally, it is worth mentioning a problem that appeared during the data processing stage and concerned the synonyms, meaning emerged properties with the same or similar meaning. It should be decided whether, which and how they would be constituted by one of them or more and how that would affect the quantitative results. Eventually, the list of the emerged properties was scanned in order to spot the words with very close meaning and unify them under the same word; this happened to a very limited extent, while in their majority, the synonyms were left as it were. Relevant to this but much simpler in solving was dealing with the spelling mistakes of the properties that were made either by the participants or during the data entry and could result to double entries of the same property; for this, all entries were verified.

Conclusively, the process met all the principal treaties set in the Tool Development chapter, among which the following are particularly indicated below:

- *Contextuality, meaningfulness and neutrality of the content*: The content of the tool was adequately contextualized for each case and presented in a neutral way, according to the design principles.
- *Participatory character, life-likeness and representation of collective dynamics*: Due to its participatory nature and its interaction pursuit, the process simulated the daily operation of the participants: they maintained their personal perceptions, interacted and practiced negotiation, and finally found a ‘modus-vivendi’. Thus, the process included both the individual aspects and the collective dynamics that shaped their real organisational and social life.
- *Authenticity of the emerged properties - Restriction of social desirability, gaming and conformism*: The irreversibility and the non-rationalisation of the process prevented phenomena of social desirability, gaming or conformism. As confirmed by the participants, the properties emerged were implicit, spontaneous and authentic and represented reality as they themselves see it. This was aided by the relaxed atmosphere of the workshops and the playful character of the process, as well as by the indirect posing of the questions and the purposefully ambiguous meaning of the stimuli. Although the latter seemed to bother certain participants who were in conflict with the organizing authority, ambiguity enabled personal interpretation and reveal of significant influences that existed within their environment.
- *Evident and easily accepted results*: The participative and experiential nature of the process facilitated the acceptance of the results by the participants. In this helped in particular the discussion on the patterns emerged among them, the use of geometric and figurative means for depicting the obtained information and the simple and easily understood assessment rules and assumptions, accepted by common sense.
- *Non-interference of the facilitator*: In all case studies the facilitation obeyed to the principles of complex facilitation (mentioned in the Tool Development chapter); this was confirmed by some groups in their evaluation sheet.
- *Collection of sufficient data*: The number of participants along with the data collected was sufficient for the needs of the specific research. On the other hand, in the vast majority of the workshop groups the data collection forms were properly filled and the data gathered were more than sufficient.
- *Keeping of the assessment rules*: In all cases the data was assessed based on the preset assessment criteria and rules.

6.4.2. Findings and Deliverables

It should be clearly reminded here that the scope of the report of the findings was not to make conclusions but to leave this task for the participants and stakeholders. This means that the findings should be neutrally presented and, if possible, they should avoid guiding the attention towards the interests or assumptions of leadership or the researcher. In this way, a second-order information could emerge from the participant's commentary, as they could either skip any (unsettling) information or focus on it. This is where the (unrealized) assessment on maturity would start from.

It should be also mentioned that, due to the different content of the first 12-fold of the tool that was used in the first and second case and the different component that was used in case three, we cannot make any comparison among the findings of sectors (a) and (b). Moreover, due the contextualized character of the tool the findings of sector (d) are irrelevant. Yet, a very interesting finding emerged in sector (c) as a common pattern among all case studies; this has been noted in pages 219, 245 and 269 respectively and will be discussed in the next chapter.

However, we could briefly comment what we think as the most important findings of the cases; one from each case. Actually, this would be useful for the facilitator as the theme of a prompting question for starting (or provoking) the discussion on the results with the stakeholders and/or the participants. In the following paragraphs I will outline what I consider to be the main finding ('message') in each case.

The first case showed that the organisation staff was very willing to 'change' its organisational culture, in order to meet the corporate goals for privatisation and market orientation. Yet, the obstacles emerged and associated with these transitions showed clearly that, in the participants' viewpoint, neither staff nor leadership were ready for this goal. Failing to see this blind spot, no transition can be made. This was confirmed by the inertia in the corporation during the tears that followed the case study.

The second case study showed that: a) both at the time of the case and in future, the residents were interesting in daily issues (that keep their place proper) rather than visions or participation and b) they were disappointed by the leadership of those days. This is why their interest in transparency, accountability and evaluation was reduced in a desired future, where all their (daily) problems would be solved, by others. The truth of this consideration was confirmed by the result of the election almost a year ago.

The third case revealed some interesting blind spots that mainly exist among the teaching staff; their perception of entrepreneurship is full of personal projections and misunderstandings, regarding how a business works. Among the suggestions made to the Ministry was that the teachers / trainers should undergo experiential relevant workshops.

Finally, with regards to the ability of the tool to provide the preset deliverables, the following Table is presented; what was accomplished is indicated by (√).

Deliverables	CS-1	CS-2	CS-3
a) <i>Current and potential collective aspects</i>			
– List of identified qualities and skills, either manifested or existing in-potential, for each control group	√	√	√
– Influential properties and the significant elements	√	√	√
– The 4-fold and 3-fold classifications of the selected elements / emerged properties	√	√	√
– Identified obstacles and the elements (fears, holdbacks) that are usually in parallel with the strong points	√	√	√
– Significant differences among the perception of reality and vision for the future (different or opposing properties or patterns).	√	√	√
b) <i>Shadow issues, blind spots and possible traps</i>			
– Neglected or rejected aspects (non-selected elements or situations; properties frequently emerged but non-part of combinations)	√	√	√
– Significant differences among the findings of different control groups (properties or elements strongly present / absent in different groups; different orientation of desired futures among the groups; distribution of influential properties associated with elements and vice versa)	√	√	√
– Impeding factors working in parallel with strong points (Obstacles linking influential elements or concurring with fundamental relationships (triangle's sides))	√	√	√
c) <i>Complexes (perception / behaviour patterns & personas)</i>			
– The fundamental relationships among the emerged properties for each group; the kind of relationship (among similar or opposing properties); and the characteristics of the related properties (e.g. inertial, motivating)	√	√	√
– The pattern emerging from the relationships between the elements for each group and the overlapping diagram for all groups; any significant connections between elements; any emerged obstacles	√	√	√

Table 6.54: Deliverables of the three case studies

6.4.3. Evaluation / Validation data

What was accomplished based on the assessment of the participants evaluation sheets and the dialogue session with the stakeholders, is indicated by (√).

Evaluation / Validation results	CS-1	CS-2	CS-3
a) Validation of the process itself			
– representative sampling	√	√	√
– contextual, meaningful and neutral content	√	√	√
– non-irreversible, participative and emergent process	√	√	√
– not intervening or interpreting researcher's attitude	97%	√	√
– completion of the process according to the plan	100%	94%	98%
– sufficient data collected	√	√	√
– application of assessment criteria and rules	√	√	√
– treatment of ambiguous results	discussed	discussed	n/a
b) Participants' evaluation			
– positive impression from the experience (%)	90%	90%	78%
– easiness - simplicity	√	√	pupils used it
– plausibility of the results they produced	yes	yes	yes
– impression from their work as a team	positive	positive	positive
c) Stakeholders' validation			
– overall estimation from process and results	very positive	enthusiastic	very positive
– plausibility of results	yes	yes	yes
– suggestions	follow up	follow up	n/a

Table 6.55: Evaluation / Validation data of the three case studies

Due to the non execution of the dialogue sessions with all stakeholders in the way it was planned, the following information was not delivered in some cases:

- Influential properties seeming incompatible to the mainstream (corporate) profile (possible shadow issues / blind spots)
- Significant difference between the extracted archetypes and corporate prototypes / municipality's priorities
- Significant differences between official road maps and extracted networks

Moreover, due to the non-execution of iterative runs of the model with other groups and questions, the critical variables and pathways in the network of properties were partially delivered.

CHAPTER SEVEN

DISCUSSION AND CONCLUSIONS

In order to discover how organisational change can be effective in the context of social complexity, a double goal was set. First, I examined the usual patterns of higher-order change and suggested some crucial factors that could facilitate or impede the success of such a change initiative. Second, I designed and tested a new sensemaking tool that can be employed by organisations or communities to reveal their intangible assets and assess their collective capacity and maturity for specific challenges they may be facing.

The basic hypotheses were: a) complexity is more appropriate than the mainstream linear-deterministic approach when we deal with cases of higher-order change; and b) such a tool could be developed by the combination of archetypal models, complex emergent techniques and simple geometric schemes and templates. The secondary research questions referred to the way this tool should be developed, tested and assessed with regards to its effectiveness. The main research findings are the following:

1. In cases of higher-order change, methodologies based on the considerations of complexity better depict the factors that influence the change initiative than the linear-deterministic ones.
2. The basic design concepts of the tool derived from the literature are confirmed; it is feasible to construct a sensemaking tool for intangible assets within the frame of complexity and archetype theories.
3. The tool was able to be applied in a way consistent with the basic considerations of complexity theory and was validated for effectiveness via participant and stakeholder evaluation.
4. The combination of hitherto unconnected elements, specifically complex emergent models with archetypal models or archetypes with geometry and network analysis, can open new areas and routes of theoretical and practical convergence between them and create new diagnostic tools, particularly useful in transitional contexts.

In this last chapter of the dissertation, firstly I discuss on the adequacy of complexity in cases of higher order change and the major challenges (or limitations) faced today regarding its application in the field of management. Next, I discuss on the results of the second research question and, more specifically, I examine the feasibility of the development and application of the new sense making tool, the limitations of the research and the tool's potential application fields. And then I outline the wider implications of the research that result from the convergence of different scientific domains. The Conclusions and Future Research sections, along with an Epilogue complete the dissertation.

7.1 THE ADEQUACY OF COMPLEXITY IN HIGHER-ORDER CHANGE

7.1.1. The contribution of complexity theory in organisational culture and change

The findings of the literature review provide empirical validation for what is known from experience: the methods, tools and, above all, the mindset derived from the linear–deterministic paradigm in management cannot meet the needs of today’s organisational and social life. On the other hand, the findings support the argument that, at least theoretically, organisational change is best approached in the context of social complexity.

Because of the fundamental assumptions of the mainstream approach (e.g. fragmented mechanistic worldview, rationality of human choices, consideration of measurement and control as panacea, managers’ parental / missionary attitude and experts’ lens and authority, etc), the linear – deterministic logic fails to acknowledge the reality of social complexity. Seeking to simplify the world through reductions, it fails to accept deeply that people perceive the world differently, focus on different things and interpret them based on their own mental patterns. Thus, most times, tend to exclude non-fitting data or discount any information incompatible to their perception and object or reject immediately ‘opposite’ ideas. As a result, strategic plans often obtain different meanings among the members and stakeholders of an organisation, according to the different worldviews, interests and needs they defend. Traditional management seems to ignore that attitude and behavioural issues cannot be treated as mechanical accessories or measured by complicated control systems. It also seems to forget that any attempt to create order by imposing or misusing power cannot last for long and eventually creates bigger problems.

As anticipated, the problems of the paradigm’s mindset reflect to its methods and tools. The linear analytical tools have also proved poor to work with whatever is implicit and ambiguous but yet real and powerful. Due to their design assumptions, they cannot deal efficiently with tacit, complex and paradoxical issues or face the perils of conformism, social desirability, gaming and political correctness, against which the questionnaire-like assessment tools are most vulnerable. Thus, the mainstream tools cannot assess in an unprejudiced and reliable way some of the most valuable aspects of contemporary organisations, such as adaptability, synergy, innovation, creativity, etc; they cannot assess the intangible assets of a business or society, especially when this faces a major challenge or crisis. Moreover, they cannot identify and describe beyond biases the implicit factors that influence deeply how people perceive an intangible that is set as a strategic goal; they cannot deliver the organisational archetypes.

Relevant problems exist with the mainstream approach of planned change and its main tool, the 'road-maps'. Due to the dominant management perspective and the fact that people do not trust outsiders on tacit aspects or simply take some important details of the context for granted, researchers are prevented from imprinting the whole picture and assess the existing status and the real maturity of the organisation for change. Moreover, due to the high degree of complexity and the chaotic dynamics that often appear when we deal with issues of perception and symbols, the values, qualities and priorities of the stakeholders remain intractable; the same occurs with the core elements of their potential resistance, as resistance to something (that is not yet clearly known) is simply the result of the attraction by something else (that already exists); and vice versa. Consequently, the 'road-maps' lack crucial information, neglect hidden traps, reach to erroneous estimations and, in general, due to these, serious deviations appear so planned milestones and goals cannot be met; these often lead to long 'detours' or even cancellation of the attempted change. Therefore, the outcome of such methods is far from the anticipated one; the results of the 'Greek rescue' experiments argue in favor of this.

In front of such problems, a Sisyphian task is usually put on leaders' and managers' shoulders: to control the kaleidoscope of staff's (or stakeholders') perceptions and overcome the resistance to a planned change. In other words, they are asked to use linearity's failed assumptions and methods in order to face linearity's limitations, which is an oxymoron. However, in this way it is hoped that the organisational culture can be engaged to the corporate strategy and vision. But as we know by experience, this hardly works, for - as it is said - culture eats strategy for breakfast.

Therefore, while the mainstream management sets infeasible tasks for leaders and managers, complexity academics, researchers and practitioners could undertake a dual goal: to search for efficient ways to develop new sensemaking tools and, most important, to cultivate a new complex mindset. The new sensemaking tools should be able to obtain the missing information about the implicit assets that constitute the subtle potential of their organisation and the crucial factors that facilitate or impede the success of a change initiative. Knowing them, leaders and managers can choose and prioritize on a safer basis among contradictory alternatives and avoid irreversible mistakes. So that the new mindset would fend them from meaningless imposition of power and remind them that Xerxes' decision to whip the waters at Hellespont strait 300 times, in order to calm down, is still a symbol of idiotic mentality.

In the second chapter of this thesis, documentation has been provided on linearity's limitations drawn by complexity theorists who deconstruct many of its core-assumptions and challenge some 'sacred' aspects of the mainstream management, such as rationalistic thinking, environmental analysis, long-term planning, strategy formulation, strategic control, etc. Moreover, through the metaphorical use of non-linear terms and notions (such as attractors, fractals, bifurcations, self-organisation, emergence, etc), complexity theorists and practitioners seem to explain better the dynamics of the collective behaviour of human systems. Of course, such metaphor has certain limitations when applied in social sciences but the organisational insights gained from them are valuable, as they can explain better many of the paradoxes of life and its 'inconsistencies' to the mainstream theories, as already discussed in chapter 2, section 2.1. Drawing on different scientific domains for metaphor and analogies and on the collective experience for insightful realisations, Complexity invites people to rethink how they relate, organize and live. It teaches significant lessons to managers: how to exploit diversity and divergence instead of pursuing uniformity and (fake) consensus; how to deal with the negative consequences of the common culture instead of trying to hide or ostracize them; how to overcome the fear of instability or the denial of uncertainty by understanding the value of coincidence and serendipity; how to exploit unexpected events and accidental errors as potential knowledge crossroads; or how to use 'at-the-edge' conditions in favor of creativity.

However, reality bites. As already discussed (at the end of section 2.3 of chapter 2,) the contemporary organisations and their leading teams do not seem ready to accept and enact these truths and discoveries. They are skeptical or unwilling even to try the new complex methods and there are some good reasons for this, leading to certain challenges for the rising paradigm. If not faced efficiently, these challenges will turn to limitations.

7.1.2. Challenges for the application of complexity in management

Most of the Western people (leaders, managers, employees or customers) are not accustomed with complexity's deeper truths. They believe that something can be either 'this' or 'that' (but not 'this' and 'that' simultaneously) and do not feel comfortable with uncertainty and instability; they are influenced most by what is known or familiar rather than by what is right. Although they like change - as long as they don't have to change themselves - they don't like to get unsettled. Moreover, although they would like to participate, most times they delegate others to 'fix the problem' and are happy to keep on the beaten track rather than think outside of the box. In other words, Western people - and

among them leaders and managers – are used to seeing things from a linear perspective, think in linear ways, make expectations based on a deterministic cause and effect logic, and in general, deal with problems in a simple way even by neglecting or reducing some ‘details’ seemingly insignificant.

As we see, the linear logic and deterministic attitude are very strong and active in human behaviour, and therefore in organisations as well. They shape a pattern that is very hard to break, as it solves the majority of problems in ordinary situations; but not in extraordinary where complexity and chaos theories are more adequate to apply. This leads to the **first challenging question**: *can complexity coexist with linearity and determinism?* Is it possible for managers to use linearity in order to make distinctions, define and analyze into parts, and organize sequences of actions on the one hand and on the other hand to seek for underlying patterns and synthesize opposites into new creative combinations that exceed the sum of the parts? Can they continue using linear methods to solve practical problems on the one hand, while starting (or keeping) learning how to use emergent methods where are needed on the other? In other words, *is complexity complementary to linearity or incommensurable with it?*

Before answering this question, we should first distinguish worldviews from practices. While the linear – deterministic worldview pays minimum respect to complex emergent methods, the complex one leaves space for the linear aspects of life. Actually, Stacey (1999) argues in favor of this, indicating that ordinary management carries out day-to-day tasks and solves the usual problems, while extraordinary management comes in turbulent times when transformation is needed. In addition, according to the core-concept of the *Cynefin* model (see chapter 2, subsection 2.3.2) simple, complicated, complex, and chaotic practices can co-exist within the same context, they can be used according to the circumstances and, if combined, can lead to a creative vortex (e.g. for creating new knowledge). Something similar is suggested by the archetypal model of the *Four Elements*, where the elements’ rotation leads to the *quintessence* (see chapter 3, subsection 3.1.3). On the other hand, the worldview is unique for each person, although it can change over time.

Therefore, with regards to the first question - challenge, we can say that on a worldview level, the two paradigms are indeed incommensurable, but regarding the practices they ‘allow’, complexity is less rigid and more inclusive. This constitutes an important advantage of complexity but most of all shows that, under certain conditions, the first challenge is not a limitation. These conditions are following discussed.

A new paradigm, especially in its early steps, needs to attract supporters and gain followers, both in the research community and the world of applied solutions. The latter is

usually perceived as the need to create new tools, which in our case should be complex but not complicated. It is true that within the frame of complexity, many interesting methods and tools have been developed during the last two decades. Most of them don't try to solve the problem per se but to change its relationship with the person involved; for example the manager. Being more naturalistic, they enable the emergence of the deeper assumptions and implicit factors that influence (rather small groups of) people, by unshackling their hidden potential, fostering their engagement to a certain goal or process, extract contextual archetypes from their narrative, and shaping their common culture.

These methodologies seem to work effectively and they deliver results mainly on a personal and experiential level, which is substantial for the participants but intangible or even meaningless – and thus indifferent - for all the others. This is why they appear to have significant weaknesses in the context of business or decision-making. For example, they cannot structure their outcome (either in the form of emerged properties or in the form of relationships) and they cannot relate the new knowledge acquired during the process with tangible and meaningful issues, in order to 'transfer the message' to others. Moreover, their ambiguity and vagueness are difficult for managers operating mostly in a linear-deterministic perspective to adopt or reenact. Thus, although leaders could be supported by such kind of methodologies in order to take decisions that make a major difference, they cannot.

Therefore, it makes no surprise that in most cases, 'non-linear' consultants don't (or cannot) convince leaders on the practicality and the advantages of their approach and, therefore, they fail to communicate the message; complexity is useful and worth applying because an emerging solution is more suitable to the fundamental characteristics and the real needs of the system than any lab-created recipe. To do this, there is something more needed, beyond the enthralling feeling created; these methodologies need to be *simple, easy-to-use and able to deliver reliable, tangible and transferable results*. Let us keep in mind that, after all, complexity is the existence of simple patterns that emerge from variety and diversity; not the opposite. Of course, in order to fulfill such standards and overcome the existing limitations, they should be operated within a complex perspective and attitude, that is, in a manner consistent with the fundamentals of complexity theory. This manner is to invite the others to participate in a shared construction; it is not about to ask them to listen but to encourage them to talk each to other about their needs, viewpoints and knowledge obtained through experience. All these can be expressed by the core-assumption of this research: '*simple tools (applied) in a complex attitude*'.

This is the **second challenge** for complexity and the real challenge that this dissertation undertook. The aim was to design, construct and test such a tool, in order to prove (or not) that this is a feasible task within complexity and, moreover, to identify and suggest particular skills needed for delivering the anticipated information. The conditions for successfully answer this second challenge are discussed in the second section of this chapter, where it will be shown that this task was accomplished.

Nevertheless, we must admit that the need of new tools is of the same criticality with the need of a new mindset, for while the supremacy of a tool can be easily recognized by any traditional mindset (especially if the ‘new’ speaks the language of the ‘old’), only a new (complex) mindset can apply the new tool properly, in order to deliver what it promises. But a new attitude cannot be taught to managers through lectures or training seminars; it can be only cultivated, which takes time; and time is something that managers spare most. This vicious circle is the **third major challenge** for applying complexity effectively in management. To break this circle, theorists and practitioners should work together and try to deliver parallel results on both fields: create new sense making and assessment tools and, in parallel, new methodologies for mindset transformation. *This goal is not at all easy; but is feasible.*

It is not easy due to the human characteristics that were earlier mentioned. It is true that people think and act based on Aristotelian and Cartesian logic and don’t like *personal* change. However, a shift in their mental models, and consequently in their attitude, is not impossible. As experience shows, it takes a tough time in their personal or organisational life to challenge what they take for granted. Such incidents can (perhaps) advise them on the truth of Heraclitus’ and ancient Chinese thought or quantum physics’ discoveries; that anything can be ‘this’ and at the same time can be ‘not this’ or another. Actually, life is full of such ‘inconvenient’ truths that exist in abundance in ancient philosophy and spiritual traditions in the form of archetypal stories, parables, insights and principles. Thus, it makes no surprise that an increasing volume of them are nowadays used as metaphor by academics and practitioners, aiming to inspire leadership and to facilitate the enrichment and shift of mental patterns. *This is a long way but it makes the goal for mindset transformation feasible.*

All in all, it seems that complexity can evolve and become the future paradigm in management. And until then, it seems to be the best possible choice in complex and transitional contexts. As for those who still wonder if all this ‘trouble’ is worthy, the implications of the linearity’s failure in the case of Greek crisis, which continues for the seventh year, are sonorous.

7.2 THE FEASIBILITY AND VALIDITY OF THE NEW TOOL

7.2.1. The verification of the design concepts of the tool

Moving to the findings related to the secondary questions, which concern the tool itself, let us start from its construction phase. Its design was based on four concepts, the first of which was the representation of the intangible assets of a given context by issues or items that possess archetypal meaning within them. According to that, the examined intangibles are related to symbolic phrases or images; i.e. meaningful to all but in a different way. These symbolic items trigger the participants who bring up unconscious facets, needs, intentions or feelings; this is done spontaneously and beyond rational descriptions. Thus, they stimulate the emergence of implicit aspects of the organisational or social culture (e.g. values, beliefs, qualities, skills, or deficits) that are consequently expressed in a contextual manner. The mapping of the patterns created by such effects leads back to the stimuli (i.e. the representations of the intangibles) and informs of the degree of their compatibility to the shared culture.

This concept is aligned with some of the fundamental arguments of the theories of Complexity and Archetypes, according to which people attend and perceive reality, relate to others and react to challenges based on shared (organisational or cultural) patterns. These patterns are influenced by some complex factors (called *strange attractors* and *archetypes* respectively) that operate as organizing principles of human perception and behaviour. Yet, the factors cannot be understood per se, only through their effects. Therefore, the sensemaking of the patterns enables the understanding of the influential factors that shape them. (Scharmer et al, 2004; Senge et al, 1994; Stacey, 2000; Snowden, 2002a; Dimitrov, 2005; Matthews, 2002; Jung, 1953, CW 9i, p. 82; Edinger, 1972; Jacobi, 1974; von Franz, 1975; Van Eenwyck, 1997).

It is also aligned with the conclusions of some pioneers in the research on the intangibles' assessment who argued that the most crucial factors for the quantification and value of the intangibles are their compatibility to the existing culture and the readiness of the organisation to change in order to accomplish them (Kaplan and Norton, 2004). Following this, the tool was designed to have two diagnostic sets of stimuli; the first was aiming to estimate the status of the intangible assets (manifested or in potentia, compatible to the shared culture or not) and the second to reveal the strong and weak points of the collective experience regarding change.

The second concept concerns the use of archetypal models as a basis for integrated description of the structure and the relations between the core-elements and the situations faced within human systems. Being able to bear different, even contradictory, meaning associated with their elements, the archetypal models can satisfactorily represent the dynamics of human complexity; active or in-potential, dominant or shadow, in present or in a desired future (Card, 1996; Roesler, 2006; Pearson, 1998). They resemble a theatrical show that is performed in different places; each time the local actors dress up in local clothes and perform the same play known in advance to everyone but in their own way (Campbell & Moyers, 1988). By accumulating the actors' (participants') choices, especially when referring to their main assumptions, the archetypal models can either confirm an existing pattern or shape a new pathway.

This objective can be most successfully achieved by the 12-fold models, as the notion of the 12-fold pattern is very common in many and various aspects in life and a pattern that is addressed as an integral symbol in many faiths, religions, mythologies or traditions all over the world; therefore it is most comprehensible by the people. In addition, it can be analyzed in (or it is shaped from) two fundamental and archetypal concepts; the 3-fold (pathway of evolutionary stages) and 4-fold (possible modes of structure or operation) (Young, 1976; Judge, 2011). As indicated when describing the conceptual model, their archetypal character corresponds to fundamental concepts and categorisations of human experience, which allows them to be easily understood by many people.

Moreover, they proved to be a good basis for the creation of the generic matrix and the relation of its elements with the intangibles, as the core values and main activity fields, around which the goals or activities of a system interweave, are usually no more than four and no less than three. Therefore, based on such basic corporate, organisational or social parameters that create a sense of intimacy to the participants, one can easily construct the 12-fold of the possible options without skipping anything important or duplicating others. Thus, the contextualisation of the content becomes a feasible and reliable task.

On the other hand, the archetypal character of the 12 situations creates as well a sense of familiarity to the participants because these situations correspond to basic and distinct stages of any human endeavor. This made very easily sense to the participants in the case studies and allowed them to recognize important milestones of their own experience and identify more with the process. Thus, they are enabled to detect, either consciously or not, the strength and weaknesses of their own context; of course, through their own perspective. And since each of the 12 situations has prerequisite competencies and is impeded by certain

deficits, the participants provide the collective potential and the weaknesses of their particular context.

It should be reminded that, according to Young (1976), although this 12-fold concept may seem deterministic, it is not; for it is able to describe: a) all possible ways that its 12 fundamental components express⁶⁴ and b) all critical situations and milestones forming a complete and repetitive cycle. And each time, it is the participants who chose from this inclusive map and prioritize where actually they stand and where they want to go. However, it is the first time that the 12-fold concept was used combined with emergent techniques; so far, Young and Judge have employed it in theoretical explorations and interesting interpretations of other persons' work, all of which are restricted for a non-participative and expert-oriented use.

According to the third design concept, the intangibles are not assessed by marking on a linear 5 or 10-grade scale, as happens with some models employing archetypal figures (Pearson, 2003; Neville and Dalmau, 2006). For the latter permit conformism or gaming in answering (Michiotis et al, 2010). Instead, the participants should prioritize the intangibles by selecting a limited number of them and thus arrange them hierarchically, according to their own needs or interests; or according to the importance they attribute to them; or the relation to reality they think the intangibles have within their context. In this way conformism is avoided and the members' perceptions and assumptions are more authentically imprinted (Michiotis et al, 2010).

The rightfulness of the above concepts is verified by the results of the three case studies. The intangible assets used there had an extended variety of forms: main profile aspects or driving spirits of the personality of a collective entity; domains of responsibility or basic sectors of service or fields of activities; organisational goals or priorities; ways of doing things or dealing with challenging situations; dominant states of relating etc.

As the emerging properties relate to the elements of the tool, patterns of meaning are shaped and attributed to the examined intangibles. Each of the intangibles is thus 'colored' clearly or ambiguously, with regards to the existing organisational or social culture, which consists of all the emerged properties; it can be characterized positively, negatively, neutrally (indifferent) or even as a potential blind spot.

The emergent character of the tool responds to the limitations of other tools using archetypal figures, such as OTCI (Pearson, 2003) or DNAI (Neville and Dalmau, 2006),

⁶⁴ (4 modes of being) X (3 stages of evolving).

which leave limited space for emergent properties on behalf of the participants; moreover, the first is mainly focused on the ‘positive’ side of an archetypal way of being or operating. This point is crucial, as sometimes a preset classification and single-sided description of ‘archetypes’ and their qualities is non-contextual, their terminology needs to be adopted by the users in its right meaning and objections can be generated; all these make the implementation of the tool difficult.

Returning to the sensemaking tool, the outcome is expressed through different words, according to the emotions, values, hopes, problems, etc that fill the context; a word that is meaningful and frequently emerged in one context may not appear at all in another. And it is the cumulative volume of expressions attributed to a specific intangible, their positive or negative ‘sign’ and their convergent or divergent meaning that depict the people’s attitude with regards to the specific intangible. Thus, through the participants’ choices and emergent properties, it is confirmed that the intangible assets can create an impact (strong or weak) to people who live and work within an organisation or community. This is something that the abstract intangibles assessment frameworks, such IAMF (Sveiby, 1997) can hardly deliver.

For this purpose, the process follows a specific escalation, starting from personal operation and ending in group operation, as follows. Initially, through the emergence and imprinting of the participants’ implicit qualities, each one contributes his/her personal opinion into the large template; just like each day brings in one’s own mental and psychological ‘luggage’ in the work place. Then, each participant comes in contact with the respective views of his colleagues or fellow citizens, with whom he/she discusses the issues, similarly to the way they relate and share their personal perceptions with others every day in their working or social reality. Right after, discussion turns to negotiation, as the participants have to decide, as a team, the triads they consider more compatible, more representative within their context. And finally, the participants work together to put together characteristics and qualities, to create shared representations of the protagonists in their common places of living or work.

Again, this type of process is not met with the other tools using archetypal figures, which are executed by each participant alone, so there is no interaction, influence or compromising as in real life, either organisational or social.

The lifelikeness of the process and the plausibility of the results were verified from of the participants’ and stakeholders’ evaluation. Such genuine, different and sometimes controversial emergent properties can be hosted only by an archetypes-based tool, the

elements of which, as earlier mentioned, can bear the diversity, ambiguity and paradox of social complexity; this connects us back with the first design concept.

As the above design concepts come full circle, they constitute a new way to reveal and assess intangible assets: a) the intangible assets of a business, organisation or system relate to its deeper archetypal characteristics, b) they are represented by the elements of archetypal models and c) they become signified by the attribution of different and meaningful emergent words or phrases with the aid of geometrical templates. Therefore, for the above discussed reasons, the outcome of the tool's testing phase seems to verify its theoretical cornerstones, design principles and main assumptions.

Finally, with regards to the last requirement of the tool, its meta-character, the testing of the sensemaking tool showed that both its content and its modules can be easily adapted to the needs and conditions of each research context. This meta-character of the sensemaking tool is an important advantage too, as it allows: a) to use any other pattern in place of the 12cimal, provided that it has a stable structure and given relationships between its components and b) to employ on a modular basis alternative models and techniques that will replace certain of its module in particular steps of the process.

On the one hand, these models can be simply represented by a different polygon, as long as their analogies are kept in the assessment process. For example, in the schools research case, where the 12-fold PMAI was used (Pearson, 2003) it could be alternatively used the MBTI (1956), the DNAI (Dalmau-Neville, 2006) - both 16-folds - or even the 8-fold DAI (Torbert and Rooke, 2005). On the other hand, as shown in the same case, the tool can work with alternative emergent techniques and signification models (e.g. Cynefin). This fact attributes to the methodology a 'meta' character that, combined to the modularity of the tool, increases its ability to adapt to the different research requirements and therefore leads to larger applicability.

7.2.2. Issues on the application and validation of the tool

The fourth finding concerns the way in which the tool was applied and validated. According to its design principles, the process should be participative, emergent, simple and easy in use, informal, representing real life conditions and enable dialogue and meaning creation. On the other hand, we will examine its overall effectiveness through discussing the validation criteria of the process and the participants' and stakeholders' evaluation, as they are defined in the fourth and fifth chapter (sections 4.5 and 5.3 respectively).

These specifications of the application process, as resulted from the Literature Review, along with my personal experience in practicing complex methodologies, oriented the research away from the classic ‘lab-constructed’ questionnaires that are addressed to stakeholders in abstract terms, for people do not like to be measured and they usually assume some things known. Moreover, the mainstream linear assessment tools present serious limitations while assessing cultural assets; e.g. critical information missing, unfamiliar or non-contextual language, activation of defense, conformism or social desirability mechanisms to the respondents etc. Thus, the real difficulty in assessing intangibles is the subjectivity of measuring and the interpretation of the results (Michiotis et al, 2010; Sveiby, 1998; 2010).

So far, emergence and self-signification are encountered in almost every complex methodology, such as: ProcessWork (Mindell, 1982); OST (Owen, 1997); Dialogos (Isaacs, 1999); World Cafe (Brown, 2010); Appreciative Enquiry Cooperider and Whitney, 2005); and Process Enneagram (Dalmau and Tideman, 2011). Although some of them attempt to undergo a kind of self-assessment, most of the times this refers to a personal basis and is done in an emergent but un-structured way. Therefore the results are hardly comparable and definitely non-transferable. Actually, besides Cognitive Edge’s techniques (Snowden, 2001), all these characteristics (participation, emergence, irreversibility, self-signification, self-assessment) have hardly worked together again. Indeed, no other tool deployed to date has as fully taken into account *a structured approach to emergence and self-signification* and has created specific contextual and meaningful deliverables regarding the intangible assets.

Thus, the application process of the tool verifies its consistency to the basic considerations of complexity, while at the same time extends the above mentioned literature. When researching a given system for intangibles, it is better to focus on how they can emerge from its members, get interpreted in contextual terms, and assessed through common-logic criteria. It is far more effective to invite people join in a game-like workshop, where they can depict their own reality and express it in their own way, rather than asking them to codify this reality based on classification systems⁶⁵ built on an out-of-context logic. This was confirmed by the results of the participants and stakeholders’ evaluation⁶⁶ in all three independent tests that took place in different contexts.

⁶⁵ E.g. internal / external structure, personnel competence, learning and growth perspectives, customer and human capital etc (Sveiby, 1997; Kaplan and Norton, 1992; Edvinson and Malone, 1997)

⁶⁶ As presented in the previous chapter.

Moreover, employing emergent and complex facilitation techniques in small groups seems to be an effective way for creating meaningful and self-signified complexes by combining the emerged properties on the group level and overlaying the created patterns on the assembly level. Regarding the formation of such small groups, the rules of sampling can vary depending on the scope or the research. If the aim is to imprint the similarities and differences of various control groups, the groups of the workshops should not mix people from different control groups. On the other hand, if the aim concerns ways of bridging or synthesizing the existing differences, the workshop groups should be mixed. Actually, the concept of using small groups has a critical role in the specific method. By overlaying small groups' patterns into a bigger picture and processing them by the aid of simple statistics, geometric forms and network-graphs, the research tool answers to the weaknesses of some pioneer complex methods, mentioned in the literature review (such as the Archetypes extraction technique by Cognitive Edge); instead of endless procedures, this tool assures a reliable extraction of tangible deliverables from a large assembly of participants.

Let me now proceed to some remarks on the facilitation skills needed in order one to apply the tool properly, which (as already been argued in the first section of this chapter) is a most important factor for the success of the implementation of every complex tool or technique; for the facilitator can guarantee the proper materialisation of the process or destroy the workshop and cancel the data collection. These remarks are lessons that have derived from my experience during the testing and the application period the tool.

A complex facilitator should enable the participants' engagement and the emergence of their deeper perceptions. He/she should pursue the development of substantial ties among all members of the group, as they are parts of the same inseparable reality. These critical relations can be spread easily and fast and contribute to the creation of the critical mass needed for change.

His/her role is neither to interpret, nor to merely measure results but to facilitate the group to reach its own results, for their interpretation is actually part of the collective work rather than of the expert's; this diminishes the researcher's bias. When the patterns are evident, comprehending them and conceptualizing their meaning is easier for the people; if not, the facilitator can just suggest connections between the data. And of course he/she has to remind that there is no right or wrong answer; but even if there were, he/she has to exculpate the notion of mistake, especially in making sense of it collectively. It is crucial to *leave his/her personal prejudices* aside and *avoid 'judgment as usual'* as more as possible; this is very

difficult but has to keep walking this track and stay tuned to the exploratory target of the workshop.

During the process, he/she should try to be *helpful* and *motivating*, in order for the others to get going. *Not to provide answers* to all the participant's questions but to help them see the issue widely or differently. To be both *strict and tolerant* regarding the process (e.g. with the instructions and the time available), depending on the phase and scope of the particular part of the process, and trust his/her instinct. For this, he/she should use *body language* (trying not to 'hide' behind the desk but get oneself fully exposed to the view of the audience) and *humor*, and to treat what is revealed or confessed with *respect and care*. This is not always easy, as one has to be *open* and *non-defending*, even when he/she is proved wrong during the process; especially then. But this is the main virtue of a learning culture and the main skill of an exemplar leadership. And most important, it helps people (him/her included) to get more engaged and enjoy the process.

The facilitator should not easily interfere when things seem to get stuck but let the team seek their own balance. Instead, he/she should refuse politely to provide any kind of rational description in advance of the session or mental analysis after it; the former would destroy the process, while the latter would impose (his/her) meaning instead of tapping their own signification. However, he/she should address this double risk only to the degree that such behaviour disturbs the expression of the genuine attitude of the team or threatens to stop the process or prevents its completion.

Finally, the facilitator should avoid the temptation to deliver tangible results at the end of the day; this often leads to hurried conclusions or/and interpreting data based on your own assumptions and habitual patterns. Instead, present the results in an unprejudiced way and provide enough space for the participants and stakeholders to state their own conclusions; after all, it is their own reality.

Interestingly, the above are compatible to the following seven keys of the relationship between the researcher and the researched (Ruwhiu and Cathro, 2014); they are not prescribed codes of conduct but a set of Maori cultural values that underline researcher's responsibilities: a) enable respect and empowerment for participants, b) commit yourself by become seen by and known to them; c) look, listen and then, later, speak, d) share, host, be generous with time, e) ensure culturally safe practices, f) do not trample on the dignity of people, and g) be humble.

With regards to the validation of the tool, the assessment and validation criteria were framed within the maturity level of both the context (test bed) and the tool itself (Humphrey, 1989); this was resulted from the literature review (section 4.3). This means that with newly developed tools or in uncharted contexts, the assessment criteria should be better limited in something basic, initial and repeatable. Based on this logic, the results analysis is based on simple assessment rules: simple quantitative rules and easily understood assumptions, accepted by common sense.

To start with, the validation principles set in the research methodology and specified in the tool's development chapter have been met and thus, the following configurations of the tool are valid:

a) Contextualisation: The content of the tool can be contextualized by the findings of an initial field or secondary research and by conversations with representatives or stakeholders of each context. Both the elements and the prompting questions can be put in a neutral way, permitting one to indicate the element (intangible asset) he/she considers as most important or relevant and then to attribute the proper qualities to it. On the other hand, due to their emergent character, these properties were meaningful and contextual too.

b) Sampling: The control groups were determined by the ones who order the application of the tool, according to the needs of each context; they can correspond to subgroups of a particular target population, different thematic or regional organisational departments, different hierarchical levels, complementary stakeholders etc. In any case, the rules of sampling can vary depending on the scope or the research, which can be either to detect or to synthesize.

c) Reliability of data: Being irreversible and avoiding any kind of rationalisation of the process, the application process does not permit any phenomena of social desirability, gaming or conformism. Moreover, as it was confirmed by the participants themselves, the properties emerged were implicit, spontaneous and authentic and represent reality as they themselves see it. The relaxed atmosphere and the playful character of the process contribute to the elimination of anxiety among the participants and helps overcoming defense mechanisms and denial that are usually felt during assessment tests. Moreover, the indirect posing of the questions and the purposefully ambiguous meaning of the stimuli provides them the opportunity for personal interpretation, personal projection and imprint of the significant influences that exist within their environment. Furthermore, the non-interfering style of facilitation and the encouragement for expression of strong (positive or negative) emotions, opinions and words give a cathartic essence to the process on a personal level. All

these tend to keep them away from the temptation to provide condescending (gaming) or 'politically correct' (social desirability) answers; this adds to the authenticity and reliability of data. Finally, the number of participants is sufficient for the needs of the specific research, the data collection forms were properly filled and the data gathered is sufficient too.

d) Life-likeness and acceptance of the results: The process, due to its participatory nature and its interaction pursuit, simulates fairly the daily operation of the participants; while maintaining their personal perceptions, they interact and practice negotiation, in order to find a 'modus-vivendi'. In this way, the process includes both individualistic and participatory measures that represent both the individual aspects and the collective dynamics that shape the real organisational and social life. Moreover, the process facilitates the expression of group dynamics, reenacts more accurately (than the questionnaires) the daily reality and helps the participants to reflect on their role within it. In this way, the participative and experiential nature of the process enables the acceptance of the results by the participants; for, when someone is actively involved in a process, he/she accepts it as valid and commits easier to the result generated through it. Furthermore, the discussion on the emerging patterns, along with the use of geometric forms (with meaningful nodes, sides and diagonals), helps them create common sense throughout the process. It is through the experience of involvement, meaning creation and reflection during the process that the participants' acceptance of the results and their commitment to the shared understanding are strengthened. The latter is strongly supported by the fact that all assessment criteria and rules were based on common logic and expressed in lay terms.

In addition to the aforementioned, the undeniable understanding and acceptance of the results is enabled by the quantitative expression of qualitative factors in terms of both objectivity and accuracy. This is achieved by using tables of absolute figures and quotas of the mostly emerged or selected qualitative findings (e.g. values, skills, obstacles, deficits, characteristics etc); graphic illustration (with concentration patterns, bars, charts, polygons, etc.) of the data and findings; comparative tables and graphs of the findings as to the control groups; and comparative presentation of the findings based on the categories of options and their time dimension (present - future) and with the use of different colors and shades etc.

The above were verified by the participants' and stakeholders' evaluation of the process and the produced results. The overall experience of the participants is assessed as positive or very positive (82-97%); very interesting, original and innovative; pleasant and impressive; meaningful (although occasionally in need of more clarity); participatory, cooperative and synergizing; and enabling discussion, reflection and exchange of experiences and

viewpoints. Moreover, the results produced within the groups were considered that depict to a great extent the organisational culture (1st case study) or social reality (2nd case). The above is confirmed by the stakeholders, where they assessed the findings, as very interesting and in need of a further discussion and extent research.

On the other hand, the evaluation comments of the results, made by the Director of the Training Center of Hellenic Post, the current stakeholders of the Municipality of Dionysos and the Secretary of the Greek Ministry of Education, leave no doubt that the deliverables of the application of the sensemaking tool were revealing and very meaningful within their context. All of them agreed that a more extended run of the research case study would be interesting and necessary.

Yet, there is something more that should be added in favor of the validity of the delivered results. It is a common pattern that appeared to emerge in most of the groups of the three case studies, as well as in the third of the initial tests. This pattern contained: a) a difficulty in transcending stereotypes, b) a contradictory attitude regarding change; it is most wanted but very few believe that is possible, c) the lack of knowing how to formulate something abstract or intangible, d) an abundance of communication skills; but if there nothing tangible to be applied on, how useful can they be? and e) the inability to synergize, which is a common truth since the antiquity. This pattern makes easily sense to all Greeks, as well as to all who know the main characteristics of Greek people.

7.2.3. Limitations

A general limitation of case research is potentially limited selection and thus limited validity beyond the particular context. But this tool was applied successfully in a variety of independent contexts and target groups; i.e. large organisation's mid-level staff, local community's members as policy 'consumers', and educational system's stakeholders (students, teachers, administrative staff). Moreover, its contextualisation capability was revealed to be a key strength in addressing a variety of issues (i.e. compatibility of organisational culture to corporate vision; factors that affect residents' participation and satisfaction; factors that facilitate or impede the effectiveness of entrepreneurship education) and overcoming the usual cultural or contextual barriers that impede the mainstream linear – deterministic tools. Therefore, it seems to overcome the limitation of limited selection. Yet, as the scope of the tool was (is) to reveal whatever hidden, rejected or untapped and not to measure what is already known or widely accepted, one could verify the findings of the tool

by undergoing (afterwards) a random controlled test. So, given that such a survey could not take place due to the lack of funding, this could be a potential limitation.

However, the main limitations which the research findings are subject of concern mainly the availability of two resources: time and equipment. The impact of these factors affected the initial features of the tool regarding maturity assessment and self-assessment.

First, due to the participants' limited availability for the data collection workshop, the tool was unable to test the concept of the *maturity assessment*. When describing the tool's development stages, a three/four-hour session or a two-day workshop was considered an unrealistic goal; everything should be done within an hour and a half.

Therefore, the dialogue on maturity between the participants or the leaders' team, for examining the domination of the lessons learned and the participants' openness (readiness) to something new, was left aside; for it demands another, computerized or more extended version of the tool, which can be the objective of another research or a future extension of this one. Thus, within the frame of the current sensemaking tool, maturity assessment is limited only to the extent of identifying the gaps in experience based on the familiar, impossible or ignored situations.

Second, due to the lack of a software application that could directly calculate the choices made by the participants and deliver results at the spot, *self-assessment* was not been included in the data-collection workshops and thus, was not an option of this research. This limitation can be faced either through the development of a special software application and possibly the use of a distance mode learning / collaborating platform.

Furthermore, the way the *assessment criteria* and rules were defined may constitute a limitation. As stated in the research methodology chapter, they were restricted in the first two of the CMM levels, according to Humphrey's (1989) concept for newly developed tools. But in case an organisation's characteristics locates it in upper levels, then perhaps the assessment criteria should be different and, most important, differently set, meaning on a more participative basis rather than by the researcher alone.

Additionally, the reliability of the research organizers and the degree of the participants' *mistrust* against them could be also considered as a limitation regarding the implementation and the validity of the results. However, due to the fact that mistrust against the state, the colleague or the neighbor is a very common pattern in Greece and thus, it *should* be part of the data, it is considered to be minor and with no real impact on the results.

Finally, it would be useful to examine the effectiveness of this tool when employed with *bigger and less similar populations*; e.g. the marginalized populations or the people with special needs in a region or a country, in order to feed in their viewpoints and test the planned policies before they get applied; the public officers in the whole country (not in a single organisation); the emigrants or political refugees in a country or European Union, etc. In such cases, a different sampling will be definitely needed and the contextualisation of the content of the tool should be done in a different way.

7.2.4. Application fields

Beyond these limitations, this sensemaking tool can be applied in cases where certain unknown factors are sought, either intangible or implicit, which weigh heavily on a certain moment for an organisation, a community or even a person as well. These issues are crucial in cases of higher-order change, such as a business merger or acquisition, the formation of an effective reorganisation strategy or reform policy, the successful introduction of an innovation, a fruitful public consultation etc.

In such cases, the leader has to go beyond the known reality and the existing knowledge, for problems cannot be solved by using the same thinking that created them. To do so, he/she has to approach the inner way in which the world is collectively perceived and experienced and make sense of the governing principles of the collective behaviour. In this task, he/she is in need of new information on the relationships and restrictions of the wider context and his/her role in it, in order to make the right decisions and take the right actions in guiding through transition. Conclusively, the tool can be of help in this direction, but in a computerized version. We could categorize the potential application fields of the tool and its concepts in three main categories: business research, public consultation and personal or group coaching⁶⁷.

In applied business research the tool can be used for the determination of critical factors that facilitate or block the success of the changes intended, like for example in cases of:

- a) Business mergers and acquisitions, where it can deliver a comparative imprint of the values, attitudes and practices among the executives and the staff of both parts.
- b) Reorganisation in corporations or organisations, where it can support the formation of a proper strategy, by assessing the compatibility of the archetypal elements of the existing culture to the core characteristics of the intended reorganisation or/and defining the

⁶⁷ The potential academic research topics are mentioned in Section 7.5 (Future Research)

particular elements of the reorganisation that create a sense of familiarity, opposition or unconscious fear.

c) Innovation programs in organisations or communities, where it can advice on ways to introduce them efficiently by highlighting the main similarities and major differences in perceptions and attitudes towards the specific innovation among community stakeholders; identifying the blind spots of the various stakeholders as to the positive and negative aspects of the innovation; imprinting and understanding the major obstacles for the success of the innovation and the appropriate interventions for coping with them; and determining the basic parameters of these interventions: goals, methods, content, protagonists' characteristics etc.

d) Social reform policies, where it can identify which of the existing (or potential) positive models of the society the new concepts can relate to, so that they do not act as obstacles, but as attractors.

Furthermore, this tool can be used in Public Consultations sessions, in order to support the creation of common understanding and to give certain and quantitative answers to questions such:

- What are the needs and priorities of some of the population groups today and which are their expectations from the future?
- What is their perception of certain aspects of municipal/regional politics?
- What are the values and the motivations that influence the citizens' attitude towards important problems of the region?
- What are the deeper causes that underlay certain intractable and complex local or social problems?

Last but not least, this tool can be used in a counseling context, as a process facilitation tool in individual or group coaching and capacity building. Since all its components and processes are based on psychological archetypal principles of personal growth, it can facilitate awareness and deliver information on personal limitations, energy localisation, shadow archetypes and their expression, etc. It may also aid individuals in the realisation of dominant or shadow, positive or negative, current or past expression of archetypal figures in their life and behavioural motives / patterns (Michiotis et al, 2010).

7.3 WIDER IMPLICATIONS: THE PRACTICAL CONVERGENCE OF HARDLY CONNECTED SCIENTIFIC TOPICS OR ELEMENTS

Let us proceed now to the convergence of complexity and archetypes theories. As discussed in detail in the literature review, the concept of archetypes has been related or corresponded to the chaotic strange attractors by various researchers and practitioners (Jacobi, 1974; Heinz, 1988; Van Eenwyck, 1991; 1997; Card, 1996). Archetypes and strange attractors share common characteristics influence deeply what we see, how we interpret it and what we decide to do; they both act as governing factors of collective behaviour, indicating pathways in the landscape of human life (Matthews, 2002; Dimitrov, 2005).

This is the first time that this theoretical resemblance was tested and verified in practice. More specifically, it is the first time that complex emergent methods have been combined with archetypal models in order to create a sensemaking tool to be applied in transitional contexts. This is where the added value of this combination lies; in far-from-equilibrium (*at-the-edge*) conditions, due to the higher-order change involved. In such cases the identification of the core characteristics of the system that influence the current and forthcoming situation and of their relation is of crucial importance, for these are the main factors that influence the outcome of change; these are the *bifurcation variables* (Guastello, 2002; Stamovlasis, 2006).

The findings suggest that identifying complex situations and intervening on them allows a leader to change the system as proposed by Michiotis and Cronin (2011b). Instead of trying to ‘change everything’, a leader can pick up the few crucial factors that together can make a major difference, for higher-order change is non-linear. For these factors influence and shape the system’s culture and the perspectives of its parts. Understanding the substantial similarities and differences among the various stakeholders and their viewpoints, shedding light on blind spots and rigid assumptions that characterize roles or structures, the leader could synthesize them easier. And therefore, to use them for assembling a new collective narrative, a new interpretation of the past and the present; and guide towards a meaningful future; for crisis is simply the inability of the existing narrative to explain the ‘why’ and show the ‘where and how to’. Knowing these factors, the leader can identify which of the existing patterns should be strengthened, which to be reduced and which new to be introduced in a much safer way.

The tool proved useful in delivering this kind of information, through iterative runs of its process, each time with a different stimulus. In this study, only issues related to the ‘identity’

stimulus were explored; alternative issues could refer to communication, creativity and competition (or the lack of them), downsizing or expansion. Each time the tool is used, new results were added and a different pattern emerged, depending on the issue (challenge), the context, the participants and the facilitator's skills. The design of the tool suggests this is likely to continue in different situations. However, by keeping some variables stable and overlapping the resulting patterns, is likely to provide a good indication of the bifurcation variables of the given context at the given time. The results of the case studies and the dialogue with the stakeholders suggest that this is a feasible (future) task.

In this way, the research findings did not only evolve the theoretical convergence between Complexity and Archetypes into more practical fields, but also new areas for research and development of effective diagnostic tools that can be employed in contexts being in transition. Something similar happened with the combination of archetypes with geometric forms and network analysis graphs.

The geometrical schemes used proved most adequate to represent both the structure and the relations between the intangible assets and the emerged properties in the given organisational, social or system's contexts. Being very easily read, they imprinted the preferences, the gaps or contradictions and blind spots, that is, compatible elements or qualities *and* obstacles at the same connection, that exist within the context. Thus, they permitted participants to obtain a direct sense of their outcome.

Moreover, as templates, in their domains, at their vertices and on their sides and diagonals, they hosted the varying meaning of the archetypal elements, attributed by emergent properties, and satisfactorily represented the present and future dynamics. In this way they also enabled the comparative analysis of research findings on regional, departmental or chronological level. The anticipated ability of geometrical schemes and templates to enable concepts' signification and visualize relationships among abstract notions (Keidel, 1994; 2010; Prasad, 1998; Judge, 2009; Kurtz and Snowden, 2003; Cognitive Edge, 2009) was confirmed by the participants' conversations during the process and their evaluation assessment.

What was not anticipated was the idea of transforming the 12-fold-based pattern of the complexes of elements or qualities into a network-like graph. This substituted the diagonal connections between the elements by the edges of a network-analysis graph. As shown in the previous chapter, through such graphs, the connections between the qualities/skills or elements can indicate: a) which assets of the collective capacity (active on in-potentia) are

central, meaning crucial, for the stability of the context and b) which pathway can be used in order a certain quality, skill or intangible asset to be accessed, meaning to be cultivated or accomplished in a natural way within a particular context.

This kind of information can lead to the identification of possible critical variables within the system, as well as to the construction of an original ‘road-map’ of qualities indicating safer pathways in order to proceed towards a desired change. It could also lead to the creation of reliable educational tasks or contextual research scenarios referring to organisational development and change issues. The results from such activities could enable the leaders and the members of an organisation, community or system to make sense where they stand and how they relate and, thus, obtain a bigger, more inclusive picture. In this way, particular crucial attitudes or worldviews (which are control-variables) can be enriched, evolved and become integrated. All these provide a new application of social network analysis.

Finally, the convergence of two seemingly unconnected models for research and development should be highlighted, Action Research (Berg et al, 2004) and the Spiral Model (Boehm, 1988). The first is a qualitative research method for social sciences, while the second is a methodological tool for software development. The two models have only been related on a theoretical level to date (Hiltunen, 2000; Zhu, 2000; Kock and Lau, 2001; Scholl, 2004). Nevertheless, the two models were related in a very practical way through the second phase of the current research, the development of the sensemaking tool.

As indicated in the research methodology chapter, the development of the sense making tool followed specific stages that could correspond to the Spiral Model’s specifications. Yet, the process of the design and the development of the tool shared many characteristics with action research / learning methodology.

The tool development component of the research project started from an initial concept that was verified by the literature review and a number of design principles that were outlined by change leaders through interviews. It ended with the saturation of gradual improvements of particular issues of the sensemaking tool and the way they were addressed. The first version of the tool was more conceptual than practical. Through planning and carrying out tests on partial issues of the initial model and development process, recording the results and reflecting on outcomes, new ideas were created leading to new versions of the tool and periodically to the need for more literature review, for example, on issues of maturity for change and ‘lessons learned’. Following an iteration of tool development, a

new cycle of planning, action, observation and reflection began, at the end of which new knowledge was gained, and so forth.

Three major cycles were accomplished in this way. The first began from the conceptual model and through a lot of initial tests led to the Tool-Prototype that was a milestone of the research. The second major cycle was about the tool's contextualisation in order to meet the needs of the first and second case study. And the third was the restructuring of the tool for the needs of the third test-bed. In all cases, a crucial factor that facilitated the whole process was the ability to have the results discussed with other colleagues; in this way new information was challenging the existing assumptions, refreshing my view and improving the developmental plan. I think now that there was no other way to build the tool; for a sensemaking tool exceeds the personal perspective and needs of a single person, especially when he/she is focused on a goal. So, in order to be useful, meaning to help people make sense, the creator of the tool has to take into consideration others' viewpoints, therefore he/she has to discuss and reflect with them.

The understanding that emerges from the cases of convergence between unconnected scientific areas or elements (complexity and archetypes; archetypes, geometry and network analysis; action research and spiral model) discussed above is of particular importance. It indicates the possibility of the existence of an extended but hidden relation between the different viewpoints or aspects of scientific reality. Furthermore, it suggests that a more careful examination of such correspondences and analogies could lead to the reveal of interesting links and to creative syntheses of new sensemaking and assessment tools that could extend the classic domains of science. More generally, bridges can be built between divergent ideas and disciplines and familiar territories can be explored with a new perspective (Baets, 1016).

7.4 CONCLUSIONS

The first question answered by this dissertation is that the emerging Non-Linear paradigm is more appropriate than the mainstream linear-deterministic one, when dealing with complex problems cases or while facing a higher-order organisational change. In such cases leaders and stakeholders are impeded from perceiving new information and shaping a more inclusive picture. As a result, they get stuck in what is called *transition*; meaning they cannot move forward with a new (collective) vision, a new (shared) narration.

Within the emerging non-linear paradigm, complexity and archetypes explain sufficiently why the mainstream linear-deterministic worldview fails in complex and transitional contexts. Although they cannot change how people are, they can depict better the implicit characteristics of a system in transition, usually unknown to outsiders, and reveal some of its core aspects with crucial importance. For this, they suggest a different worldview and introduce some pioneer methods and tools, the main advantage of which is that everything is done by the people themselves, meaning the daily protagonists of the context; this helps the acceptance of what emerges as a deeper understanding. Yet, beyond their strong points, these methodologies have some serious weaknesses, most of which relate to the ‘young age’, imperfectness and non-integrated character of complexity applications in management.

The fact that linearity does not work is not enough. Complexity has to be validated through empirical work in this (relatively new) field. Thus, three major challenges are set; the efficacy of answering them will determine whether the existing weakness will turn to limitations or not. First, complexity has to find a way to co-exist with the linear practices that successfully deal with ‘daily’ (ordinary) problems and an adequate language to address its message efficiently to leaders, managers and the organisational communities. This co-existence should endure for as long is needed for a new complex attitude to be cultivated among the organisations’ members and new complex tools to be developed. Second, complexity has to clearly state a complex attitude, different than the existing, which, implemented in vivo, will permit the person to approach the problem differently, apply the methodology properly and assess the data as they are, without skipping non-fitting details. The cultivation of such a new mindset is a difficult but feasible challenge; new efficient methodologies can be developed on the basis of analogy and metaphor from other scientific domains, philosophy and spiritual traditions. And the third challenge refers to the new methodological tools that should be simple, easy-to-use and able to deliver reliable, tangible and transferable results.

This leads us to the second research question that was answered as well. Such useful tools can be constructed, with regards to the organisational change, through the combination of complex emergent techniques with archetypal models and simple geometrical forms. Actually, no other sensemaking tool to date has provided a structured approach to emergence and self-signification. Within this frame, the resemblance of archetypes with strange attractors, previously indicated by scholars, was practically tested and verified as a real world application for the first time. This evolves the theoretical convergence of complexity and archetypes to a more practical level.

Moreover, the combination of previously barely-related or seemingly unconnected scientific domains (for example, archetypes, geometric templates and network analysis or qualitative research methodologies and software development models) can open new areas and routes in scientific knowledge. Among them, one can mention the identification of the *bifurcation variables*, which are of crucial importance in transitional contexts and they can be possibly reached through the further convergence of complexity and archetypes. On the other hand, the combination of archetypes with geometric forms and network analysis graphs can lead to the creation of valuable organisational change tools, such as dynamic and contextual ‘road-maps’ (networks of values and skills), reliable educational tasks or contextual research scenarios, indicating safer pathways in order to develop qualities or move towards change. This also provides a new application of social network analysis.

The sensemaking tool met all the specifications mentioned in literature, with regards to its development, application and validation. The main assumptions and the design principles of the tool have been confirmed and with the exception of some practical limitations that can be faced in the future, it responded efficiently to the weaknesses of the linear analytic assessment tools and some pioneer complex sensemaking techniques. We can sum up the results from the three implementations of the tool as follows.

Intangible assets can be represented by the elements of archetypal models, which can operate as signification framework. Through contextual triggers and beyond rationalisation, participants can attribute to the intangibles emergent properties (such as values, qualities, skills and deficits), indicative of the collective perception and behaviour patterns and their dynamics within the context. Moreover, the combination of the emerged properties into complexes and networks can create a contextual map of competences, as well as contextual organisational or social personas; this can open a brand new area to the network analysis regarding their classic applications.

Through the examination of similarities and differences among the patterns that emerged from different control groups and the comparison of the meaning of the properties attributed to the intangibles, it is feasible to articulate qualitative findings in a quantitative way. This kind of information can lead to the identification of possible critical variables within the system, as well as to the construction of an original 'road-map' of qualities indicating safer pathways in order to proceed towards a desired change. It can also lead to the creation of reliable educational tasks or contextual research scenarios referring to organisational development and change issues.

The lifelikeness of the process and the plausibility of the results were confirmed by the participants' and stakeholders' evaluation. The results were evaluated as authentic and the danger of social desirability, conformism and gaming was eliminated, due to the emergent, irreversible and game-like features of the process. Moreover, due to the self-signification and the participatory character of the process, the results were easily accepted. Acceptance was additionally enabled by the use of simple quantitative rules, simple statistics for the data assessment, and easily understood assumptions, compatible with common sense. A similar impact was found from the use of geometrical schemes and templates that enabled the visualisation of the results. They proved adequate to imprint evidently the preferences, the gaps or the contradictions and blind spots that exist within the context.

Finally, through its restructuring, the tool proved able to contextualize and adaptable to different settings and needs, as well as compatible to other models and tools derived from the area of complexity and archetypes.

Through the verification of the design principles of the tool and the validation of its results, a new way to reveal and assess the intangible assets of a business, organisation or system was shaped; this provides a new way of making sense of the core-characteristics of a context and its readiness to undergo a specific cultural change.

The main advantage and added value of the developed tool is that it can be applied in transition contexts or in far-from-equilibrium conditions, where the mainstream linear tools fail to depict the implicit factors that influence a change initiative. As it was validated by the stakeholders of the test beds, the tool can reveal key aspects of the dynamics of the collective perception and behaviour in a given context. Knowing the relationships and restrictions of their context, leaders can prioritize on a safer basis among alternatives and identify feasible pathways towards the desired change.

With regard to limitations of the research, in the absence of a software application and the participants' limited availability in the data collection workshops, the concept of the maturity assessment has withdrawn very early and self-assessment is not included as an extended stage in the process. Furthermore, the tool is subject of a few more limitations that refer: a) to the non-participative way of setting the assessment criteria and rules, b) to sampling and contextualisation issues, in case of use with bigger and less coherent populations or in regional, national or transnational level, and c) to a potential mistrust among leadership and stakeholders that would exclude from participation a certain part of the context with effect to the results validity and/or acceptance.

Finally, it would be useful to examine the effectiveness of this tool when employed with; e.g. the marginalized populations or the people with special needs in a region or a country, in order to feed in their viewpoints and test the planned policies before they get applied; the public officers in the whole country (not in a single organisation); the emigrants or political refugees in a country or European Union, etc. In such cases, a different sampling will be definitely needed and the contextualisation of the content of the tool should be done in a different way.

But most of all, the tool proved that complex tools do not need to be complicated; they could be simple but operated in a complex attitude. After all, complexity is mainly about a different attitude. In this way, the research responded to the main objections on the practicality of the complexity concepts by proving that it is feasible to construct and apply effective sensemaking tools based on archetypal models and consistent to the fundamentals of complexity. Furthermore, through this successful experiment, new areas and routes have been opened with regards to the combination of different scientific domains, such as complexity, archetypes, geometry and network analysis.

All in all, summarizing what has been discussed, we can conclude that:

- a) Non-linear methodologies fit better in cases of higher-order organisational change; yet they need simple tools to be used in a complex attitude.
- b) This sensemaking tool is consistent with its design and application specifications and able to deliver valid results with regards to the intangible assets and archetypes in a given context.

- c) Beyond its limitations, which are subject to further research, the tool can get applied in various consulting fields.
- d) If combined, complexity, archetypes and geometry can open new horizons in research and provide such effective diagnostic tools; actually, the developed tool is the first evidence of this practical convergence.

7.5 FUTURE RESEARCH

The results here have demonstrated the effectiveness of the developed sensemaking tool; it can be applied in a variety of application fields, such as in business mergers and acquisitions, reorganisation in corporations or organisations, introduction of innovation programs in organisations or communities, public consultations, early verification of social reform policies, and personal or group coaching. Yet, many opportunities for extending the scope of the research remain and are outlined in this last section of the thesis. These opportunities concern primarily the consequences of the discussed limitations and, moreover, some potential uses or extensions of the tool, as well as a different theoretical exploration. The latter refers to further theoretical analysis of the process that would lead to the development of a mathematical algorithm and the redesign of an alternative tool based on the logic of artificial neural networks. With regard to the potential extensions of the tool, the following types or research projects are suggested.

1. **Development of a software application** that will: a) computerize the data collection phase and replace the current accessories (e.g. paper forms, 12-fold templates, post-its, etc) by networked PCs or tablets, b) assess directly the data based on the criteria and deliver results in the form of tables and graphs, and most important, c) liberate time for the participants to discuss and reflect on their outcome. This means that the tool will become more a *self-assessment* instrument. Additionally, design and development of a *databank* that could manage the data emerged from each application and compare it through time and compatible settings.
2. **Development of the tool and the process to include maturity assessment.** This goal requires: a) the evaluation and possible redesign and documentation of the suggested *maturity assessment* model and b) the design and test of a second session (potentially after the end of the existing one, in case of direct availability of the results through a proper IT application), where the participants could process their stories to extract ‘lessons learned’ and assess the collective maturity.
3. **Use of alternative archetypal models and sensemaking frameworks.** It would be possible to extend the tool to employ other archetypal models and sensemaking framework, such as: a) use of a model other than 12-fold for the structure of the tool and redesign of the assessment criteria according to the inner relations of its elements; b) use of a framework other than the 12-fold or the Cynefin for the signification of the emerged properties; for example, use of Enneagram could be a good idea as it is both a structural and a process tool; c) replacement of some parts of the process with tools from other methodologies or add new

modules in the process; items from the Theory-U toolbox could be a good idea as alternative to the archetypal situations module.

4. Iterative runs of the tool with different prompting issue and stimuli in a given context (e.g. innovation, competition, crisis, communication, aesthetics, etc). Comparing the results of each run and transforming the overlying patterns of the elements' complexes into a network graph, could lead to alternative change pathways and figures, These could be used either in educational or research scenarios or for the identification of the critical variables that form the existing or an emerging attractor (*bifurcation variables*) in the given context.

5. Creation of contextual networks of competences. In the described concept of the qualities and skills network, the properties were related to the nodes of the network, constituting a potential roadmap of competences. This could be verified with iterative runs and transformation of the created complexes into network graphs. Moreover, it could be enriched by attributing properties on the connecting arrows, which could result to the formation of a tailor made training program that would take into consideration what is known, what is needed and which are the intermediate steps, thus focusing only on the necessary knowledge. At the end of such training programs, the results from applying the tool again could provide valuable feedback.

6. Test of the tool in different contexts and / or with different goals. E.g. in universities, politics, business world, citizenship, counseling etc or with communities of policy makers, young people, particular ethno-socio-economic populations, etc. The goal could be to imprint underlying cultural similarities and differences, gaps between reality and expectations or in symbols' perception, incompatibility of merging parts, preparation of public consultations, self-awareness, etc.

7. Further investigation of the conceptual model of the tool. Observing the similarity of the relationships patterns (diagonals) in the case studies, a research could focus on the potential correlation of the two 12-folds that for the moment seem independent.

8. Investigation of analogies between modern complex methodologies, other modern sciences and ancient philosophies and traditions. This will aim at: a) detection of principles that define both the physical and psychological world and b) gathering of insights and principles that could be used as metaphor towards the cultivation of leadership skills. After all, "when an idea has persisted for thousand years, we can have some confidence in its truth", as "the deeper a tradition goes in time, the greater is the chance that it is telling you deeper truths about the realities of human existence" (Chatterjee, 1998, p. xi; p. 123).

EPILOGUE

For a long time, the research seemed to me like a skein with numerous ends that I had to unfold. It was leading me to various topics, where I was encountering new theories, models, methodologies and tools. The whole process seemed to proceed without a long-lasting plan and sometimes, a sense of de-orientation and lack of target was growing and a fear of over-extending started to emerge. Other times, near the end of the research, I was feeling that I had to examine more things or search deeper. It was like being trapped in a non-ending task, just like Sisyphus, and my wife and close friends who witnessed it, urged me to break through.

Actually, if I were to write this thesis again, I would choose to write about how this tool was developed, as my supervisor once challenged me. I would write about the non-linear process of maturation, the many crossroads and the few thresholds, the allies and the villains (within me), the uselessness of manuals and the usefulness of metaphor and analogy. Because now I think I know what was going on all that time; and to an extent still goes on. And I can more accurately describe it by the words of Robert Pirsig in his book *Zen and the Art of Motorcycle Maintenance* (1974, p. 166-167):

"The craftsman isn't ever following a single line of instruction. He's making decisions as he goes along. For that reason he'll be absorbed and attentive to what he's doing even though he doesn't deliberately contrive this. His motions and the machine are in a kind of harmony. He isn't following any set of written instructions because the nature of the material at hand determines his thoughts and motions, which simultaneously change the nature of the material at hand. The material and his thoughts are changing together in a progression of changes until his mind's at rest at the same time the material's right."

While writing these last lines, I know that the overall experience was very useful for my personal and professional maturity.

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APPENDICES

- APP.1. LITERATURE REVIEW – ADDITIONAL MATERIAL
- APP.2. FIELD AND SECONDARY RESEARCH REPORTS
- APP.3. REPORTS ON THE INITIAL TESTING OF THE TOOL
- APP.4. MATERIALS USED IN THE CASE STUDIES

APPENDIX 1:

**LITERATURE REVIEW –
ADDITIONAL MATERIAL**

- 1.1 COMPLEXITY: MODELS AND METHODOLOGIES**
- 1.2 ARCHETYPES: CONCEPTS, PATTERNS AND MODELS**
- 1.3 GEOMETRY & MEANING: 3-D SIGNIFICATION TOOLS**

1.1. COMPLEXITY BASED MODELS AND METHODOLOGIES

1.1.1. The Cynefin Model

The *Cynefin* model is a theoretical framework that was developed by Kurtz and Snowden (2003); it is a sense-making model used to reveal the patterns and the particularities in a given context and unfold the components of complex, intractable or conflicting situations through conversation and negotiation. In this way, it can help leaders or executives improve decision making and avoid important mistakes, which arise when their preferred management style is incompatible to a specific context or problem (Snowden, 2007).

According to its creators (Kurtz and Snowden, 2003), Cynefin is rather a phenomenological framework, meaning that the focus is mostly on “how people perceive and make sense of situations in order to make decisions, as perception and sense-making are fundamentally different in order versus un-order.” However, as it will be shown in the next section, the model possesses an archetypal character as well. The model consists of five domains (Figure A.1.1), which are:

- The *Simple* domain that corresponds to what is explicit and widely known, structured and bureaucratic, easily classified, controlled and taught. In this domain, the cause is obviously related to the effect, simple rules and steady procedures are followed, the best practice is legitimized and the leadership archetype is feudalistic.
- The *Complicated* domain that is related to high abstraction and professional logic and requires terminology ruled by experts who analyze data and which is aided by heuristics that relate cause to effect. In this domain, the leadership archetype is oligarchic.
- The *Complex* domain, in which networks of shared trust, experiences, values, interests and mutual commitments are created, grow and come to an end; it is the domain of the informal or shadow relationships. Cause and effect are closely related to each other and their patterns can be learned only over time, mainly through stories and myths.
- The *Chaotic* domain that is a context where no former knowledge, experience or rule can be applied; it is the ultimate generative and learning environment where discontinuity and innovation grow. In this turbulent context there is no relation

between cause and effect; therefore, the only appropriate thing that a charismatic or tyrannical leader can do is to lean upon his/her guts and act.

- Finally, when is unclear which of the other four contexts is the predominant one, the fifth domain in the center is applied. Although Snowden names it *disorder*, it can be also viewed as a challenge, indicating where the system's 'shadow' lies and therefore constituting a knowledge/evolution opportunity. Viewed in this way, as a source, it can correspond to the 'Void' of Theory-U.

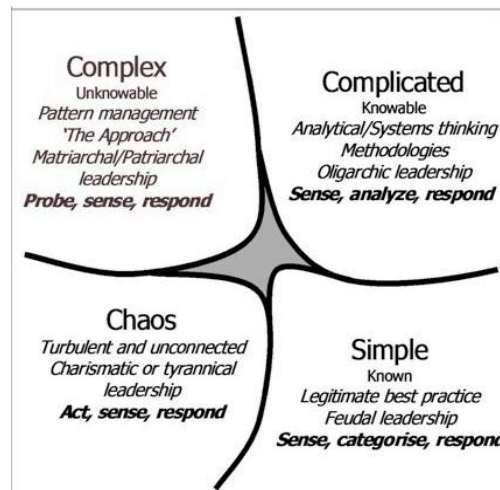


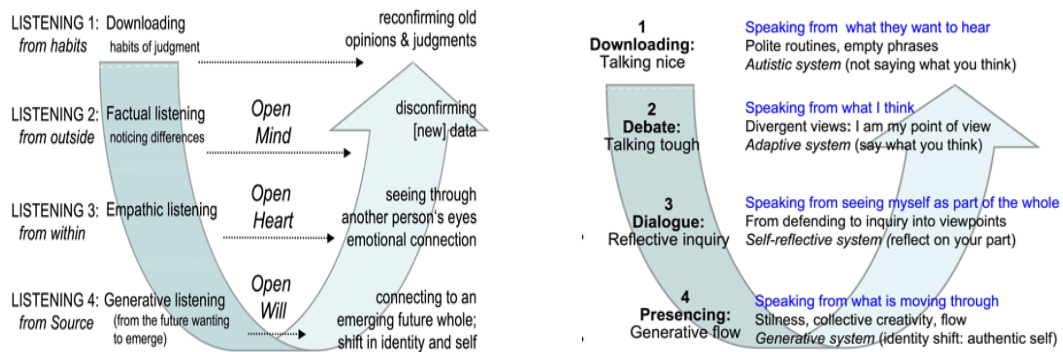
Figure A.1.1: The Cynefin model (adopted from Kurtz and Snowden, 2003)

1.1.2. Theory U

Theory-U provides a framework or rather a map of an inner transformative journey. This framework is based on a concept called '*presencing*', which signifies a heightened state of attention that allows individuals and groups to shift the inner place from which they function. Yet, it describes four different states of contexts within groups, organizations or communities. These states may co-exist as patterns of social, organizational or personal practice, varying from habitual to more desirable ways of relation and operation.

As mentioned earlier, Scharmer (2007) argues that the same action results in radically different outcomes in a given context, depending on the structure of attention from which this activity is performed. Theory U identifies four such fields of attention, which result in four different ways of operating. Therefore, effective leaders should first understand the field (or inner space) from which we are operating. The four fields of

attention correspond to four ways (levels) of listening, which are the following (Figure A.1.2):



- *Downloading* is when something happened reconfirms one's *habitual judgments*, known already and fixed; it is a polite but meaningless talking, kind of autism.
- *Factual listening* is when paying attention to facts and disconfirming data, *debating* on them, adapting one's own mental arguments and keeping a thesis, without a need for synthesis; open mind is here the goal.
- *Empathic listening* is when engaging in real *dialogue*, connecting directly, heart to heart, to the other person, in order to obtain a direct sense before analyzing the content; it is a skill that can be cultivated and developed, requiring the intelligence of an open heart.
- *Generative listening* is when *letting go* the old pattern, so the emerging one manifests; apart from an open-mind and open-heart, it requires an open-will to lose the old identity. This is where master practitioners of all professions operate from.

It should be particularly noted that at the turning point of the U-process there is a discontinuity; a void (Figure A.1.3). It is where stillness is needed in order for one to feel the emerging field and connect with the highest future possibility (Scharmer, 2007).

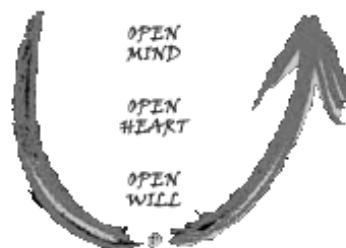


Figure A.1.3: Open Mind – Heart – Will and the Void in Theory-U (adopted from Scharmer, 2007)

Theory's-U toolbox consists of various emergent techniques, aiming to explore the 'other' side or one's 'shadow' side in an experiential way or to enable emergent fail-safe tests. It is suggested by their creators to be used along the phases of the 'U-journey, as shown below. The main 7 techniques, as presented in the official site of the Presencing Institute (<https://www.presencing.com/tools>), are:



Figure A.1.4: Theory-U toolbox (adopted from Scharmer, 2007)

- *Stakeholder Interviews* and the *Sensing Journeys* are conversations and small journeys with key stakeholders of an organization (customers, supervisors, colleagues or subordinates), aiming to enable an individual stepping into their shoes and seeing his / her own work and role from their perspective. This can reveal any barriers that need to be removed, in order for a better and deeper relationship with them.
- *Dialogue Interviews* aim to engage the interviewee in a reflective and generative conversation and is used to prepare participants for a forthcoming event or project.
- *Shadowing* involves accompanying a person for half a day to observe him/her during work, and learn from this observation
- *Case Clinics* enables a case-giver to listen to a group of peers that act as helpers or consultants to his/her challenging case, by reflecting on their own experience that emerges from the given case. This can reveal new framings, approaches or ideas that will respond better and more effectively to the initial case.
- *Journaling practice* leads through a self-reflective process to access deeper levels of self-knowledge, and to connect this knowledge to concrete action steps.
- *Prototyping* is about creating a fail early – learn quickly context that enable participants to explore the future by doing and get valuable feedback from stakeholders that refines an idea or a concept and its underlying assumptions.

1.1.3. Dialogos

Dialogos (Dialogue) is a method introduced by Isaacs (1999) the at the MIT / SoL Dialogue project, as a combination of Bohm's (1991) concept of dialogue with MIT's system dynamics mapping method¹. For Isaacs, dialogue is a flow of meaning or even a relationship; it is a conversation with centre, not sides. Furthermore, it is a paradox; it is both something we already know how to do and something about which there is much to learn. Seeking to harness the collective intelligence, the method aims to reach new understandings and to form a totally new basis from which to think and act; from shared meaning shared action arises. Thus, one not only solves problems but dissolves them. The overall intent of this method is to explore the validity of dialogue and further develop the practical knowledge about it (Isaacs, 1999). Dialogos involves a four-stage evolutionary model, consisting of:

- a) *Shared Monologues*, where group members get used to talking to each other;
- b) *Skillful Discussion*, where people are learning the skills of dialogue;
- c) *Reflective Dialogue* that is approximately Bohm's idea of dialogue²; and
- d) *Generative Dialogue*, a special "creative" dialogue that Isaacs seeks for his groups.

As it seems there is an evident analogy between these evolutionary dialogue stages (habit – skills – reflection – creation of something new) and the Theory-U levels.

1.1.4. Process Enneagram

The *Process Enneagram* is a framework for guiding conversation for learning, reflecting, and understanding on a participatory basis derived from the work of Gurdjieff and Ouspensky. It enables the participants in a dialogue to generate a picture of the whole system that is their focus or interest). It is both a diagram and evocative image that supports a structure conversation or inquiry carried out by a facilitator that aim to build connections with others and release emotional energy and commitment. (Dalmau and Tideman, 2011; Knowles, 2013; Blake, 2013). It is an inquiry carried out by a facilitator and consisting of nine points; three of them (called 'the green triangle')

¹ <http://ocw.mit.edu/courses/sloan-school-of-management/15-988-system-dynamics-self-study-fall-1998-spring-1999/readings/>

² "Dialogue is a way of observing, collectively, how hidden values and intentions can control our behavior, and how unnoticed cultural differences can clash without our realizing what is occurring. It can therefore be seen as an arena in which collective learning takes place and out of which a sense of increased harmony, fellowship and creativity can arise" (Bohm, Factor and Garrett, 1991)

underpin the other six elements and should be foci of constant attention and energy for leaders (see Figure below).

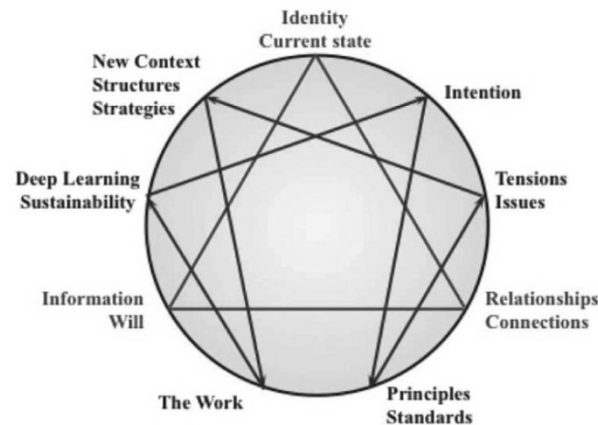


Figure A.1.5: The Process Enneagram (adopted from Dalmau and Tideman, 2011)

There are various versions of the Process Enneagram according to the context it is addressed. The nine points of the corporate version that Dalmau has developed are the following (Dalmau and Tideman, 2011):

1. **Identity and current state** (What is the current state of the company in numbers?)
2. **Intention** (What are the things they try to achieve? How do they create value and wealth? What are the core values?)
3. **Tensions and issues** (What dilemmas, contradictions, constraints do they face?)
4. **Relationships and connections** (What are the relationships between people who work there like? Is there trust, openness, honesty, directness?)
5. **Principles, ground rules and standards** (What operational principles or ground rules seem to guide their behavior, strategies and actions? What seem to be the real rules?)
6. **The work** (How do things actually work? How efficiently? Who does what, when?)
7. **Information and will** (How open and available is information to all? What is on the table and what is hidden or non-discussable?)
8. **Learning and sustainability** (How do they keep learning and adapt? How flexible and how eager they are to reflect and improve?)

9. ***New context, structures and approach*** (What is the context for their work and how do they structure it? What are the main approaches and strategies? How do they fit together?)

The process has an emergent character, as the participants are not aware of the content of the inquiry and answer in a random sequence; whenever one is ready to speak. The method can be applied, among others, in various situations, such as in problem diagnosing and clarifying, after action or change reviews, strategic and business planning, organizational or facilitation design, organization sustainability, coaching, analysis of self as a leader, community, project or team development, inter-group conflict and company interviews.

1.1.5. Open Space Technology

Open Space Technology, OST, (Owen, 1997) is a method that enables all kinds of people, in any kind of organization, to create meetings and events, managing their own agenda of parallel working sessions around an agreed central theme of major importance. The issues to be discussed are put by the participants themselves, hoping to draw the attention of the others. If so, the discussion takes place in small groups; if not, it is cancelled. The facilitator is present but acts like being ‘invisible’, aiming to hold a space for participants to self-organize, rather than direct the conversations.

Although OST is known for its apparent lack of structure and welcoming of surprises, it usually turns out that is actually quite structured around the participants’ needs and their central issues. It is never known in anticipation exactly what will happen when a group enters Open Space. It seems however that the issues raised and discussed by the participants are indeed the most important for them and the people engaged in the discussion are the most qualified for that. If not, they simply move on to another subject that seems more interesting or relevant to them. This gets people and work moving but it raises some obstacles as it seems quite different than the usual methods and settings of discussion (based on the debate between experts in front of ‘spectacles’ that play the role of a jury).

The method prescribes that all conclusions in small groups should be ‘transferred’ later to the large assembly. However, this is more difficult to achieve in practice than might appear.

1.1.6. World Café

The *World Café* is a process, a community and a set of values that help people host conversations that matter to them. It was introduced by Juanita Brown (2001) as a simple method for creating cooperative dialogue around meaningful *questions* that truly matter according to participants' perception. Subsequently, it has been enriched by the World Café Community and many other practitioners and consultants. The methodology is based on two assumptions:

- a) people already have within them the wisdom and creativity to confront even the most difficult challenges they face and
- b) if they can change the conversation, they can change the future.

So, the idea is simple: invite people to sit down and talk and watch what happens. It is an easy process comprising tables of four, people who move from table to table sharing worldviews and hosts that welcome newcomers into the conversation. In each iteration conversations are thread deeper and deeper and at the same time a living network of collaborative dialogue creates the context for collective action.

1.1.7. Appreciative Inquiry

Appreciative Inquiry (Cooperrider and Whitney, 2005) is both a positive way of looking at the world and a systematic process that seeks to comprehend what gives life to an individual, organization or community when it is most alive, creative, effective and capable. Instead of diagnosis and criticism there are questions that move people to discover, dream and design.

Its fundamental assumption is that all living systems have many untapped and inspiring accounts of the positive, the energy of which, if linked to any change agenda, will make changes never thought possible to start moving in a participatory way. The process is a cycle of four stages (4-D), through which participants:

- a) *discover*, appreciate and value the best of what is;
- b) *dream* and envision of what might be;
- c) *design* through dialogue what should be; and
- d) innovate what will be, thus, realizing their own *destiny*.

1.1.8. WorldWork / ProcessWork

WorldWork was introduced by Arnold Mindell (1995, 2000) based on ProcessWork (Mindell, 2000), a cross-disciplinary approach that has its roots in Jungian Psychology, Quantum Physics and Taoism. Both methods emphasize awareness rather than any specific set of interventions and do not focus their interest on ins and outs of human behavior, but on the changing process, claiming that even if one does not have the capacity to follow the invisible, he/she can see the signals that it sends. Used as a descriptive rather than a prescriptive method, it seeks to amplify and unfold the secondary process that includes unintended aspects of our behavior or experience, in order to integrate them with our conscious norms and values (primary process). Such aspects (that usually skip our attention but keep trying to enter our awareness) are tracked and expressed as figures and the participants are invited to relate them to their own individual or organizational issues.

WorldWork is a method that helps small and large groups live, work and grow together in their environments. It seeks to explain the dynamics of social transformation and it is based on the principle of Deep Democracy (Mindell, 2002), which values all viewpoints in a group and recognizes the importance of secondary processes of all kinds. The different viewpoints represented in a group are not necessarily bound to the individuals holding them at a particular moment; instead, they are “roles” that can be played by all individuals in the group in differing circumstances.

WorldWork principles find broad application in group facilitation, coaching, leadership training, conflict resolution, community and organizational development. WorldWork is also applied in the *Open Forums*, where topical/regional issues are processed in a way that respects the emotional limits of the participants without isolating any of their viewpoints. It offers methods for understanding the significance of challenges to organizational or community integrity as potential avenues of growth and not as disturbances against which the system must defend itself.

1.2. ARCHETYPES: CONCEPTS, PATTERNS AND MODELS

1.2.1 Archetypal patterns and images

Archetypal images can have an abstract or geometrical form (square, circle, wheel, etc or their combinations in symbols) or possess a figure of a real or a fantastic character, creature, plant, natural element or planet (e.g. mother, father, child, hero, god, fair lady, dwarf, giant, lion, dragon, tree, bush, fire, sea, river, sun, moon etc).

Some of the most common manifestations of *archetypal characters* are the following: the hero, the savior, the ruler, the outlaw, the helpers and the villains, the prince, the princess, the victim, the mentor, the companions, the scapegoat, the joker, the outcast, the earth mother, the temptress, the damsel in distress, the friendly beast etc. Some modern versions are: the cowboy, the detective, the gambler, the mad scientist, the nerd, the business woman, the lobbyist, the baby boomers, the Casanova, the guru, the environmentalist, the martyr, the saboteur, the journalist and many others.

Quite often such archetypal characters are personalized by actual people within a given context; that results in creating of historical figures, known for the role they represent rather than for whom they really are. Some examples of such *Icons* are: Lady Diane (princess), Napoleon (strategist), Spartacus or Che Guevara (rebels), Mother Theresa (altruist), Mahatma Gandhi or Nelson Mandela (liberators), Martin Luther King (scapegoat), Adolph Hitler (devil figure), Marilyn Monroe (temptress) etc.

For each archetype there is an archetypal myth (story) to be realized, within which a repeating pattern is unfolded; a main mission has to be accomplished, a dragon has to be faced and a lesson has to be learned (e.g. the *warrior* faces the enemies, kills the dragon, saves the victims). A pattern is archetypal when it is enduring (it comes again and again in various pathways) and its structure follows the typical example within a given cultural context (Chan Allen, 2002). Each archetypal pattern has certain elements, which are:

- the *goal* (e.g. a fight against an enemy or a negative opponent, a good deed or a message to be delivered),
- the *characters* (incl. the protagonist, the helpful allies and the hostile villains),
- the *gift* (which is always earned through trials by the hero and is significant for both his/her personal life and the salvation of the kingdom/community he/she comes from)
- the *turning points* or *thresholds* (the passage of which determines the final outcome).

Such archetypal patterns usually refer to recurring situations, such as birth, adolescence, adulthood, maturity, death and rebirth, triumph and danger, etc. Some of the most common examples of *situational archetypes* are:

- the **quest** (searching for something to find or someone to liberate, in order to restore fertility to a wasted land),
- the **task** (to save the kingdom, win the fair lady or prove one's rightful position, to perform a heroic, superhuman deed etc),
- the *initiation* (representing stepping into a new phase, such as adult's life),
- the *journey* (the hero/heroine travels through trials or descends into a real or psychological hell, in search of truth or treasure, face inner dragons or redeem oneself from past faults),
- the *fall* (a descent into the lowest state of being or exile from heaven as a penalty related to the loss of innocence),
- the *descent* to the underworld (expressed as the death and resurrection of Christ, Osiris etc or the visit to Hades of Orpheus, Hercules, Ulysses etc),
- the relevant **death and rebirth** (drawing parallels between the cycles of nature, light and life: morning and spring represent birth; winter and evening represent death), and
- the *magic weapon* (symbolizing the extraordinary quality of the hero or heroine, usually given by a mentor figure) etc.

In many archetypal stories and fairy tales one encounters *archetypal battles or polarities*, such as between *good* and *evil*, *light* and *darkness*, *water* and *desert*, *heaven* and *hell*, *haven* and *wilderness* or *hell*, *fire* and *ice* etc. These can take place in *sacred or hidden locations and cities* (such as Olympus and Delphi, Garden of Eden, Camelot, Mecca, Atlantis, Castalia in the 'Glass Bead Game', etc), The archetypal stories usually follow some typical pairs of opposite (complementary) narrative patterns, such as of *transformation* (e.g. in Cinderella) or *return* (e.g. in Odyssey); *romance* (dreams are fulfilled) or *irony* (nightmares become real); and *comedy* (with a happy ending) or *tragedy* (with an undesirable one).

In any case, the archetypal pattern adds meaning to the exact data (facts) of a specific event, each time its story is told by someone; this kind of archetypal influence is stronger when the teller is in a state of crisis or shock, meaning in far-from-(rational)-equilibrium state. By enabling the creation and development of a meaningful motif in the individuals' lives, the archetypal patterns actually govern them, while in the same

time provide people with a coherent frame for life experiences, especially the painful ones (Roesler, 2006). Yet, it should be added that despite their potential contribution towards wholeness, a more common manifestation of archetypes is towards extreme manifestation, as stereotypical caricatures. This is related to the degree of consciousness and will of each individual.

1.2.2 The *Unus Mundus* concept

Jung in collaboration with W. Pauli³ broadened the initial concept of *ordering factor* to the one of *probability law*. Indeed they postulated (Jung and Pauli, 1955) the existence of a cosmic order that does not relate to our choice, distinct from the world of phenomena and corresponds to a broadened notion of archetypes. Working together for more than two decades, they formulated the *Archetypal Hypothesis*:

since psyche and matter are contained in one and the same world, and moreover are in continuous contact with one another and ultimately rest on irrepresentable, transcendent factors, it is not only possible but fairly probable, even, that psyche and matter are two different aspects of one and the same thing (Jung, CW 8 : 417- 418).

As a result of this hypothesis, the term of *Unus Mundus* was introduced to describe the transcendent and unitary existence, which underlies the duality of mind (*psyche*) and matter (*physis*). When operating in the realm of psyche, archetypes are the dynamical organizers of images and ideas; when operating in the realm of physics, they are the patterning principles of matter and energy. Moreover, when the *same* archetypes operate simultaneously in both realms, they give rise to *synchronistic* phenomena of acausal but meaningful coincidences.

The concept of *Unus Mundus* seems to be in accordance with the notion of archetypes in Sufism tradition (von Franz, 1976; Izutsu, 1983; Matthews, 2002); they occupy a middle plane between the Absolute and the sensible world, an intermediate ontological status between the spiritual plane and the one of sensory experience. Furthermore, since the formulation of the archetypal and synchronicity hypotheses, many other scientists, entrepreneurs and practitioners have affirmed and extended them (Senge et al, 2004; Jaworski, 1996).

³ Wolfgang E. Pauli was an Austrian-Swiss theoretical physicist, with many important contributions primarily in the field of quantum mechanics; he received the Nobel Prize in Physics.

1.2.3 System archetypes

During his early period in systems thinking, Senge (1990) introduced the *system archetypes*, as generic structures, which embody the key to learning to see structures in our personal or organizational lives. They were guiding structures and resulting behavior patterns that are meant to control events and help leaders recognize the cycles that systems go through and predict what is about to come. For that he suggested ten exemplary cases and introduced a relevant toolbox, which contains the following systems archetypes:

- *Balancing loop*: when one is trying to fix a problem or achieve a goal.
- *Balancing loop with delay*: when the fix overshoots the goal
- *Escalation*: when the fix creates a problem elsewhere
- *Fixes that Fail*: when in time the problem returns
- *Shifting the Burden*: when the underlying cause is not being addressed
- *Limits to Growth*: when growth slows over time
- *Tragedy of the Commons*: when limited resources are shared by others
- *Attractiveness*: when there is more than one limit to be addressed
- *Growth and Underinvestment*: when the limit is insufficient capacity
- *Success to the Successful*: when growth leads to decline elsewhere.

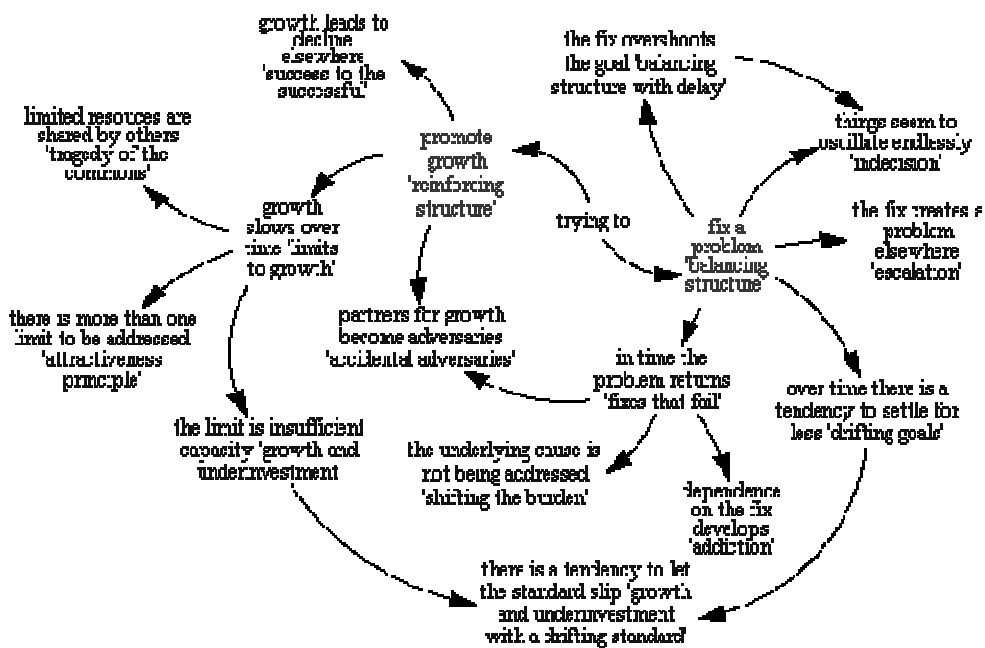


Figure A.1.6: System Archetypes evolving relationships (adopted from <http://www.systems-thinking.org/>)

1.2.4 Organizational Team Culture Indicator / Pearson-Marr Archetype Indicator

Carol Pearson (Pearson, 2003) has developed two models with archetypes: the *OTCI* (Organizational Team Culture Indicator) and the *PMAI* (Pearson-Marr Archetype Indicator). The first fits in the organizational context, while the second is used for personal counseling. Each model consists of twelve archetypal figures, which are more or less the same in the two models. Each archetype has a bright and a dark side, different levels of realization, lessons to be learned and traps to be overcome/ be avoided. The archetypes names are compatible with the western business and organizational language, but not necessarily with the various people's cultural patterns; this could possibly lead to a danger of stereotypical use in such contexts. The two models also provide some usual (dominant) pathways for organizational development and personal growth, along with relevant questionnaires as diagnostic tools. Furthermore, the OTCI will be discussed and an overview of its twelve archetypes (spirits of org. cultures) describing their main assumptions, values, strengths and weaknesses, is presented in the following table:

Archetype	Assumption	Values	Strengths	Weaknesses
<i>Caregiver</i>	Do to others as you would have them do unto you	Altruism, generosity, caring, nurturance, compassion	People needs first, supportive structures & processes	Martyr spirit & client dependence, may control employees
<i>Orphan (RegularGuy)</i>	Life is tough and precarious, don't trust everybody	Fairness, reciprocity, respect for all who do their best	Survival in difficulties, dignity on equal basis, sense of belonging	Minimal expectations, distrust, passive aggressiveness
<i>Warrior (Hero)</i>	when the going gets tough, the tough get going	Courage, energy, focus, discipline, competition	High performance, objectives fulfillment, teamwork	Stress, work repetition, 'inner' competition, burn out
<i>Innocent</i>	Predictability, safety, no risk, positive attitude	Loyalty, goodness, following rules & common principles	Simplicity, protection, empathy for people, low skills needed	Resist innovation, & change, may control people
<i>Creator</i>	World's Individual & joint improvement through creation	Imagination, beauty, authentic expression, good design & quality	Custom-made, high quality services, form serves function	Ignore market reality, slow moving perfectionists
<i>Lover</i>	Live life to the fullest every day, love & beauty	Close & friendly relationships, high quality of life,	Pleasant ambience & services, supporting stakeholders	Avoidance of tough decisions, cliques, intrigue, flatterers,
<i>Revolutionary (Destroyer, Outlaw)</i>	Break conventions & laws to serve higher values	Think & act out of the box, risk taking without harming	Turn frustration for unjust practice to creative breakthrough	Far anti-mainstream, stakeholders may lose confidence
<i>Seeker (Explorer)</i>	Adventure, freedom & risk to learn & grow	Pioneering, individualism, independence,	Avant-garde, ideal for unconstrained, self-starters	Focused on competent employees mainly, often chaotic
<i>Ruler</i>	Orderly & fair processes with someone in charge	Power, orderliness, responsibility to make things happen	Power, image, status, coordinating people, cooperating orgs	Bureaucratic, elitist, rigid, pursuing policies and forgetting needs

<i>Jester</i>	People are more creative when having fun	Playful truth-telling, think out of the box, enjoy every moment	Outcomes in playful ways, enjoy change, respect autonomy	Undervalue routines, resist paperwork or getting to work
<i>Magician</i>	Thoughts shape reality, be the change you want	Self-awareness, power to transform, interdependence	High tech, high touch, high performance & low control	Fail to deliver expected miracles, may verge on anarchy
<i>Sage</i>	Investigation, information, articulation	Intelligence, search for truth, objectivity	Knowledge driven & sharing spirit	Low adaptation to market, internal rigidity

Table A.1.1: OTCI overview

Although those figures cannot exist in real life in such a pure, extreme degree, they represent the whole spectrum of human characteristics and experience in twelve principles, each of which symbolizes a package of endeavors, traits and identities; together they compose the total sum of human impulse and drive (Smith, 2005).

Pearson claims that the twelve archetypes are related to four archetypal human needs, which are the following: a) Stability, safety, structure and control; b) People, belonging and enjoyment; c) Mastery, risk, esteem and results; and d) Learning, independence, and identity (self-actualization). Moreover, she claims that they correspond directly to the three phases of the Campbell's *Hero's Journey* template (to be described in section 3.3). These are:

- *Socialization*: taking responsibility for one's life and identity, understanding how to fit in the world as it is known,
- *Transformation*: understanding the potential that lies within (the organization / individual) and making it become real, and
- *Restabilization*: knowing oneself and exerting one's special power in the world, taking full responsibility of one's pathway.

Thus, the model can be then represented as both a 3 X 4 matrix and a mandala, as follows:

Focus/Motivation	Stability/Structure	People/Belonging	Results/Mastery	Learning/Identity
Leadership Style	Administrator	Facilitator	Manager	Mentor
Stage 1: Socialization	Caregiver	Orphan (Everyone)	Warrior (Hero)	Innocent
Stage 2: Transformation	Creator	Lover	Destroyer (Outlaw)	Seeker (Explorer)
Stage 3: Restabilization	Ruler	Jester	Magician	Sage

Table A.1.2: OTCI - PMAI archetypes as a 3 X 4 matrix (adopted from <http://www.bsu.edu/classes/magrath/205resources/pearson/pearson.html>)

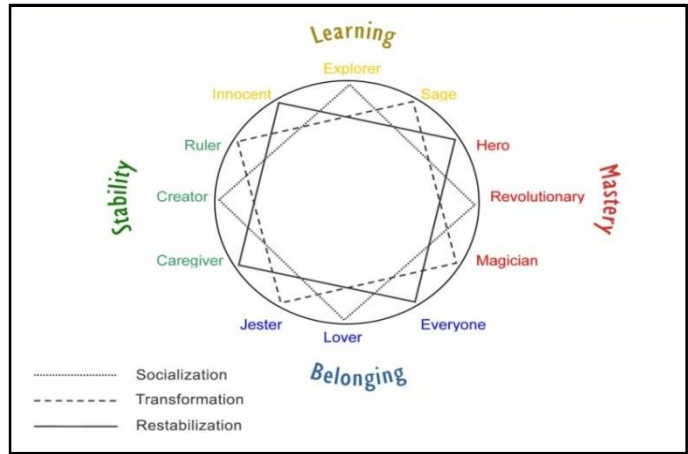


Figure A.1.7: OTCI archetypes as a mandala:

1.2.5 Internal Action Logics (Developmental Action Inquiry)

William Torbert and David Rooke (Torbert, 1999; Rooke and Torbert, 2005) claim that what differentiates the leaders is not their personality or style, but their *internal action logic*, meaning how they interpret their environment and how they react when their strength or security is challenged. They introduced several archetypal figures (the number of which was increasing by time) and set the characteristics and strengths of each one; they also related them to the organizational context they best fit, as well as to the challenges they best meet. The archetypal figures (inner action logics), along with the organizational development goals (challenges) they are best for, are provided in the following Table:

<i>Action logic</i> (stage of personal development)	Organizational goal
<i>Impulsive</i> (impulse rules reaction)	conception
<i>Opportunist</i> (wins any way possible)	investments
<i>Diplomat</i> (avoids overt conflict)	incorporation
<i>Expert / Technician</i> (rules by logic and expertise)	experiments
<i>Achiever</i> (meets strategic goals)	productivity
<i>Individualist</i> (interweaves personal and company action logic)	competition
<i>Strategist</i> (generates organizational and personal transformations)	collaborative inquiry
<i>Magician / Clown</i> (process rules value)	collaborative inquiry
<i>Alchemist</i> (integrates material, spiritual & societal transformations)	social transformation
<i>Ironist</i> (systemic growth rules process)	liberating disciplines

Table A.1.3: Action logic figures

It should be noted that some of these elements have been added to or removed from the different versions of the model over time. However, most of the figures are related to the stages of a transformation methodology, known as Developmental Action Inquiry.

1.2.6 Dalmau - Neville Archetypology Indicator

Bernie Neville and Tim Dalmau (Neville and Dalmau, 2006) developed a 16-fold model that is based on the following Olympian Gods and some more lesser gods or heroes. Instead of classifying abstract objects or use factor analysis, the model employs a set of images that have proved influential for European culture for more than 3.000 years; the Olympian gods. These classic images and the relevant narrative are ‘translated’ into short descriptions of specific attitudes and behaviors, which are expressed in a rather neutralized way, as each of these entities possesses both positive and negative aspects, according to the way it is filtered (interpreted) by each person.

<i>Archetype</i>	Organizational culture
<i>Aphrodite</i>	beauty and pleasure, admire and desire
<i>Apollo</i>	rationality, clarity, meaning
<i>Ares</i>	challenge, energy, activity
<i>Artemis</i>	harmony with the environment, ‘feminine’ values
<i>Athena</i>	cooperation, sharing of power, balanced and practical wisdom
<i>Demeter</i>	mothering and nourishing the staff
<i>Dionysus</i>	growth, emotional excitement, spiritual experience, creativity and spontaneity
<i>Eros</i>	intimacy and community, need for love
<i>Hades</i>	extreme indifference and apathy, life has departed
<i>Hephaestus</i>	values of work, skill and craft excellence
<i>Hera</i>	great commitment, organizational loyalty over individual needs
<i>Heracles</i>	heroic struggle
<i>Hermes</i>	communication, process and transition, no regulations
<i>Hestia</i>	quiet, focused, centered and receptive activity in the service of others
<i>Prometheus</i>	mission to save humanity through the application of technology
<i>Zeus</i>	centralized power

Table A.1.4: Dalmau - Neville Archetypes model

DNAI was created as an educational and consulting tool and is questionnaire type. The consultants, after studying the documents of the organization and conducting interviews with both managers and clients, form groups of employees based on departmental criteria. The participants are asked to answer a 32-statement questionnaire, rating agreement with each statement on a 0-5 scale, according to their ideas of the current workplace and once more for the desired future. With each of the 16 items four descriptors are presented and separately rated, providing a total score range of 0-20 for each archetypal figure. Based on this score they represent the existing organizational culture (actual) and compare it to the desired one (ideal). The model has been tested in Australian organizations with very interesting results, as it was very easy for the participants to make sense of the values of each archetypal figure.

The main limitation of the tools discussed above is that, although as models they are very insightful, as tools they leave limited space for emergent properties on behalf of the participants. Moreover, as the classification of the 'archetypes' qualities is in most cases preset and non-contextual, their terminology needs to be adopted by the users in its right meaning and thus, their implementation could be impeded by their non-correspondence of the preset types to the organizational reality. Therefore, well-experienced facilitators are needed for the process who should first have to make sense of the context. Furthermore, some of these instruments are focused mainly on the 'positive' or the 'right' expression of an archetypal way of being or operating. In this way, there will be always the peril of gaming or over-simplification of the 'dark side' of the organization or community. But most of all, these models can hardly deliver the complex, ambiguous and contradictory character of the real archetypes and the humans.

1.2.7 The Heroic Journey template

Although *Homer's Odyssey* is perhaps the first archetypal journey ever written, it was *Joseph Campbell* (1949) who first took Jung's ideas about archetypes and applied them to world mythologies, demonstrating the universal path of the *Hero* across time and culture. The hero can represent different ideals or ways of life; a person who honours his/her values, someone who sets a good example, who is ready to self-sacrifice, a warrior or conqueror, a lover, a scapegoat, a protagonist, a transcendent person, an anti-hero, a super-hero etc. The hero has a purpose for this personal quest: to discover while isolated about himself, the society or the universe, resolve the duality of the human

nature (body/soul, duty/desires, savage/divine etc), understand the circle of life (life-death-rebirth) and so finally return and save or rebuild the kingdom (community) as a redeemer, protector or model of civilization. During this journey the hero undergoes a *metamorphosis* which enables him/her to maintain a balance and thus, free from fear and free to live; become competent in both inner and the outer worlds.

Campbell (1949) found the ‘heroic path’ to be widespread across many cultures. This pattern exceeds the narrow mythological frame and represents the stages and the processes that a person confronts when deciding to cross a threshold and quest his/her own dreams or pursuits. The journey consists of three stages: the *preparation and departure*, the *initiation and transformation* and finally the *return*; in each stage the hero encounters different archetypes that attract or put him off his/her way:

- the first stage involves the departure from the familiar and comfortable into the unknown, risking failure and loss
- the second stage is the encountering of hardship and challenge and the mastering of courage and strength to overcome or discover
- the third is the return to the community with something new or better than before.

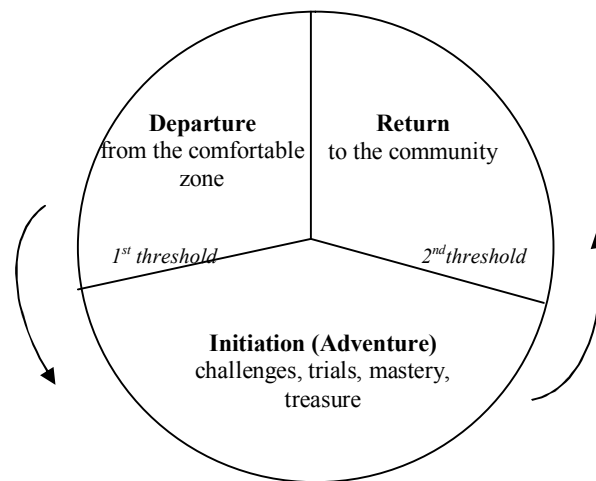


Figure A.1.8: The Hero's Journey template

It should be mentioned that a lot of particularizations of this pattern have been developed so far, and have been applied in various fields relevant to human factor, such as writing, counseling, education or entrepreneurship (Brown and Moffett, 1999; Lee and Allen, 1997). Various secondary models and tools, dealing with change, entrepreneurship or education, have been developed on the basis of this template. However, of particular interest for organizational contexts is; the one that R.C. Allen (2001) suggests, which is both a model and a methodology for *Archetypal Change*

Journeys. There, she attempts a combination of the linear Western viewpoint and the cyclic Eastern is attempted. The model consists of eight stages / cycles (*Inertia - Call - Jump - Trials - Dissolution - Discovery - Integration - Application*) and is supported by a range of tools and techniques, one of which is the Journey's map, presented below (Figure 19).

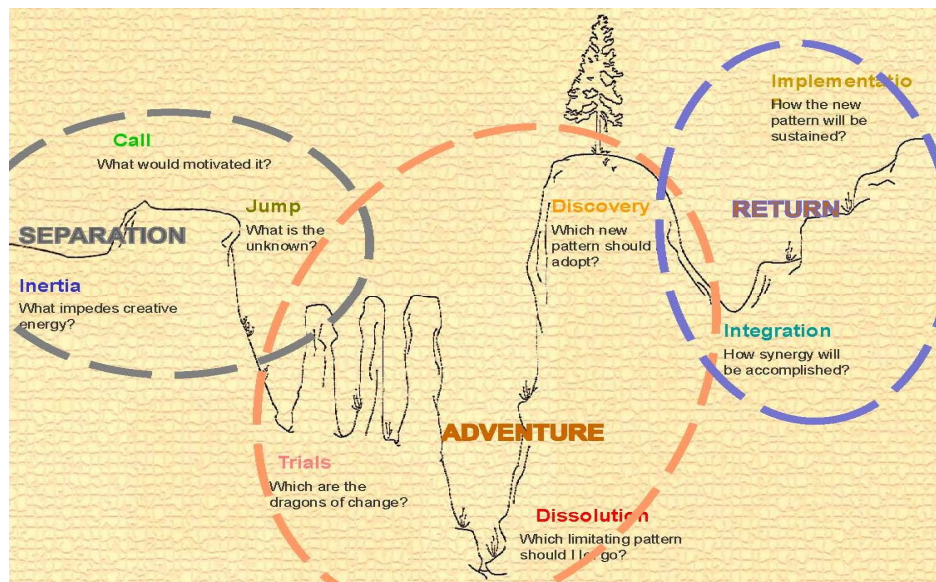


Figure A.1.9: The Hero's Journey map (adopted from (R.C.Allen, 2001)

1.2.8 The 12 Sufis' archetypes

Beyond the Olympian gods model, the same 3 X 4 structure (3 paths X 4 elements) has been adapted by a model introduced by Hazrat Inayat Khan of the Sufism tradition (CCPE, 2006). According to Khan, there are three roads to spiritual attainment, which, although coming from quite a different point, meet in the end at one junction. The three pathways refer to:

- The *Master*: symbolizes the active and expressive way of power and accomplishment; the path is full of struggles and material and spiritual attainments (the greater the struggle, the greater the power); effects are produced through the rule of hammer, which is used to protect individuals and the world from external threats.
- The *Saint*: symbolizes the passive and receptive way of tolerance, patience, devotion and sacrifice; being merciful and often resigned, leads a life of service to comfort individuals, following a path of gentleness, love, and beauty, but also of self-denial.

- The *Prophet*: the middle path symbolizes the balance and synthesis on a higher order of the other two; he is warrior and peacemaker, master and servant, teacher and pupil at the same time; he is a message bearer (receiver and giver), making this happen by his presence.

<i>PATHS / TYPES</i>	<i>Archetypes / Qualities</i>			
Elements	AIR(mind)	FIRE(energy)	WATER(emotion)	EARTH(will)
<i>MASTER</i>	<i>Scientist- Planner</i>	<i>Achiever</i>	<i>Creator - Artist</i>	<i>Guardian- Sustainer</i>
Expressive	Discerning Wise Intelligent Focused Capable	Radiant Powerful Straight Forward Preserving Energetic Initiator	Creative Generous Nurturing Sociable Affectionate	Masterful Disciplined Principled Strong willed Ordered Trustee Policy maker
Shadow	Difficult to control	Mercenary Dangerous	Emotional swings	Stubborn
<i>PROPHET</i>	<i>Priest - Spokesman</i>	<i>Knight</i>	<i>Friend - Partner</i>	<i>King - Queen</i>
Balanced	Communicative Understand Adventure Peaceful Influential Sacred Guide Efficient	Confident Successful Open Useful Truth Righteous	Lover & Beloved (Christ) Friend Harmonious Adaptable Responsive	Majestic Magnetic Authentic Responsible Dependable
Shadow	Changeable	Impulsive Distractive	Respond quickly to all influences	Must be told
<i>SAINT</i>	<i>Oracle - Researcher</i>	<i>Dervish</i>	<i>Disciple (Follower)</i>	<i>Counselor - Healer</i>
Receptive	Intuitive Insight Free Imaginative Visionary	Pure- Honest Inspired Discriminating Ecstatic Optimistic	Appreciate beauty Graceful Sensitive Devotional	Merciful Patient Helpful Quite - Calm Simple
Shadow	Moody	Explosive	Maybe misled	Not initiatory

Table A.1.5: The 12 Sufis archetypes

1.3. 3-D GEOMETRY-BASED TOOLS

Further to the use of 2-D schemes, some theorists and practitioners have used 3-D geometrical tools (solids) to represent their theories or provide their services. One can mention the representation of the I-space model of Boisot (1998) and the Tetrahedral Pyramids that Prasad (<http://mithya.prasadkaipa.com/pyramids/alignmentstrategy.html>) uses as a tool to align strategies, processes and people in organizations.

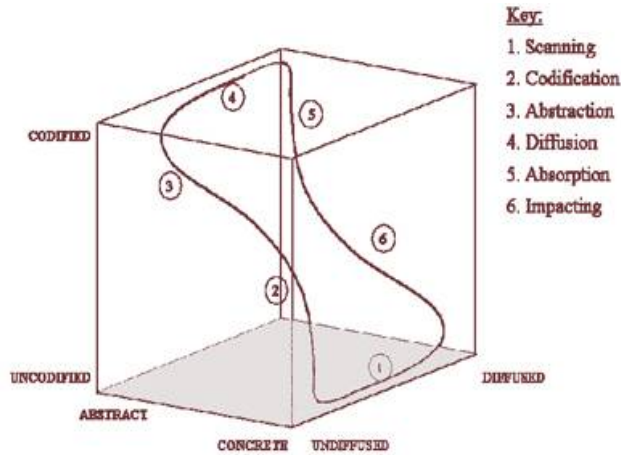


Figure A.1.10: The I-space cube (adopted from Boisot, 1998)

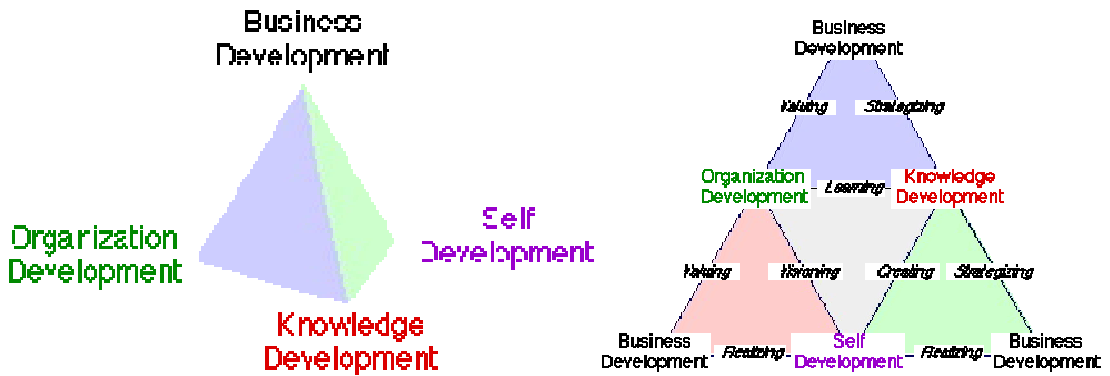


Figure A.1.11: Tetrahedral Pyramid and its spreads (adopted from <http://mithya.prasadkaipa.com/>)

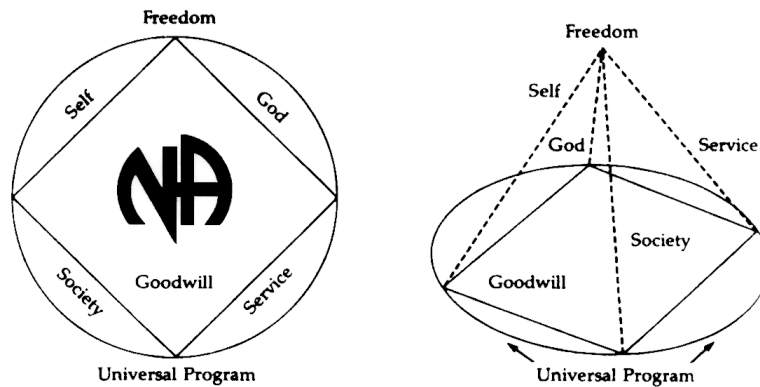


Figure A.1.12: Narcotics Anonymous' methods and principles (adopted from <http://www.na.org/>)

APPENDIX 2:

FIELD AND SECONDARY RESEARCH REPORTS

(The following reports is the original version of the initial material at the time of the researching; 2009-2010)

- 2.1 INTERVIEWS WITH CHANGE LEADERS AND AGENTS**
- 2.2 ORGANIZATIONAL AND CORPORATE CONTEXT OF THE 1ST CASE STUDY**
- 2.3 POLITICAL AND SOCIAL CONTEXT OF THE 2ND CASE STUDY**
- 2.4 THE WIDER CONTEXT OF THE 3RD CASE STUDY**

2.1 INTERVIEWS WITH CHANGE LEADERS AND AGENTS

Scope and method

In addition to the literature review, a number of interviews with change leaders and agents were designed and carried out. These persons had been involved in change initiatives in the past (and now are rather detached from such activity) or have dealt professionally with leadership or change issues. Their profiles extend from academics, practitioners, counselors, therapists etc to former mayors, as well as ordinary people who have faced a serious challenge and have conceptualized their experience.

Out of these interviews it was meant to tap some of their experience regarding change and thus to design a methodological tool that fits better to real needs. More specifically, it was meant to learn:

- What do people learn through their experience in change initiatives?
- How do they set goals and how do they try to accomplish them?
- What kind of intractable and ‘tough’ problems do they usually face?
- What impedes them from listening to what is different and seeing what is unfamiliar?
- How could they assess in a less subjective way the collective potential, maturity and momentum for change?
- How can they address people in a meaningful and penetrative way in order to sustain the change spirit?

The interviews had the form of semi-structured conversations, during which the interviewees were asked to reflect on a significant (for them) case of change that they have experienced, provoked or just witnessed and suggest on the skills required for leading a change initiative efficiently. Then they were asked to answer four multiple-choice questions and mark their choices on templates that have been designed especially for the needs of the interviews, in order to see if there were any patterns to emerge.

The questions asked were the following:

- What happened in that case and how could things go differently?
- What kind of change is needed today?
- Which is the deeper assumption that a leader should have in transit times? To what extent does this assumption influence the way he/she views the world and acts?
- Are leaders able / ready / experienced enough in listening to a different voice, speaking in a different language and synthesizing different opinions? To what

extent does their past experience help or impedes them on that? How could they collaborate with other leaders, beyond their personal conflicts?

- How do leaders emerge within a system in transit times? What are the stakeholders asking / demanding from them? How could the voiceless be reached and heard? How can trust be rebuilt within the community?
- Which are the fields to be cultivated for the critical relations to grow? Have they been yet to one? Who was / will be the gardener and who the keeper? Do those figures exist among them?

Finally, the interviewees were asked to answer four multiple-choice questions and mark their choices on templates related to the tools under development (see Figures X1.1 – X1.4), thus allowing for patterns to emerge.

The questions and templates used are the following:

- What is the deeper essence of leadership? (Fig. X1.1)
 - a) Private: a personal vision and the lonely path of responsibility,
 - b) Social: meeting people’s needs and fostering their participation or
 - c) Public: requiring lawfulness and transparency
- When does change work better? (Fig. X1.2)
 - a) Influential people support it,
 - b) People’s deeper nature is acknowledged or
 - c) Efficient mechanisms are available

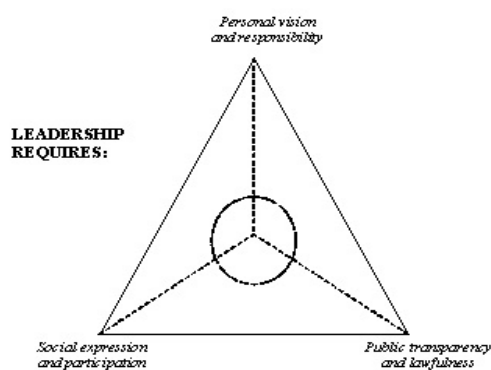


Figure A2.1: A threefold of Leadership

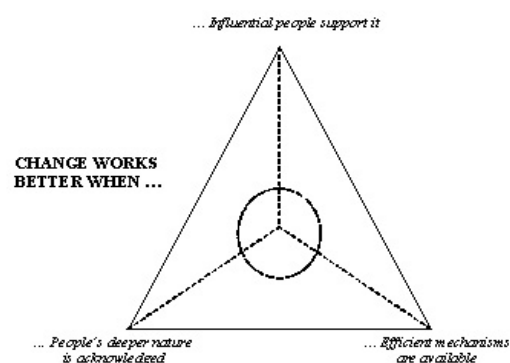


Figure A2.2: A threefold of Change

- Which are the three most crucial challenges that a change leader faces? What are they about? (Fig. X1.3)
 - a) Following the rules
 - b) Improving the system

- c) Listening to the others & providing space
 - d) Doing something for this chaos
- Which three capacities are then required? What do they have to do with? (Fig. X1.4)
- a) Practical sense
 - b) Logic and knowledge
 - c) Emotion and collectivity
 - d) Intuition and risk taking

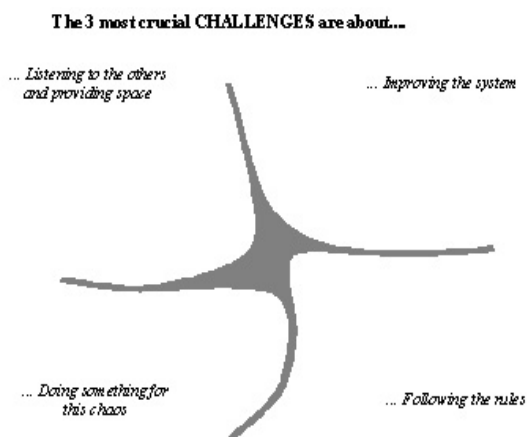


Figure A2.3: A fourfold of Challenges

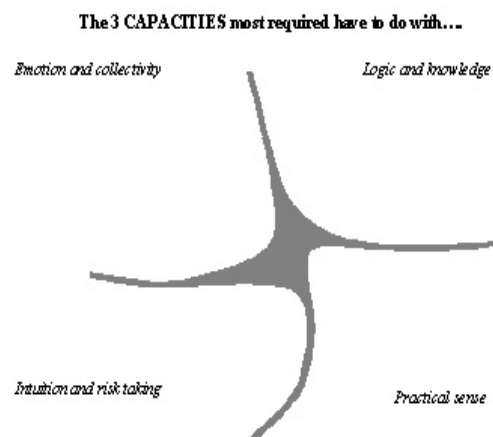


Figure A2.4: A fourfold of Capacities

Outcomes

The interviews provided the research with the following outcomes:

- Types of essential factors that impede or enable change according to different types of leadership
- Kind of missing information and skills needed for success for change leaders or agents
- Insights on the concept of maturity and ideas on the contextualization of the content of the maturity assessment.

These outcomes were then used for the design of the tool, in order to meet its users' needs.

2.2 ORGANIZATIONAL & CORPORATE CONTEXT OF THE 1ST CASE STUDY

2.2.1. Brief history of HP

Hellenic Post (ELTA) was established in 1827 and by that day was employing nearly 10,000 people and had about 800 branches and 1,000 agencies all over Greece. In 1986, the first private company entered the market of couriers, while ELTA was still a state monopoly in some postal services (ELTA, 2010). In 1998, the Greek Government decided to change its status from public service to state company and the new management started a long-term program aiming to the modernization of its dysfunctional structures and procedures. It was a slow and difficult process, full of delays, which however permitted the company to offer better services and to regain trust among its customers (ELTA, 2010; 2011).

Yet, despite the improvement, the recent quality indicators appeared stagnant or even to decline. The recent economic crisis in Greece had reduced the customers' orders and the state's big contracts and thus, the company's income had been seriously affected. This had led to downsizing and reduction of salaries, in parallel with rumors about closing or selling the company; these had increased uncertainty and affected the staff in a very negative way (KEK-ELTA, 2011).

In anticipation of operating in a fully competitive business environment from 2013, the Business Plan had set three strategic axes, the last of which referred to a human-centered business philosophy, in which the company should invest. However, this kind of strategy takes time that was not available under the existing circumstances. Therefore, Hellenic Post was interested in a) making the company's vision compatible to the staff's values and skills and b) 'transforming' mid-level staff into experienced and conscious professionals. For that, its management was interested into identifying the crucial factors that enabled or impeded the employees towards this goal and, if possible, provide an easier and safer path for this 'transformation'.

According to the Business Plan and the other corporate documents, the core values of the Hellenic Post were expressed by four words:

- i) Company
- ii) Customers
- iii) Staff/Employees
- iv) Society.

Furthermore, the most important corporate goals and priorities that had been set for the period ahead were the following:

- Development and extension of corporate activities
- Optimization of business operations
- Improvement of the quality of the provided services
- Preservation of profitability
- Better exploitation of the infrastructure
- Better utilization of the human capital
- Transparent, fair and reliable management
- Forwarding of the company's social character
- Improvement of the intra-communication system
- Provision of services all over Greece without exceptions.

2.2.2. Hellenic Post strategic and business plan's outline

Abstracts from the strategic and business plan of Hellenic Post SA as presented (in Greek) in the company's edition (April 2011) "Tachi-Enimerosi" and in a presentation of HP's Vocational Centre.

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Figure A2.5: The Action Pillars of Hellenic Post SA (Adopted from “Tachi-Enimerosi”, April 2011)

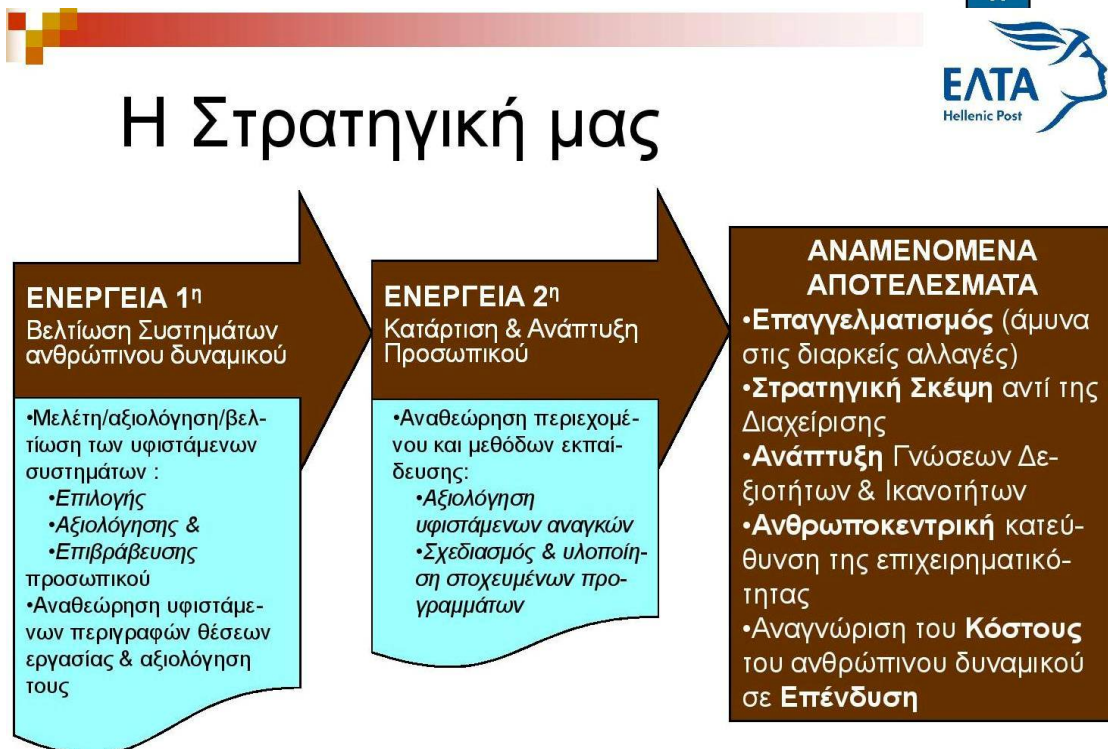
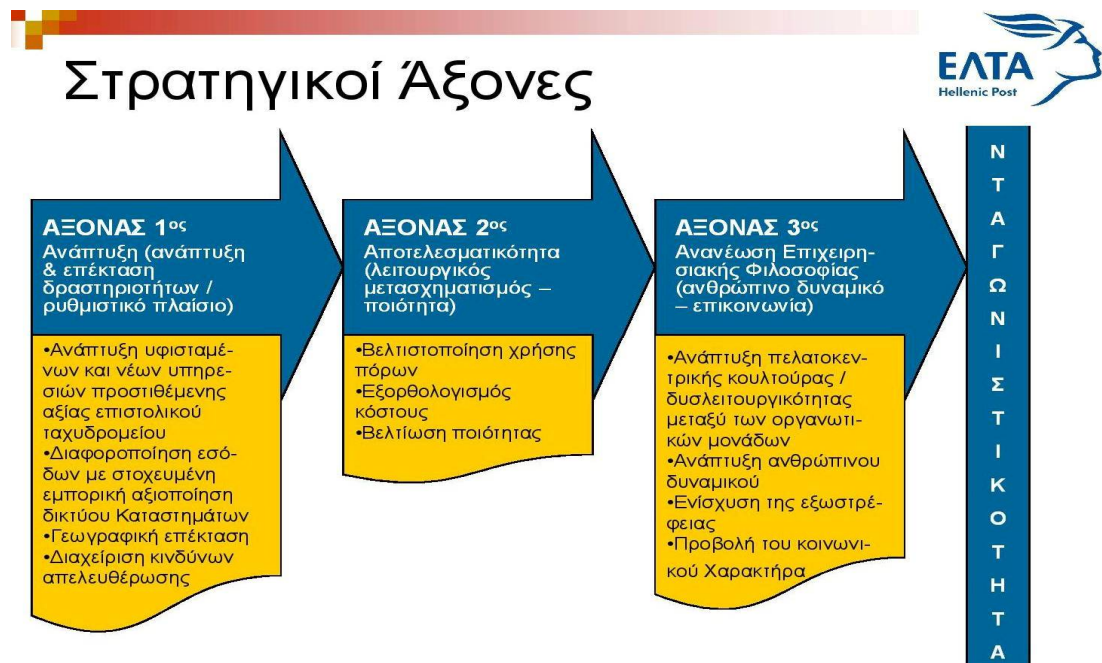


Figure A2.6: The Strategy of Hellenic Post SA (Adopted from a KEK-ELTA presentation, November 2011)

2.3 POLITICAL AND SOCIAL CONTEXT OF THE 2ND CASE STUDY

2.3.1. Introduction

The aim of data collection was to acknowledge the context of the second research test-bed through:

- Reviewing the historical and political context,
- Making sense of the social context through accessing local narrative and
- Interviewing various local key-players

These sources of information can be also viewed as corresponding to the levels that complexity and human dynamics manifest: institutions, society, teams and individuals, respectively. The aim of those research activities was: a) to gather different points of view on the major challenges that are usually encountered during a change process, b) to reveal some of the main factors and patterns that enable or impede change, c) to bring into light those vital elements that most frequently result in the failure of planned policies and d) to suggest the appropriate skills required for leading a change initiative efficiently.

The initial questions and issues to be addressed were:

- Which are the dominant and weak collective patterns of the selected local context? Which are the similarities and the differences between the archetypes of different stakeholders or power groups? Which of these patterns are compatible to the change initiative and which are not? Which are the main difficulties for narrative gathering and archetypes extraction?
- Who are the individuals personify these archetypes and how can they be found (in order to be represented in the case study)? Are their formal duties compatible to their archetypal roles? If so, how can this 'shadow' part (unexploited potential or negative aspects) be expressed and incorporated into the system?

2.3.2. Secondary research

A wide range of data was collected through evaluating:

- material from studies (conducted by research institutions on behalf of the Greek state) regarding the vision and challenges of the reform in national administration
- material from studies assessing the present status of local administration in Greece
- locally available studies on the history of the place and the evolution of demographic characteristics of the community,

- reports on the organizational structure and procedures of the administration, the existing social infrastructure and projects accomplished, and the budget of the last three years,
- lists and contact details of political parties, local public entities and civil organizations,
- election manifestos of different parties and material of various stakeholders,
- the original narrative material and the documentation of the NGO's project on public dialogue (as it will be described later).

The content of the political parties' documentation was encoded according to an official thematic index. Thus, their common priorities were mapped and at the same time the patterns for a deeper worldview were revealed, out of which the first clues for the community's archetypes came up.

In parallel with the above mentioned data collection, the researcher interviewed the project team of a community consultation program, gained access to narrative material that was collected from residents and used the method of participatory observation. The interview was with the leading team of the Greek NGO EuroNET (it is a collaborating establishment of research that had recently carried out a project on "Public Dialogue on Environment and Social Coherence") and aimed to make sense of the community's collective patterns and to share the experience gained from the consultation process. It had the form of a free and unstructured conversation and was completed in two sessions, during which, the goals, the method and the outputs of the project were discussed. The NGO team discussed the narrative-based methodology, the major obstacles they faced and the positive feedback they got back regarding the overall experience; they also gave access to the project's material.

The consultation project was focused on issues of high importance for the local authorities, since they had been assessed as critical for the local development, yet they remained unsolved for long, due to their high degree of complexity. The project methodology was based on real stories that residents would recall on those issues. About 200 narratives, captured from a representative group of the population through anecdote circles, were uploaded uncensored at an internet site and presented in local exhibitions. This material was then processed, during a half-day workshop, by its own creators and other residents, who discussed their key-elements (issues, protagonists, competencies, resources and turning points) and suggested possible ways to deal with them. Some of the patterns revealed their hidden attitudes and expectations from their leaders and co-fellows.

2.3.3. Interviews

The interviews were to be conducted with a wide spectrum of local key-players and change agents, each of whom should have had a different role and a complementary experience as well; they aimed at enabling the researcher to make sense of the intractable issues and changing priorities that exist among the community. The interviewees were selected in order to represent different perspectives and ideologies, interests and needs, ages and above all different *voices*; they were derived from the following two major categories:

- community stakeholders, representing the most vital elements of the local society that generate and form new demands and visions
- local governmental officers and consultants, representing the leverage that sets the frame for the change and then carries it out.

Interviewing community leaders and stakeholders

The first category of interviewees comprised of community stakeholders. That is to say, representatives of the municipality's board, political parties and local associations were invited to discuss issues deriving from election manifestos and local bodies' proclamations. The interviews had the form of semi-structured conversations, which were conducted either individually or in groups, according to the participants' availability and the particularities of each case (e.g. relevance of issues, personal conflicts etc). The interviewees were asked to answer the following:

- How they evaluate the current status and the work of local authority so far
- Towards what direction should this community change
- Who the *natural leaders* (influential persons) are and how they emerge
- What their most common ways of exercising power, resistance and cooperation are
- What impedes them from articulating a common language and working together
- Under what conditions they could synergize in a substantial way.

Through their answers, the stakeholders focused on issues they consider important. The interviewees were asked to verify their answers and evaluate a matrix of the potential local projects, according to their priorities, and return it within a short time.

Eleven interviews were finally conducted out of the fifteen initially planned. Four with political parties (one missed), four with neighborhood clubs (one missed), one with a non-for-profit communal enterprise (in the fields of environment, culture and sports) and two with the local parents' association and the youth council. The ones with the professionals and traders' association and the emigrants' community were not conducted, as they did not come.

Moreover, from the eleven interviewees only five returned the assessed matrix of priorities (three parties and two neighborhood clubs). The whole procedure lasted eight weeks and the findings were later presented to the local stakeholders and the public in open meetings that took place in the former municipality of Anixi.

Interviewing local governmental officers and consultants

The second category of interviewees comprised of local governmental officers and consultants and staff from all the departments and levels of the municipality of Anixi and senior consultants from the national agency for local development and government (EETAA). The interviews took place within a wider context of a national reform in the Greek public administration and a narrower, within which EETAA had designed the process and the tools for strategic planning in the Greek local government. Through these interviews it was aimed to assess:

- a) the potential gap between the ways the scope and the requirements of a strategic and action plan as understood by policy makers (EETAA officers) and implementation mechanisms (municipality staff)
- b) the maturity of the local staff to materialize such a plan properly, considering their knowledge, skills and existing procedures.

In fact, four meetings with the staff of the municipality and two separate conversations with the senior consultants of EETAA took place. The form of the first four sessions and the sense left from them varied, since the level and the extent of the organizational status of each department was different. However, these differences were not of significant importance comparing to the gap between their usual way of operation and the one the consultants of the national agency had put as a standard. Not to mention about the terminology that was often needed to be translated or explained! This was the main issue of the discussions with the EETAA consultants. It should also be noted that the municipality staff seemed to fit perfectly in the overall local context, as understood by the researcher through the residents' narratives and the stakeholders' interviews. As for the consultants of EETAA, they were too curious to learn more about how complex methods deal with intractable problems and a few months later this led them use such approaches in a pilot program for the local government.

2.3.4. Findings and conclusions

Dionysos is a small-medium sized municipality (45,000 residents) located in the northern suburbs of Athens. It was recently (2011) reestablished as the administrative merge of seven neighboring smaller municipalities and communities. During the last decades its population had been rapidly increasing and the old country-side character became a suburban one. This not only affected the outer image of the place but also the coherence of the local communities, as well as their political and administrative status. The intense change created new groups within the communities, which had different views and pursuits and through this diversity many different visions emerged, concerning the future of the area. The multi-cleavage also resulted in the lack of common ground and the latter in the lack of trust among old residents and newcomers, as well as between residents and the authorities.

This gap between old inhabitants (the “locals”) and newcomers (the “*strangers*”) proved to be of particular importance. The former perceived urbanization as an invasion, while the latter brought with them various urban habits (from which they –ironically- tried to escape) along with new standards of living and, therefore, new demands. In order to respond to that (perceived) threat and keep their political power, the ‘locals’ used family- concerted voting in the elections and controlled the outcome. The resulting mistrust aggravated the vast diversity of viewpoints, which along with the lack of spare time, led to a generalized apathy and mostly to suspiciousness towards and among the residents and the local leaders.

On the other hand, local agents and stakeholders confuse *dialogue* with *debate*, so they have doubts on the intentions and/or the outputs of the “endless dialogue”. This is related to their lack of experience in listening to a different voice (a pattern common among the Greeks), which finally leads to a state of *autism* (not listening, not being heard). Residents and many local stakeholders do not believe that a shift is possible anymore; the dragon of resignation and distrust is - perhaps- the most significant enemy of the local society and its political future.

Although contextual, most of these findings were easily recognized as truthful and able to be applied on the wider context of the Greek local government. Such estimation was confirmed through the interviews, the meetings with the public and the members of the Municipal Council, as well as by the developmental consultants.

The citizens’ and stakeholders’ demand for immediate solutions ‘here and now’, along with the technocrats’ promise that a coherent, well-specified and controlled plan could ensure those solutions, push decision makers towards action without ‘wasting time in talking or experiments’. This burden gets heavier due to the generalized mistrust towards the politicians

and the administration (both central and local), for reasons of incompetence, favoritism or even corruption. Therefore, in most of the conventional ‘community consultations’, the participants aim either to legitimize decisions (already taken) or negotiate the demands of the (strongest) stakeholders’ (based on a quantitative counterbalance).

The situation became more complex due to the recent reform in the Greek public administration, within which the former small municipalities and communities should form a new entity together. That perspective was initially perceived by the traditional key-players (mainly ‘locals’) with skepticism, as they were afraid of losing political control. Yet, as they had no other alternative, they proceeded to coalitions among themselves (Euronet, 2009; Michiotis, 2010)

The residents had great expectations for that change; they hoped that a broader planning could answer many of the existing needs in a consensus mode. However, due to the reform’s problems mentioned earlier on one hand and the leadership shortages on the other, this change had sharpened the existing problems instead of dealing with them. Most of the key-players of the new leadership and the opposition continued to operate under a narrow ‘local’ perspective, failing to see the whole picture. Moreover, their different patterns and hidden agendas, as well as their personal dislikes impeded them from synergizing in strategy planning. As a result, lack of synergy and centrifugal forces appeared in the leadership team that was elected in 2010, blocking – and sometimes paralyzing – the operation of the municipality.

Those phenomena discouraged people from participating in common affairs. The main challenges for leadership, either the existing at the time of the research or the one that would follow, were (and still are) the same: first to rebuild trust within the whole. However, beneath the conflicting attitudes and beyond the political confrontations, there were still some deeper similarities, related to their present pursuits and future visions. That was more evident in a particular social group: young residents, aged between 30 and 50 years old, with kids and high standards and expectations from the local authorities; this was the target group of the second case study. Actually, the new local leaders are not likely to emerge among the (so-called) *active citizens*; it is quite possible to emerge among others who seem indifferent or even alienated for the moment.

The conventional way to ‘see’ the community’s key-players is to relate them to their institutional role as *stakeholders*, meaning: political groups, public servants, local associations and residents and professionals. These groups are not homogeneous and possess both centripetal and centrifugal inner forces. Another way of indexing them could be according to

the *power* different individuals possess and the *role* they undertake inside the abovementioned groups. Thus, one could discern *leaders*, skilled and influential *fellows*, demanding *followers* and voiceless and waiting *outsiders* that could be opportunity or threat. However, only when one makes sense of the different *inner* voices within stakeholders and roles, could synthesize; such voices constitute *archetypal figures* with both positive and negative characteristics, such as:

- *The Pragmatists*, who make things run but sometimes manipulate power or become arrogant.
- *The Criticizers*, who indicate deficiencies but sometimes turn to persecutors or even demagogues.
- *The Active citizens*, who care, participate and support but eventually end up being the ‘usual suspects’ in every event.
- *The Silent majority*, who accept and take advantage of everything good but like to comment or demand from their couch.
- *The Frustrated*, who are disappointed from the past and wait something from outside or above to ignite their hidden and unexploited potential.
- *The Young folks*, who wish things to change and have the momentum for this but lack the contextual knowledge.
- *The Elders*, who possess experience from distance (both spatial and temporal) but also know how to impede things from rolling.

Last but not least, is perhaps the most interesting finding of the research: a threefold (*private - public - communal*) that initially emerged during the public consultation project but became meaningful later, during the interviews. According to the researcher, *private* corresponds to the personal vision / property and the lonely path for achieving / defending it; *public* corresponds to the impersonal law and others’ obligation against it; and *communal* corresponds to the co-creation of meaning through daily life activities that surpass meaningless formalities and lead to the creation of new frames. The researcher thinks that the acceptance of the significance of all three poles can lead to trust, loyalty and synergy. It could also resolve dilemmas like ‘control vs. autonomy’, ‘hierarchy vs. emergence’, ‘bureaucracy vs. complexity’ etc, through the third pole (e.g. cooperation, participation etc).

2.4 THE WIDER CONTEXT OF THE 3RD CASE STUDY

2.4.1. Entrepreneurship education in EU and Greece

In 2003, seeking a coordinated approach for the implementation of a more effective policy, the European Union drew up the "Green Bible for Entrepreneurship in Europe", which, following public debate, resulted in a package of measures comprising, among others, of:

- The training, support and guidance of mainly young business people, as a condition for providing adequate knowledge and skills for the management of their businesses;
- The connection between education and entrepreneurship through: the curricula of schools and universities, meetings with local entrepreneurs, scholarships, graduate programs, distance learning programs, teacher training, counseling networks, knowledge databanks, virtual enterprises games and small cooperatives of pupils / students.

In secondary education, more than half of the EU the countries have explicitly incorporated entrepreneurship in their curricula, as part of their compulsory courses teaching such as economics, business organization and administration and social sciences. In two countries it constitutes separate compulsory subject, while four countries provide teaching entrepreneurial skills practice. In Greece, entrepreneurial teaching is explicitly mentioned in the official curriculum of high school and is integrated in the course of Business Administration, which is optional.

Entrepreneurship education in Greece, is part of the overall strategy for lifelong learning. As in most European countries, the teaching of entrepreneurship, is not coordinated through a national framework of guidelines, but is left to the initiative of teachers, schools and the Boards of Education. More generally, the national curriculum that applies to various school levels is not explicitly referring to entrepreneurship education, with the exception of high school curriculum. Teaching entrepreneurship in high school does not constitute a distinct course, but is incorporated in the course of Business Administration, which is a required course for those who have a technological orientation. Regarding to the content of teaching, it is observed that the focus lies in the transmission of knowledge and less in the cultivation of those qualities and skills that usually characterize successful business models (Eurydice, 2012).

In Greece, entrepreneurship education programs started in the context of the second European Funding Scheme, in 1998 in Sivitanidios Technical School, with a package of complementary actions, which included practical training in enterprises, educational visits to university laboratories, operation of an Interface Unit with the labor market and the *Virtual*

Enterprises, a pilot project which was evaluated as best practice at European level and later on was implemented in many other schools.

Since then, entrepreneurship education had several actions to demonstrate, including students' education programs in entrepreneurship, training teachers, production of educational material, personal empowerment plans, creation of a dedicated help-desk for entrepreneurship, visits to companies and business representatives, practical training in enterprises, teacher and consultants training, prizes awards, other support actions etc.

According to some assessments (Antypas et al, 2012; Karanassios et al, 2006; Brinia, 2013; Valvi and Fragos, 2009) of these programs, the following conclusions emerged:

- There is a need to develop competencies and skills and not just knowledge. The application of experiential education methods is required for the cultivation of emotional intelligence, entrepreneurship spirit and its relevant culture;
- Entrepreneurship education does not run out with the knowledge for the establishment and development of an enterprise. This is about a different way of life, which requires first and foremost change of thinking among teachers;
- There is insufficient training for teachers on how to introduce the concept of entrepreneurship and the current lack of systematic plans may act as an obstacle.

The acceptance of entrepreneurship by young Greeks is still in the foundation, due to the some obstacles that are restricting the development of entrepreneurship in Greece. Among these barriers some of the most important are: a) the estimation of the scarcity of business opportunities, b) the fear of failure, c) the incompetency of the educational system and d) the ambivalent attitude of Greek society towards entrepreneurship (Brinia, 2013; Valvi and Fragos, 2009).

Moreover, two of the major weaknesses that were detected on a strategic level concerned a) the design of the programs under a single and unilateral perspective and b) their non reliable implementation in terms of non-distortion of their scope and spirit. Both were relevant to the non-understanding or non-attribution of importance to the differences of perceptions that exist among the designers of the projects, the teachers who coordinate them and the pupils - protagonists, but also of their fundamental practices, perceptions and values.

In this direction, the results of the entire research project could be of great help for the design of the new forthcoming programs. Actually, as some reports suggested, a research aiming at the understanding of cultural influences on entrepreneurship and the assessment of the disposition, knowledge and expectations of the young people towards it, would be useful.

APPENDIX 3:

REPORTS ON THE INITIAL TESTING OF THE TOOL

3.1. OVERVIEW

3.2. THE RESULTS OF THE 1ST TRIAL (Athens, 2009)

3.3. THE RESULTS OF THE 2ND TRIAL (Southampton, 2010)

3.4. THE RESULTS OF THE 3RD TRIAL (Athens, 2010)

3.5. THE RESULTS OF THE 4TH TRIAL – PILOT TEST (Athens, 2010)

3.6. INDICATIVE DATA TABLES FOR DATA ORGANIZATION (Tool – Prototype)

3.1 OVERVIEW

During the last two years, the methodological tool has been tested several times, each of which aimed to a different goal. Initially, some early and partial versions of the model and the process were tested in different settings. Based on the feedback received, a toy-prototype was constructed and used in the pilot test. More specifically:

- a) The first test took place in Athens, in June 2009 at the venue of the IST College, within the frame of a workshop on innovation and entrepreneurship, which was addressed to the college students. The 30 Greek management students who joined the test formed 6 groups. The test aimed to check how meaningful the main concept of the model was (archetypes + geometry) and how functional the initial steps of the capacity assessment process were. It also aimed to deliver some initial results, based on which the assessment criteria could be further developed. The 12 elements were expressed through phrases contextually ‘translated’, aided by a tutor of the college.
- b) The second test was carried out in Southampton, in July 2010, within the frame of an int’l workshop on “Complexity and Real World Applications” (organized by Emergent Publications). The 20 participants, who were of an academic, research and consulting background, formed 3 groups on the basis of their own choice. The test aimed to check the meaningfulness of archetypal imagery (indicating status or potential), which can be used where contextualization is not easy or feasible. The 12 elements of the model were expressed through archetypal images representing the natural elements.
- c) The third test took place in Athens, in September 2010, at the venue of the National Centre for Public Administration and Local Government of Greece, within the frame of a seminar on change management addressed to public officers; the 20 participants formed 4 groups. The test aimed to contextualize the content of the 12 archetypal situations, which by that time were thought to be related to the stages of maturity and the lessons learned; however, this idea was modified later.
- d) Finally, the pilot test was carried out in Athens, between February and March 2011, at the venue of Harokopion University, within a five-session workshop on organizational culture and change (organized by the Greek Chamber of Management Officers and a consulting company). The whole workshop was planned to last 5 weeks due to the limited availability of the participants and for providing time to them on reflecting and submitting small essays; which did not happen. On the other hand, the test was planned to be conducted in two separate days; capacity assessment on day-2 and maturity assessment on day-4. The 10

medium and high-ranked civil officers who concluded the workshop formed 2 groups, according to the object of their occupation. The pilot aimed to test how functional the prepared criteria for the capacity assessment were and to develop more the concept of the maturity assessment. It also aimed to check how functional could be breaking the process in two parts.

- e) Two indicative examples of such archetypal content that was used in the tests of the tool are presented in the following Tables A3.1a and A3.1b:

4fold / 3fold	Action, impulse	State, inertia	Relation, balance
Intuitive, spontaneous	Impulsive intuition (<i>Erupting volcano</i>)	Sustaining energy (<i>Burning sun</i>)	Changing direction (<i>Bonfire</i>)
Sensation-based, practical	Impulsive sensations (<i>Mountain's peak</i>)	Practical stability (<i>Open plain</i>)	Balancing senses (<i>Misty forest path</i>)
Mental, conceptual	Impulsive thoughts (<i>Tornado</i>)	Sustainable thoughts / plans (<i>Windmill whirling</i>)	Unsettling mentality (<i>Wheat bowing</i>)
Emotional, motivational	Emotional impulse (<i>Waterfall</i>)	Inertial emotions (<i>Still lake</i>)	Transformative emotions (<i>Breaking wave/Open sea</i>)

Table A3.1a: A 3X4 matrix of potential (aiming to reveal values and qualities)

Element	Archetypal situations / stages (<i>phrases</i>)
1	Initiation (<i>I want things to change</i>)
2	Formation (<i>I shape new abstract notions</i>)
3	Communication (<i>I exchange thoughts and ideas</i>)
4	Breeding (<i>I carefully develop some of them</i>)
5	Establishment (<i>I want to implement and extend them</i>)
6	Support (<i>I analyze data & document pathways</i>)
7	Balance (<i>I try to make the opposites synergize</i>)
8	Experience (<i>I transform experience into conscious re-orientation</i>)
9	Targeting (<i>I take targeted actions</i>)
10	Organization (<i>I systematically apply the knowledge obtained</i>)
11	Contestation (<i>I question & revision old knowledge</i>)
12	Transcendence (<i>I transcend conflict being at service</i>)

Table A3.1b: A list of archetypal situations (aiming to reveal skills)

In the following paragraphs, the reports elaborated at that time are presented; they include indicative data tables, graphs, results and findings of each test, along with an overall discussion and some initial conclusions.

3.2 THE RESULTS OF THE 1ST TRIAL (Athens, 2009)

The archetypal phrases used along with the sum of the qualities attributed to them by the participants are presented in Table A3.2.

Element	Contextualized archetypal phrases	Sum of qualities attributed by the participants
1	A sudden thunder strikes	Fear; powerful light; power; shinning; fear; shinning; sudden; noisy; charged atmosphere; love; destruction; fear; target; danger; confusion; storm; awakening; surprise; lethal; charged; unexpected; change; fear; strong
2	Cultivation of a fruitful plain	Prosperity; knowledge; learning; exploit capabilities; receptive; life; job; fruit; beauty; flowers; satisfaction; evolution; development; patience; education; needs; fertile; tranquility
3	An ever changing wind	Personal progress; indecision; fear of responsibilities; soft; cool; determination; adaptability; variability; changes; sea breeze; wind; boat; sea; end of summer; interesting; lively; unknown; exciting; indecision; undetermined
4	A turbulent river of uprising	Fear; state of panic; anger; indignant; determination; exciting; dangerous; effort; fury; suppression; fear; power; adventure; water; lifejacket; wave; energy; power; hate; agitation; stubbornness; nerves
5	An inextinguishable extending fire	Fear; panic; rush; revolt; uncertainty; anxiety; inevitable; horror; waiting; shinning; vanguard; solution; change; unsolved problem; influence; dangerous; consequence; fear; sos; knowledge; danger; destruction; dangerous; hot; continuity; vastness; decrease; dead end
6	A careful route into a steep valley	Path towards target; shaped targets; evolution of life; planning; fear; stress; concentration
7	A vortex of scientific discoveries	Innovation; solution; social development; modern life's trend; evolution; vision; admire; beautiful; Silberstein; change; new continent
8	A lake of social traditions	Traditions; habits; family; prejudice; loyalty; disagreement; resistance; conservative
9	A torch indicating the target	Guidance; persistence; concentration; focus; glimmering; enlightening; facilitating; decision; passion; overcoming fears; guidance; hope for success
10	A ride to the top of the mountain	Risk; collaboration; objective; stubbornness; polarity; hope; danger; enforcement; knowledge; will; planning; endurance; patience; survival; satisfaction; success; difficult path; dangerous; interesting; peak; exciting; conquest; mastery; patience; strength; effort; pathway; will; continuous struggle for the objective; stability; attempt; target; hard work; courage; stubbornness;
11	A strong wind sculpting solutions	Raciness; creation; initiative; new ideas; inspiration; thoughts; spark; experience; leadership
12	A big storm changing lives	Imposition; discussion; interaction; mass hysteria; dialogue; discussion; creation

Table A3.1: Contextualized archetypal content and qualities emerged (1st test, Greece, 2009)

The distribution of the participants' choices around the elements is shown in Figure A3.1 and their 4fold and 3fold classification in Figures A3.2a and A3.2b.

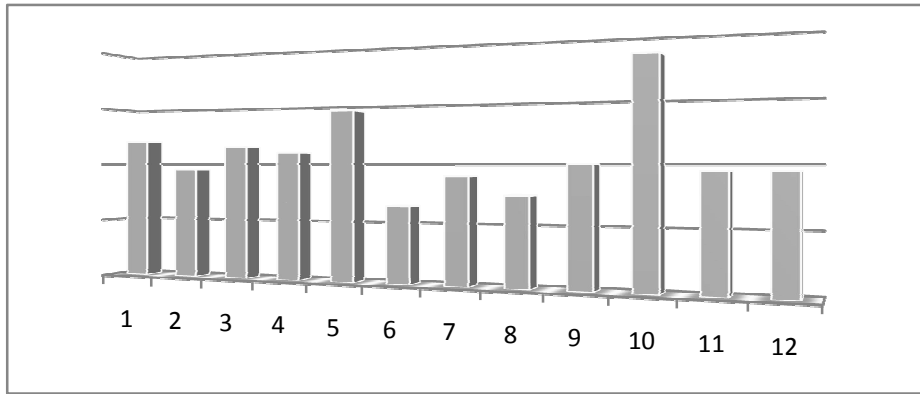


Figure A3.1: Average distribution of total choices made around the elements (1st test, Greece, 2009)

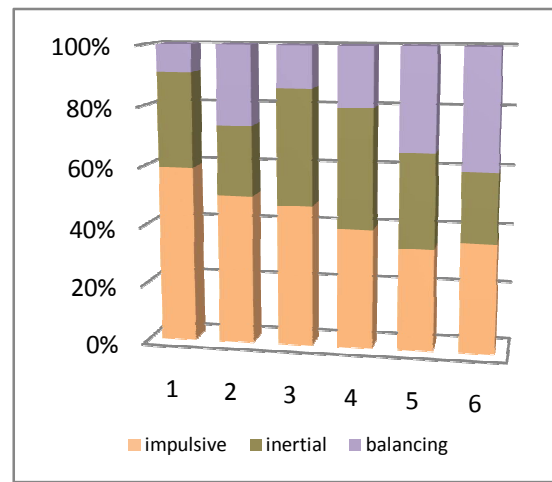
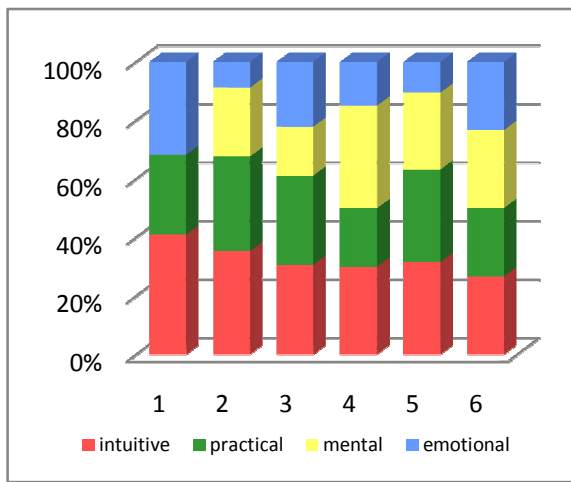


Figure A3.2a: 4fold and 3fold classification of choices made by each group (1st test, Greece, 2009)

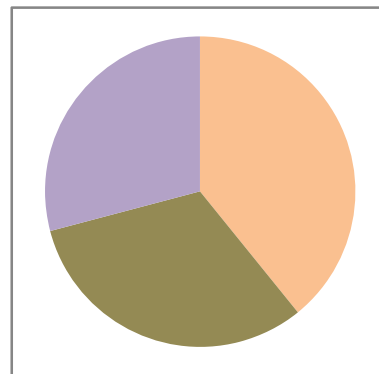
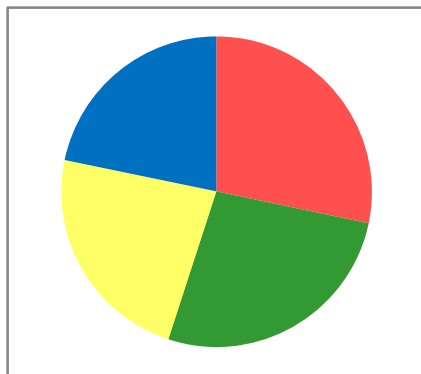


Figure A3.2b: Overall 4fold and 3fold classification of choices made by all groups (1st test, Greece, 2009)

The fundamental relationships that were created from the qualities that emerged are presented in Table A3.4. It should be noted that in that test the participants were asked to name only the triangles, not the archetypes. Moreover, the overall pattern from overlapping those relations, along with some basic analytics are presented in Figure A3.3 and Tables A3.3a,b respectively.

Elements	Qualities identified (from real world) & related	Label of the 'triangle'
1 – 2 – 5	Surprise – beauty - hot	(name of a Greek actress)
1 – 3 – 6	(?????) – indecision – fear/stress	(non specified)
1 – 4 – 7	Charged atmosphere – determination - social development	Martin Luther King
1 – 4 – 9	(non specified)	Batman
1 – 5 – 8	(non specified)	Hitler
1 – 5 – 9	Lethal – destruction - glimmering	Death (nickname of a teacher)
1 – 5 – 10	Fear – fear - danger	Hades
1 – 5 – 10	Love – fear - success	My name is Sam
1 – 6 – 8	Fear – Path towards targets - family	Ulysses
1 – 8 – 10	Fear – loyalty – continuous struggle	(name of a Greek TV persona)
2 – 3 – 4	Beauty – sea breeze - wave	(name of a Greek singer)
2 – 4 - 11	Knowledge – effort - inspiration	Da Vinci
2 – 6 – 10	(non specified)	Gandhi
2 – 7 – 8	Fertile – Silberstein - loyalty	(non specified)
3 – 4 – 10	Determination – adventure – courage	Lost
3 – 9 – 10	Personal progress – persistence - objective	Bill Gates
4 – 7 – 12	(non specified)	Mother Nature
4 – 8 – 12	Imposition – habits - state of panic	Batman
5 – 7 – 11	Problem solution – innovation - creation	Fleming

Table A3.2: Triangles of fundamental relationships between the emerged qualities (1st test, Greece, 2009)

Element	No of times selected / No of choices attracted	No of times connected (related) with others	No of other nodes (elements) related with
1	24	10	9
4	22	7	9
5	28	5	6
10	35	6	6

Table A3.3: Centrality and density of most influential elements (1st test, Greece, 2009)

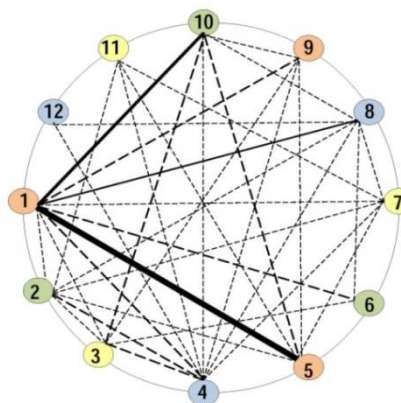


Figure A3.3: Overall pattern of connections (1st test, Greece, 2009)

The results were very helpful, especially regarding the concept of the model and the assessment criteria. No particular problem occurred during the process and the students had no problem to participate in the test; in fact they found it very interesting and different comparing to their mainstream education. Moreover, the facts that for each node different interpretations emerged and that the same interpretation was encountered in different nodes seem to verify the complex character of the process. Some of the findings of the test are the following:

- Within the community of the young college students, the most repeated word (quality) was the word '*fear*'; it was encountered 11 times on 6 different nodes and 6 times as part of 5 triangles, in 4 of which was associated with the 1st node. This finding might be significant, referring either to the specific group or to the College itself. Although this clue should be checked again with more groups of students, it seems that 'fear' is a central quality in this establishment, at least as perceived by its customers.
- The students seemed to be intuitive (spontaneous) and practical rather than mental or emotional. Moreover, they appeared to be impulse-driven (wanting to make their statement) instead of balancing their issues (transforming their problems).
- The node that attracted most of the participants' choices (No 10) was not the one with the higher connectivity (No 1). This could be reframed like this: the most 'present' (identified) element in a system is not necessarily its 'center' (its most accessible part or channel).
- The stronger relations were identified between the nodes No 1, 5 and 10 (1-5: 4 times, 1-10: 3 times and 5-10: 2 times), even if the interpretations given to those nodes were not always the same. This gave birth to the idea of considering the connections of high density as possibly outlining a complex of attraction; however, this should be verified by more runs of the test with different stimuli.

3.3 THE RESULTS OF THE 2nd TRIAL (Southampton, 2010)

The archetypal images used in this test are presented in the Table X2.4 and the 4fold and 3fold classification of the participants' choices in Figures A3.4a and A3.4b. The 12 elements of the model were expressed through archetypal images representing the natural elements; actually, they were visualizing the content of the previous trial. The images were presented to the groups by the aid of a projector; one after the other and then all together, without any explanations.


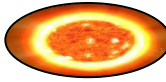










4fold \ 3fold	Action, impulse	State, inertia	Relation, balance
Intuitive, spontaneous	<i>Erupting volcano</i> 	<i>Burning sun</i> 	<i>Flaming match</i> 
Sensation-based, practical	<i>Mountain peak</i> 	<i>Open plain</i> 	<i>Misty forest path</i> 
Mental, conceptual	<i>Tornado</i> 	<i>Windmills</i> 	<i>Wheat bowing by the wind</i> 
Emotional, motivational	<i>Waterfall</i> 	<i>Still lake</i> 	<i>Open sea wave</i> 

Table A3.4: Archetypal imagery used related to the 4fold / 3fold concept (2nd test, UK, 2010)

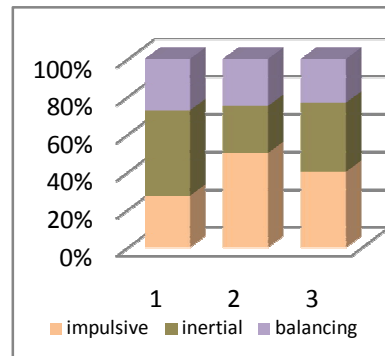
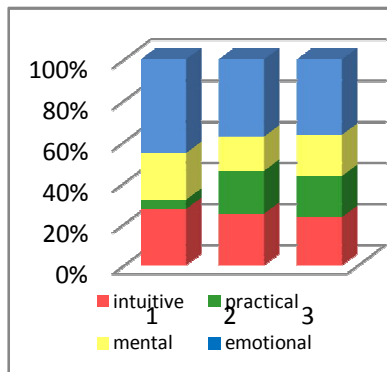


Figure A3.4a: 4fold and 3fold classification of choices made by each group (2nd test, UK, 2010)

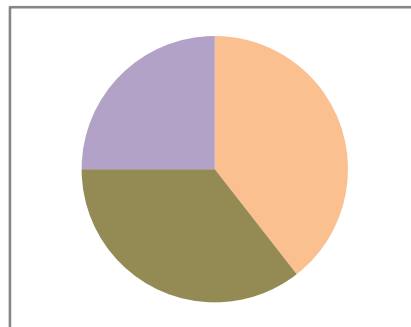
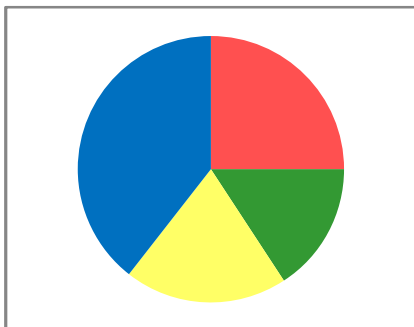


Figure A3.4b: Overall 4fold and 3fold classification of choices made by all groups (2nd test, UK, 2010)

The participants were told that the context of the 'exercise' was an international Research Institute that was in the phase of establishment and was facing challenges regarding its identity. Then they were asked to choose up to 4 images that attracted, blocked or made particular sense to them within the given context, express their choices in terms of feelings or qualities / skills needed and write them down around the dodecagon. Then, they were asked to reflect and discuss (within their) group on the collective pattern that emerged from their choices in terms of the 12fold and the 3fold and 4fold classifications.

Due to limited time available, the process comprised only the first stage (emergence of the qualities). Most of the participants eventually engaged in the process, although some of them initially insisted for a detailed description of the model.

Some interesting findings of that workshop, the results of which are available at the Appendix, were the following: these participants (intellectual and mature experts) appeared to be more reactive to emotional issues rather than to mental; some of them paid more attention to their intuition rather than to practical issues; and they were 'split' between impulse and inertia. One participant commented that it could make sense if considering that the specific academics and consultants were there to explore a rather new theory (complexity) and possibly defend it against a rather inertial world of logic and practical results.

Furthermore, the members of one group thought of me interpreting their results as attempting to impose meaning to them and so they resigned from the process. In this way, some blind spots regarding my skills and attitude as a facilitator that existed at the moment were also revealed, especially when addressing a team with high self-esteem or of high-hierarchical position. In such cases, as a participant advised later, a helpful technique is to pay attention to the subtle and guide carefully with gentle moves.

Nevertheless, the results of the test argued in favor of the influence and effectiveness of such imagery, especially when the target group consists of largely unrelated people.

3.4 THE RESULTS OF THE 3rd TRIAL (Athens, 2010)

In that test the participants were given the list of archetypal situations (stages) (Table A3.1b) and were asked to identify up to 3 that seemed already familiar and 3 more that seemed rather impossible to encounter in their work environment. For each situation, they had to indicate the knowledge obtained (which by that time was mentioned as ‘lesson learned’) and the skill employed for the former (the familiar), as well as the obstacles for the latter. The distribution of their choices across the 12 stages is given in Figure A3.5.

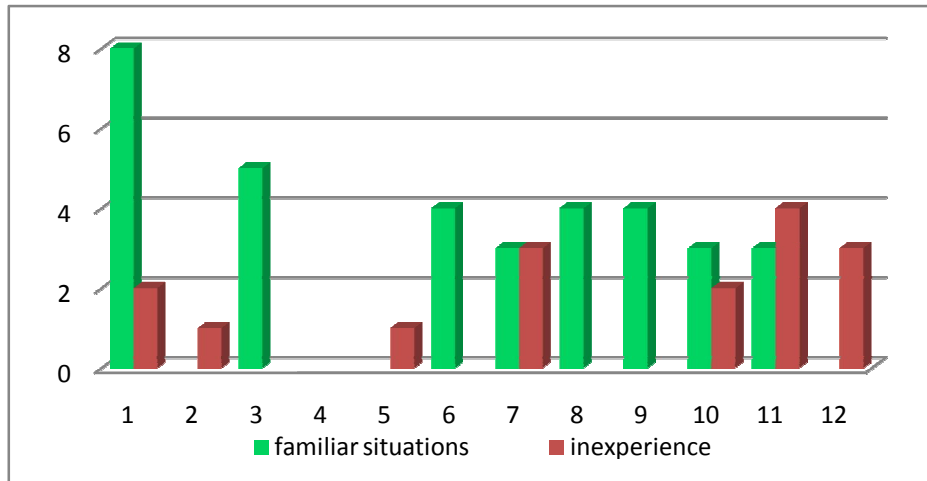


Figure A3.5: Distribution of choices among stages (3rd test, Athens, 2010)

An indicative example of the provided answers regarding the knowledge obtained is presented in Table A3.5; it refers to the first stage of the impulse for something new. For those who know the context of the Greek Public Sector (and of the Greek society as well) these phrases make a lot of sense. For those who don't, they are a good way to understand how the Greeks perceive and stand in front of initiation.

Archetypal stage	Knowledge gained from it
<p>Impulse <i>(I want things to change)</i></p>	<ul style="list-style-type: none"> + It is so difficult to change things; people are used to them + At first, we all seek for something new but this causes tension and conflict; we have to put our ego aside + Most people seek for something new but they lack courage; they need something to attract them through the threshold + It is way too difficult and hard to change things, for synergy is needed and personal cost + It is like judging between the pain from staying the same and the one from changing + When functioning impulsively and with egoism the problem gets bigger + I need to make the first move and be patient, for change needs time + If you don't try on your own, things never improve + I have to change first

Table A3.5: Contextual interpretations (knowledge gained) of the 1st archetypal stage (3rd test, Athens, 2010)

The results of this test were of help regarding the correspondence of the lessons learned / yet to be learned (as they were referred by that time) to the fields / gaps of collective experience. Moreover, though the ‘lessons learned’ that the participants identified, some of the most characteristic patterns of the Greek public sector (and the Greek society as well) were revealed. Later, this point led to the idea that a lesson learned exceeds a particular phrase or situation; it is rather a pattern that embraces some of them and creates a higher order meaning.

It seems that the impulse for change is the most selected (influential) stage among the public officers who participated in the third pilot; this is a common truth for those who know the context of the Greek Public Administration. However, the absence of ‘lessons learned’ regarding the next step, which is the ability of formatting this impulse, is very revealing. It functions like an obstacle and the initial desire for change seems to get stuck. Moreover, the ‘irregularity’ of experience on the following stages is interesting too; it reveals a landscape of fragmented knowledge (“I know this well”, “I don’t know that at all”), like isolated islands within a turbulent sea of contradictions. For example, communication appears to be a strong point but maybe useless, if there is no experience on the development and establishment of what is communicated. Being meaningful for the participants, it can help them see the whole picture, as well as some of their own blind spots.

3.5 THE RESULTS OF THE 4th TRIAL – PILOT TEST (Athens, 2010)

Preparatory actions

One week before the workshop, the participants were asked to fill a questionnaire. They were given a list of phrases (Table A3.6) and asked to rank (1-10) the extent to which those phrases corresponded, according to their opinion, to the existing or a desired spirit and atmosphere in their work.

No	Org'l spirit and work atmosphere	No	Org'l spirit and work atmosphere
1	Enthusiasm, will and lead for something new	7	Reconciliation of opposites, reinstating a sense of justice
2	Stability, persistence and preservation of what exists	8	Dilemmas and conflicts through black-and-white choices
3	Dialogue and communication for exchanging ideas	9	Focusing on targets, ambition and learning
4	Emotional care and protection, groundwork	10	Hierarchical organization, accession and recognition
5	Determination, leadership, creativity, establishment	11	Question and review of established status, innovation
6	Patient data collection and analysis, obsession with details	12	Forgiveness, loyalty, service, breaking through conflicts

Table A3.6: Questionnaire given before the assessment (pilot test, Athens, 2011)

A simple statistical process of the answers revealed the existence of significant differences between the opinions and expectations of the participants, while the average of their assessments, especially for the present state, was more or less flat with no special priorities. Regarding this flatness, there were two exceptions that appeared in the desired future: their wish for less stability / preservation and for less conflicts (Figures A3.6a, A3.6b).

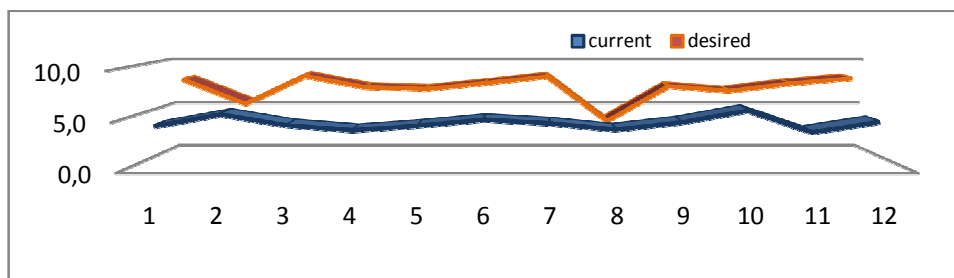


Figure A3.6a: Average of the answers given to the questionnaire (pilot test, Athens, 2011)

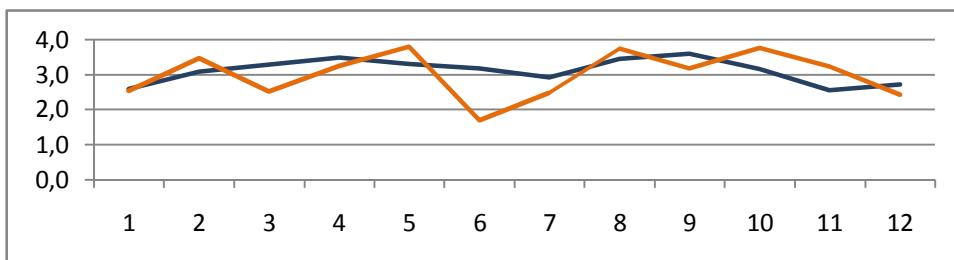


Figure A3.6b: standard deviation of the answers given to the questionnaire (pilot test, Athens, 2011)

3.5.1. Capacity assessment

Based on the specific object of their work, the participants were organized in two groups. Group-A consisted of officers engaged into management and back-office duties (i.e. financial audit, project planning and monitoring, control procedures etc), while Group-B consisted of front-liners serving customers or dealing with issues such as public relations, social care etc. It should be reminded that in this pilot the capacity assessment process remained based on the use of the 12 archetypal images only, seeking for values, qualities and obstacles; but no skills. The imagery used (Table A3.7) resembles the one used in the 2nd test and was given to the participants accompanied by some open-end phrases. Some guidelines were also given to them in order to proceed with Step 1 (Table A3.8).













Element / Character	Archetypal images and accompanying phrases	
1. Impulsive intuition		Erupting volcano <i>A sudden strike of a thunder on</i>
2. Practicality & sustainability		Open plain <i>The cultivation of a fruitful area of</i>
3. Balancing mentality		Wheat bowing <i>An ever changing wind of</i>
4. Emotional impulse		Waterfall <i>A turbulent river of</i>
5. Sustaining energy		Burning sun <i>An inextinguishable fire providing the energy for ...</i>
6. Balancing senses		Misty forest path <i>Entering carefully into an unknown landscape of ...</i>
7. Impulsive thoughts		Tornado <i>A vortex of discoveries</i>
8. Inertial emotions		Still lake <i>The stillness of tradition</i>
9. Changing target		Bonfire <i>A torch towards the target of ...</i>
10. Impulsive sensations		Mountain's peak <i>A ride to the top of ...</i>
11. Sustainable thoughts & plans		Windmill whirling <i>A steady and strong wind sculpting solutions for ...</i>
12. Changing emotions		Breaking wave (open sea) <i>A big wave changing lives ...</i>

Table A3.7: Imagery used in the capacity assessment process (pilot test, Athens, 2011)

Guiding questions given to the participants	
a)	Choose 1 or 2 images that in your opinion depict the current organizational reality. Which are their main characteristics? Express them in terms of dominant values or qualities (no more than four) or a meaningful phrase. Make a post-it for each image and place it close to it.
b)	Which image represents the future that you would desire for your organization? Again, express its dominant qualities on a post-it (of a different color) and place it close to that image.
c)	Which is the main obstacle for such a change? Write on a paper the obstacle of the transition between the specific present and future images.

Table A3.8: Guidelines given for Step 1 of the capacity assessment process (pilot test, Athens, 2011)

The properties that emerged from this step are presented in the following tables and figures.

Element	Group-A qualities		Group-B qualities	
	Present state (existing)	Desired future (in-potentia)	Present state (existing)	Desired future (in-potentia)
1	Explosion; Conflict; Fluidity; Self-destruction; Creation; Performance; Trust; Management; Blast	Innovation; Determination	Creativity; Ambition; Prestige	
2		Performance; Order; Result; Programming	Fertile ideas; Appropriate ground; Justification; Efficiency	Creativity; Inspiration; Meritocracy; Stability
3	Units-groups; Dominant units; External influence; Closed system		Flexibility; Information flow; Chance factor; Collective tendency	
4	The system breaks you if you don't know / accept it; Struggle to survive within the system			High mobility; Meeting; Material density; Innovation
5		Perpetual motion; Innovation; Flexibility; Problem solving; Lightness; Warmth; Life giving; Creativity	Stability; Effusion; Danger; Power	Lightness; Heat; Motion; Stability; Power; Duration; Volume; Stability
6			Discoveries; Interest; Beauty; Aesthetics	
7	Control; Complexity; Non predictability; Nepotism			
8			Stability; Calmness; Safety	
9				
10	Ambition; Fuzzy targets; Exhausting ascension; Vanity			
11	Stability; Maintaining the existing situation; Attachment (dedication)		Sanity; Motion; Stability; Peacefulness; Creativity; Satisfaction; Unselfishness; Duration; Motivation; Energy; Control of power	
12		Change; Purification; Consensus; Agreement		Persistence; Intervention
total	26	18	33	18

Table A3.9: Qualities emerged (pilot test, Athens, 2011)

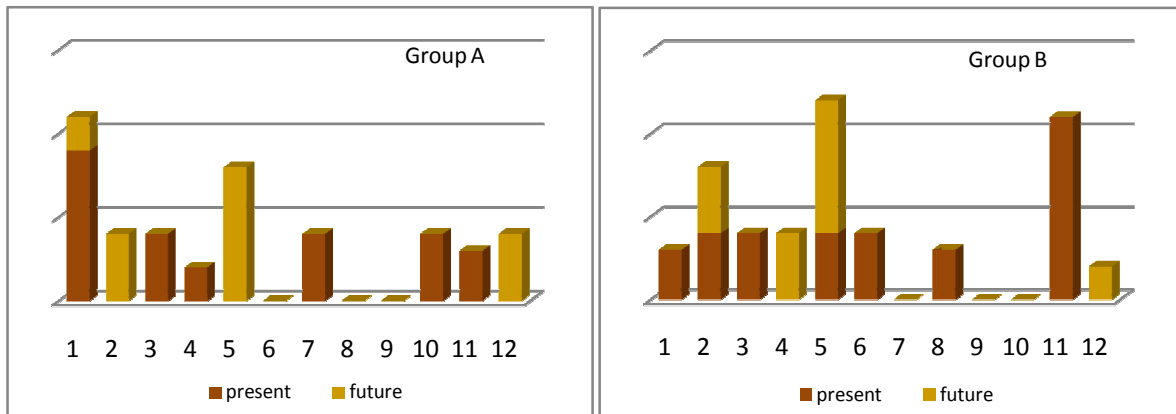
From / to		Obstacles	Group
1	2	Fuzziness	A
3	5	Absence of collectivity	A
7	12	Fear of change	A
10	5	Culture	A
11	1	Leadership	A

From / to		Obstacles	Group
1	2	Organization	B
3	4	Material change	B
5	5	Adjustment	B
6	5	Inertia	B
8	12	Absence of goals / identity	B

Table A3.10: Obstacles between current reality perceptions and desired futures (pilot test, Athens, 2011)

The analysis of the above data gave the following results that refer to:

- Element-based distributions of qualities and obstacles emerged
- 4fold / 3fold and present / future classifications of the qualities emerged



Figures A3.7a – A3.7b: Element-based distribution of qualities emerged per group (pilot test, Athens, 2011)

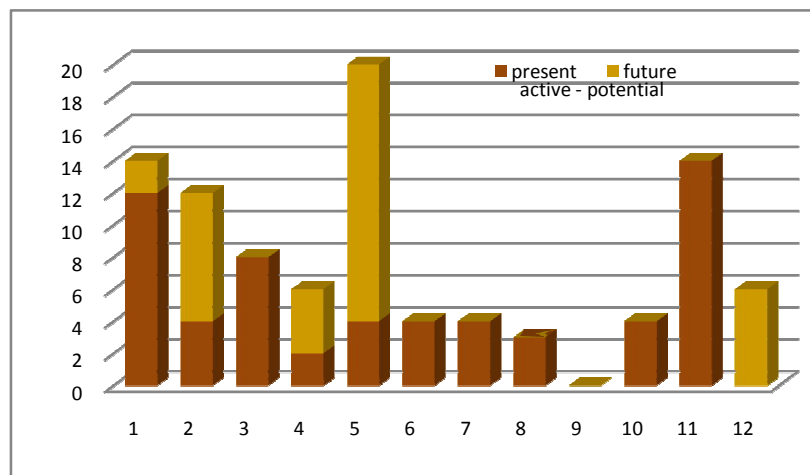
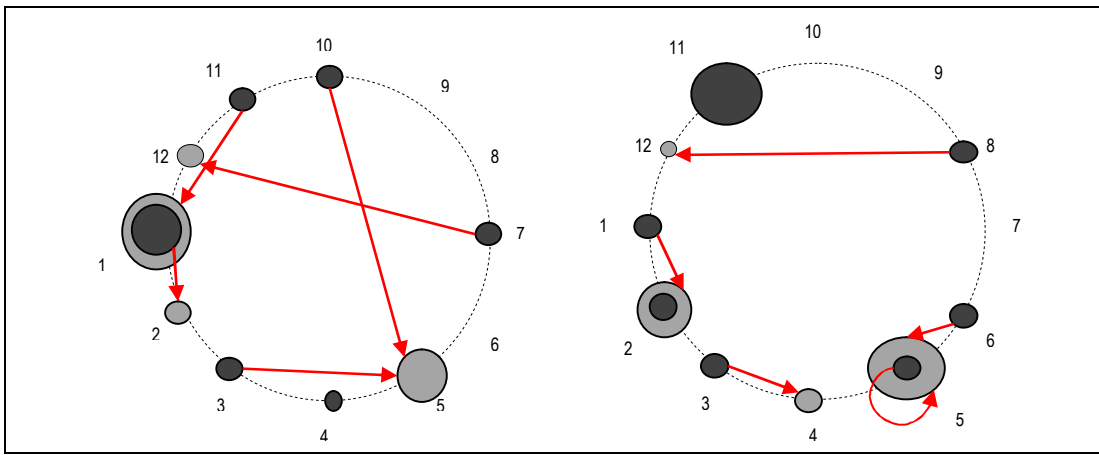
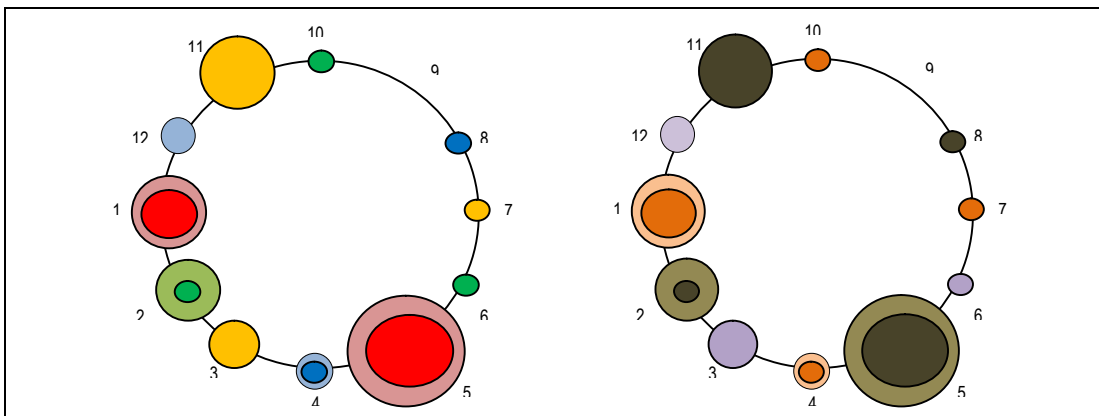


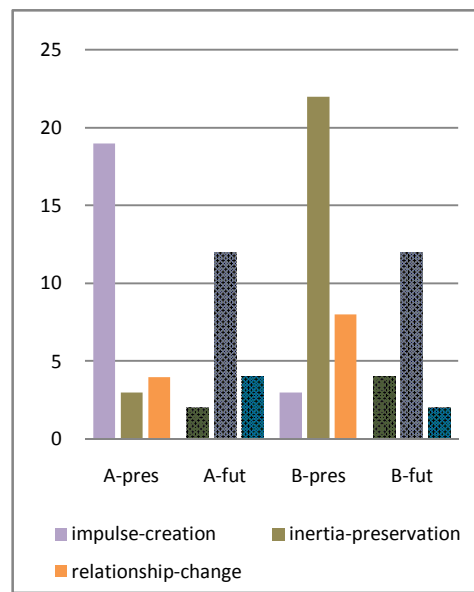
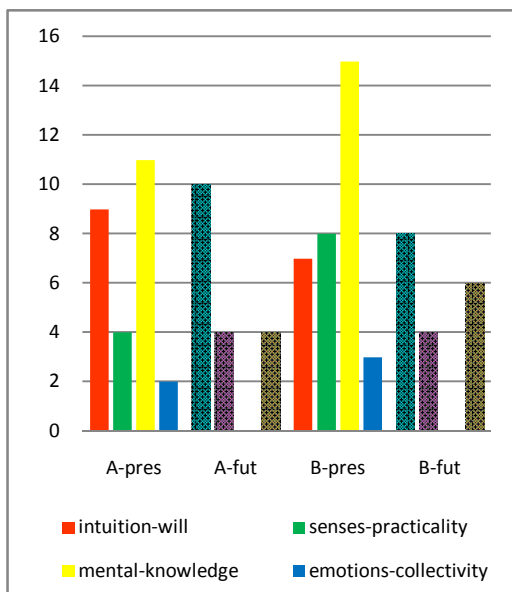
Figure A3.7c: Element-based distribution of qualities emerged in total (pilot test, Athens, 2011)



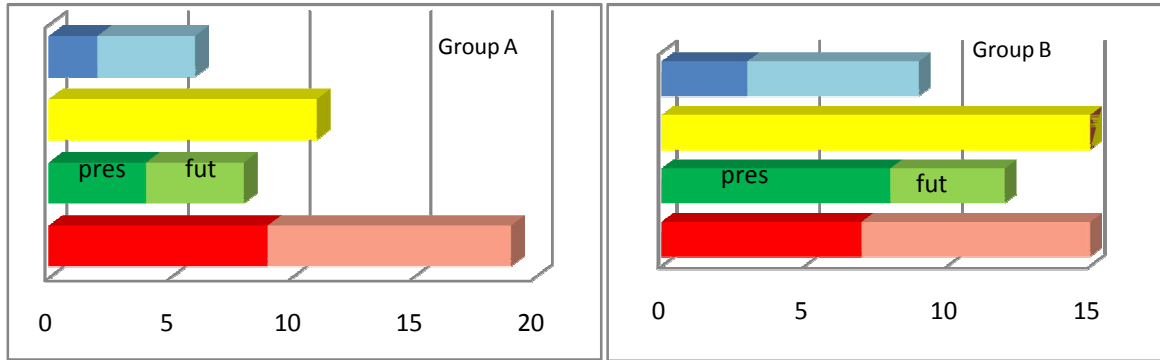
Figures A3.8a – A3.8b: Obstacles emerged (dark: present, grey: future) (pilot test, Athens, 2011)



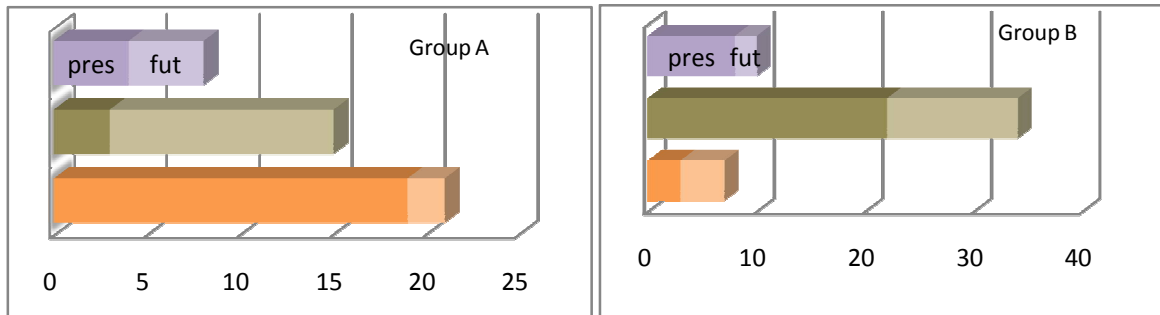
Figures A3.9a – A3.9b: Element-based & 4fold/3fold distribution of qualities totally emerged (dark: present, light: future)



Figures A3.10a – A3.10b: Comparative classifications (4fold/3fold & present/future) per group (pilot test, Athens, 2011)



Figures A3.11a – A3.11b: Present/future 4fold classification of the qualities emerged per group (pilot test, Athens, 2011)



Figures A3.12a – A3.12b: Present/future 3fold classification of the qualities emerged per group (pilot test, Athens, 2011)

The instructions given for Step-3 and Step-4 and the results delivered are presented below:

Steps	Guidelines questions given to the participants
Step-3	a) Relate collectively any three of the emerged properties, which you assume are encountered in combination within your context, even if they don't necessarily 'fit' together from a first view. In this way, create up to 4 triads. Then, write all triads and properties on a table.
	b) Mark on the 12gon the triads, indicating each time the corresponding properties and the dominant node (corner of an angle). Mark as well all the obstacles previously identified (Step 1c) using a different color (e.g. red).
Step-4	a) Continue to work in a collective way; start from these triads and add some more (1-3) qualities to each triad, in order to shape figures that exist in your organizational life or setting. Make sure that you meet the following conditions: <ul style="list-style-type: none"> – Do not to create more than 4 assemblies – Do not to include more than 5-6 qualities in each assembly – Try to include 1-2 obstacles in each assembly – Do not include the same quality in more than two assemblies.
	b) At the end of the process name (label) the assemblies created in contextually meaningful ways.

Table A3.11: Guidelines given for Steps 3 and 4 of the capacity assessment process (pilot test, Athens, 2011)

Triads	Qualities related	Group
5 – 7 - 5	FLEXIBILITY – Complexity – Problem solving	A
10 – 5 - 1	AMBITION – Perpetual motion - Innovation	A
11 – 1 - 12	MAINTENANCE OF EXISTING STATUS – Conflict – Change	A
3 – 7 - 11	DOMINANT GROUPS – Control - Stability	A
2 – 11 - 8	STABILITY – Duration - Safety	B
4 – 5 - 11	MOBILITY – Stability – Power control	B
5 – 2 -	- Efficiency -	B
1 – - 10	<i>Temporary indisposition of data</i>	B

Table A3.12: Fundamental relations (triangles) among qualities emerged (pilot test, Athens, 2011) *incomplete*

Based on the above, the following findings were additionally delivered:

Most influential qualities	Times emerged (present/future)	Associated nodes	Fundamental triangles
Stability / maintenance of situation	8 (4/4)	4 (5,11,2,8)	4
Creativity / creation / life giving	6 (3/3)	3 (1,2,5)	0
Mobility / motion	4 (1/3)	3 (5,11,4)	2
Performance / efficiency / results	4 (2/2)	1 (2)	1
Innovation	3 (0/3)	3 (1,4,5)	1
Dominance / power	3 (2/1)	2 (5,3)	1

Table A3.13: Most influential qualities emerged in total (pilot test, Athens, 2011) *incomplete*

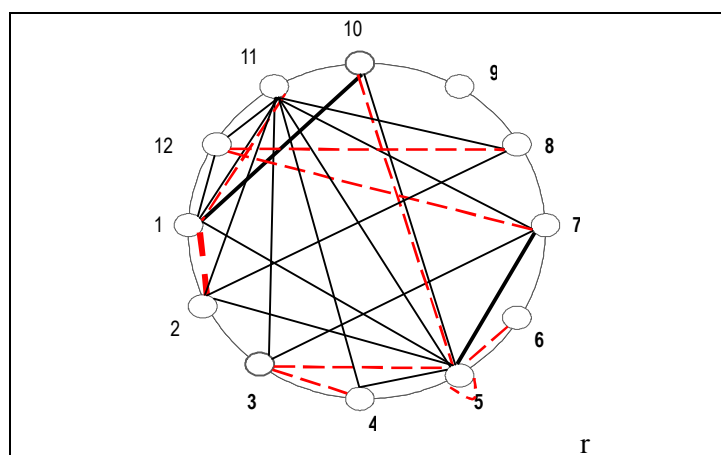


Figure A3.13: Overlapped fundamental relationships between qualities and obstacles (pilot test, Athens, 2011) *incomplete*

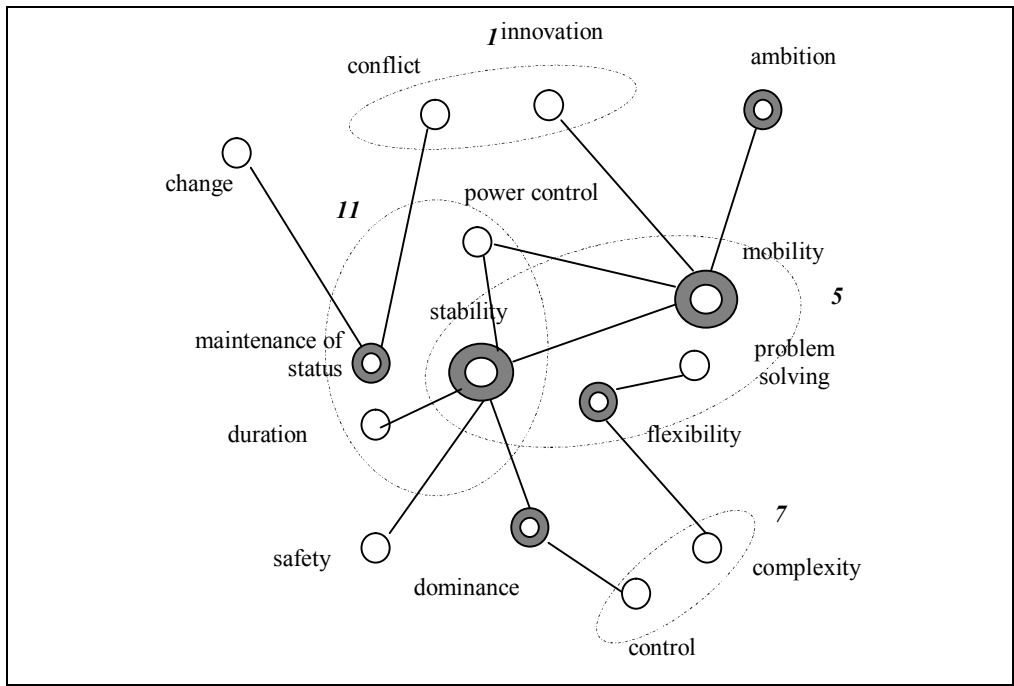


Figure A3.14: Network of most influential qualities related to nodes (pilot test, Athens, 2011)

3.5.2. Maturity assessment

The participants were given the list of archetypal situations/stages (Table A3.1b) and the following guidelines.

Steps	Guidelines given to the participants
Step-9	<ul style="list-style-type: none"> a) Choose up to 3 situations that seem familiar to you or are considered to be crucial within your organizational context. What are the lessons learned from dealing with them? Write these lessons on a paper indicating the number of the stage they refer to. b) Which were the skills (no more than 6 in total) employed or developed because of these situations? Write these skills on post-its (1-2 for each situation) and place them close to their numbers. c) Choose up to 3 situations that seem unfamiliar to you or are considered as impossible to happen within your organizational context. What would prevent them from occurring? Write the main reason for each case on a post-it (of a different color) and place it close to its number.
Step-10	<ul style="list-style-type: none"> a) For each of the most frequently emerged skills relate any 3 of the archetypal stages, which you assume that are best faced by using the specific skill. Each time indicate the dominant node of the triad (the corner of the angle) and indicate the specific skills corresponding to the triangle. Do this on a collective basis and note all triads and skills in a table (like Table A3.12). b) Estimate how good you are in practicing each of these skills: to what extent these challenges are <i>really</i> faced in this way? Identify any secondary problems that are created by this practice. c) Is there any situation/stage addressed by seemingly incompatible skills? If yes, discuss whether one of the skills dominates upon the others or how they manage to co-operate. d) Are there any irregularities in the distribution of skills around the dodecagon? If yes, discuss whether they could indicate gaps in experience or transition obstacles from the situations prior to them. d) Reflect what could occur if a polar (complementary) skill would be used for the specific challenge or transition. Would it be more appropriate? e) Based on the above, discuss on your collective maturity according to the four levels outlined earlier; keep in mind that for each level corresponds a shadow.

Table A3.14: Guidelines for the maturity assessment process (pilot test, Athens, 2011)

Some of the data collected from step-9 are presented in Tables A3.15 and Figure A3.15.

Archetypal stage	Knowledge obtained from each one (+: 'LL', -: obstacle)
Initiation (<i>I want things to change</i>)	+ The way things were was suiting the most + Everyone says that wants change but without any cost for him + Nothing will change unless the currently composing variables change. – Lack of willingness – Many things have to change.
Formation (<i>I shape new abstract notions</i>)	+ It is a challenge but it may lead to a void – We do not use abstract notions.
Communication (<i>I exchange thoughts and ideas</i>)	+ I am expected to communicate for supporting the impeded viewpoint + I think very differently than the others + They should not consider me as being submissive + It is a fertile process from which all parts can benefit – Single-way communication – Suspiciousness due to narrow-spirit – Impulsive & egoistic attitude that impedes communication & listening.
Breeding (<i>I carefully develop some of them</i>)	+ I want to obtain benefits + Ideas can be transformed to practice and procedures – Non acceptance by the ones outside the organization.
Establishment (<i>I want to implement & extend them</i>)	+ The ideal is not always feasible + Non acceptance by the environment + New procedures can restore dialogue, ignite new ideas & improve policy – Illegitimate (unfair) competition, prejudice and sabotage – Non access to decision centers and lack of motives – They don't listen to me and my ideas.
Support (<i>I analyze data & document pathways</i>)	+ I don't document my course but remain spontaneous + It can lead to indecision and postpone things – Indecision – Lack of relevant organizational culture.
Balance (<i>I try to make the opposites synergize</i>)	+ Many times this does not work – Admitting / accepting that both sides have a certain right; not only us – Different and established viewpoints
Experience	
Targeting (<i>I take targeted actions for new knowledge</i>)	+ Knowledge lead me to self-awareness + I always extend my horizons and become better; but not at work – I have not set such targets.
Organization (<i>I systematically apply the knowledge obtained</i>)	+ Depreciation of hierarchical system – It would lead to contestation; but leaders & institutes are out of dispute.
Contestation (<i>I question & revision old knowledge</i>)	+ Lack of innovative spirit at work vs. trust in skills + I evolve and revision my worldview – We employ the old knowledge – Old knowledge is today necessary as reference point – I am stuck to persons & situations due to my family background
Transcendence (<i>I transcend conflict being at service</i>)	+ By doing the 'dirty job' my career is not advanced + It doesn't always result to something + I wonder if the sacrifice that I am asked to do (me only) eventually helps – It is difficult to be distanced when you are active – Extreme individualism; it keeps time passing by at work.

Table A3.15: Answers given to Step-9 of the maturity assessment process (pilot test, Athens, 2011)

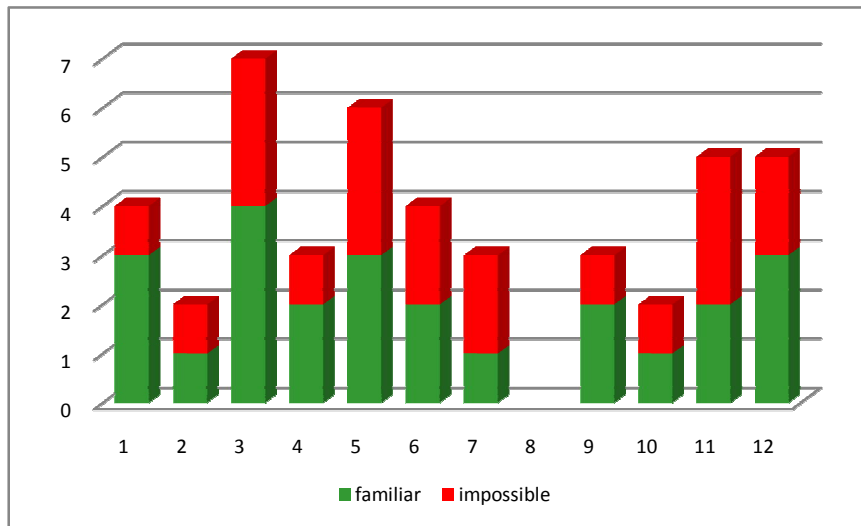


Figure A3.15: Distribution of choices made among the archetypal situations/stages (pilot test, Athens, 2011)

Brief presentation of the deliverables

In the following paragraphs some indicative remarks on the deliverables of the pilot will be presented. They are based on the abovementioned findings and the discussion among the participants during the test.

a) Collective personality and unrealized potential

- *Stability* seems to be the most influential of all qualities emerged; it was encountered 8 times, associated with 4 polar elements (No 5, 11, 2 and 8), in both active and in-potentia state and participated in 4 fundamental triangles. For those who know the specific context, stability is a synonym of the Greek Public Administration, at least until recently. Other qualities that had been identified as influential are: *creativity, mobility, performance, power* and *innovation* (Table A3.14).
- The elements (nodes) No 5 and No 11 (both related to sustainability) seem to be the most significant; No 11 represents better the current reality but has no future potential, while No 5 projects better the desired future. Quite significant are also the elements No 1 and 2.
- Another interesting dipole was consisted of the elements No 12 (breaking emotions) that exists only in-potentia and No 3 (changing thoughts/plans), associated only with current reality. On the other hand, the element No 9 (related to targets) was totally absent in both groups, both now and in the future. Finally, elements No 6, 8 and No 7, 10 were identified only by one of the groups and only in present; they seem not to have future potential as well (Figures A3.7a,b,c and A3.9a,b).

- Regarding the 4fold classification of the choices made, both groups appear to be mainly mental and knowledge oriented (attracted), but only in the current state. This dominance maybe be the cause for the total absence of relevant choices in any of the desired futures. Group-A (administrators) seems to have a strong intuitive inclination, both in present and future. On the other hand, group-B (first-liners and PR) appears more balanced; besides its strong mental character, it seems to have also a strong practical and intuitive attitude and to seek for more emotion in the future (Figures A3.10a,b and A3.11a,b).
- Regarding the 3fold classification, both groups seem to be attracted by what they miss in their daily duties; group-A was attracted by an impulsive creation and group-B by the preservation of inertia (Figures A3.10a,b and A3.12a,b).

b) Shadow issues, blind spots and possible traps

- Although *creativity* emerged quite a few times, it seemed to be a shadow quality, as it was not part of any fundamental triangle. *Innovation* seemed to be understood divergently, as each time was related to a different element and all times was in-potentia (never active in present). On the other hand, *performance* appeared possessing a common meaning in both groups, as all times was related to the same node (Table A3.14).
- Despite their opposite meaning, *stability* and *mobility* were related as interpretations of the elements No 5 and 11 (referring to sustainability of energy and plans); this dipole could be a system's blind spot (Figure A3.14).
- Both groups seemed to be attracted by what they missed in their daily duties: creativity and inertia. Moreover, what seems to be dominant in the current reality is balanced in a desired future; this is fundamental in Jungian psychology and Heraclitus' philosophy (law of enantiodromia).
- The strong intuitive character of Group-A (planning and control) both in current reality and in a desired future is not that much compatible to the mainstream profile of their work. This could be a shadow issue either of the specific participants or of the way their work is being accomplished in the specific context.
- Another shadow issue is indicated by the total absence of element No 9 (related to targets) in both groups.
- Elements No 6 and 8 on the one hand and No 7 and 10 on the other were identified by one group only; this indicates possible blind spots between the two groups regarding the current reality. (Figures A3.7a,b and A3.9a,b).

- In both groups there was a common obstacle between elements No1 (impulse) and No 2 (practicality), which however was interpreted differently by each of them, as fuzziness and organization (Figures A3.8a,b). A similar difficulty in the transition from impulse to practicality (between the stages No 1 and No 2) had appeared in the second test, which referred to the same overall context. Therefore, this could be also a blind spot for the Greek Public Administration. No other obstacle was identified between significant elements (nodes).
- Both groups identified obstacles towards elements No 5 (sustainable energy) and No 12 (breaking emotions), which both exist only in-potentia; the same with the element No 3 (changing thoughts/plans), which appeared not to have future potential (Figures A3.8a,b).
- Blind spots could be possibly indicated by the association of influential but opposing qualities with the same element (node). Two such cases were the couples: flexibility – stability and control – complexity, which were identified as qualities of the 5th and 7th element respectively (Figure A3.14).
- Some possible traps could be also indicated by the coincidence of obstacles and fundamental relationships between qualities, like in the following transitions identified by Group-A: 10→5 (culture vs. ambition-mobility) and 11→1 (leadership vs. maintenance-conflict). Besides these two cases, no other property was identified both as an influential quality and an obstacle.
- Finally, with regard to the obstacles, most of them were identified towards elements that had no active qualities but only in-potentia; like 1→2, 3→5, 7→12, 10→5 (Group-A), and 3→4, 8→12 (Group-B).

c) Active patterns and archetypes

- Most of the fundamental triangles consisted of similar qualities, which indicated either inertia or mobility. Yet, two of the triangles expressed a dynamic relationship between polar qualities; one of them indicated a purposeful developmental sequence (maintenance of status-conflict-change) and the other a balance between seemingly opposing qualities (mobility-stability-power).
- The complementary *dipole of stability and mobility* seems to be central of the system's organizational culture (Figures A3.13 and A3.14). Actually, Figure A3.14 was organized based on the emerged fundamental relationships and considering the associated elements (nodes).
- The archetypes created by the two groups are temporarily unavailable

d) Fields / gaps of experience and 'lessons learned'

- In most of the given stages, the participants' phrases reveal a sense of difficulty and non-accomplishment. They seem to refer to obstacles rather than lessons and sometimes possess a negative or defensive character. In some other stages, the 'lessons' seems to transmit opposing 'messages'.
- Perhaps the most obvious finding in this phase was the absence of any emerged property associated with stage No 8 (black-and-white dilemmas and conflicts). Although this is part of the work routine, the participants treated it as non-existing. Thus, it appears like a gap in their experience, yet it is rather a non-desired situation and a challenge they cannot face. This makes it a *shadow* issue. This well known phenomenon was also identified through the answers to the questionnaire given prior to the workshop (see Figure A3.6a).
- Stage No 3 (related to exchange of thoughts and ideas) is the most chosen. Yet, through the phrases is revealed that communication is related to debating arguments (or even propaganda) rather than dialogue and ideas exchange. Again, the knowledge of the context verifies this finding too.
- The next more significant stage is No 5 (related to establishment and extension); then come No 1 (initiation), No 11 (revision) and No 12 (transcendence). It is worthy to note that these nodes-stages correspond numerically to the nodes-elements of the previous assessment, which were also identified as significant.
- The diagram and the network of skills are temporarily unavailable and therefore no discussion can be made for the moment.
- The same with the maturity self-assessment.

e) Other insights and knowledge obtained

- The pilot enabled the refinement of the assessment criteria and the facilitation guide. Among the phrasal amendments, some refer to the substitution of certain words or terms (e.g. 'polar' is meant as complementary rather than opposite; the 'familiar' or 'impossible' situation could be given as 'manageable' or 'difficult to accomplish', etc)
- Emphasis should be given to the discussion among the participants based on the findings, which should be available on time. However, this is feasible either if the second part is on a different day or if the tool becomes an e-tool.
- The phrases associated with some archetypal stages do not constitute lessons learned, as was initially thought and planned. Yet, from these phrases patterns can be created, which are closer to the concept.

3.5.3. Participants' evaluation

The participants that were present during the last day of the workshop, were invited to evaluate its results. For that, some geometry-based tools were employed, similar to the ones used for the interviews with the change leaders and agents (see Appendix 2, Figures A2.1 – A2.4).

On the one hand, a four-fold template (based on Cynefin model) was used to host an archetypal three-fold of states. The participants were asked to associate their own initial needs, the tool's application fields and any unsettled aspects with 'practicality', 'knowledge and logic', 'emotions and relationships' and 'change and intuition'. Their answers are given in Figure A3.16.

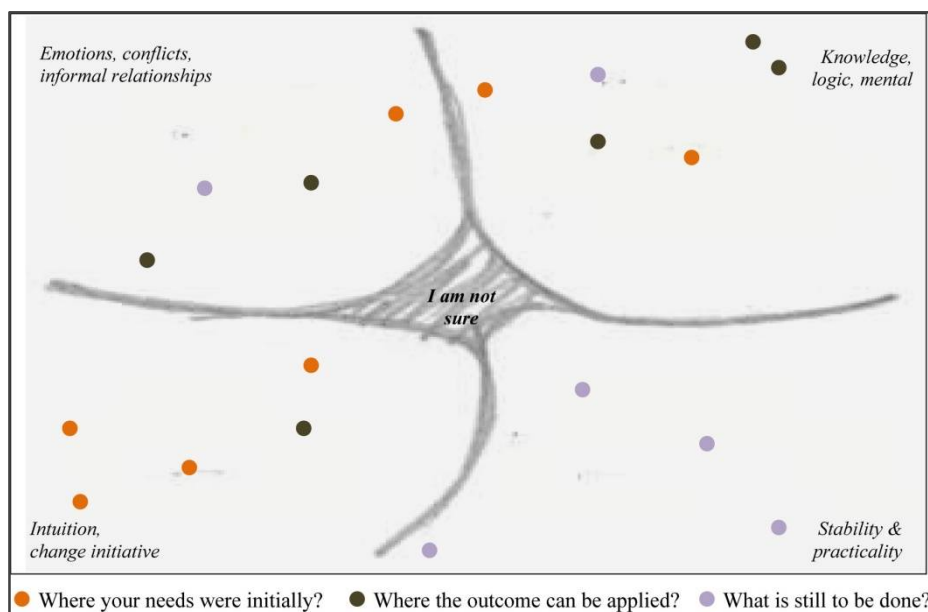


Figure A3.16: Evaluation of the tool's impact (pilot test, Athens, 2011)

On the other hand, a three-fold template (triangle) was used to host the four-fold of the 'ingredients' of the workshop. The participants were asked to mark on it (or out of it) whether the tools used, the approach introduced, the reflection in which they engaged and the motivation/inspiration they felt were 'just a start', 'applicable', 'in need for further process' or 'useless'. Their answers are given in Figure A3.17.

Furthermore, during the discussion among the participants, two very interesting insights emerged regarding the means and the character of the assessment. As they indicated, they found the images used very meaningful and helpful in 'liberating' themselves, in order to express what they really felt about the current reality and the future. They also stated that they felt that the whole process had a transformative effect on them (mostly towards awareness building), something that would be confirmed - or not – within the following months.

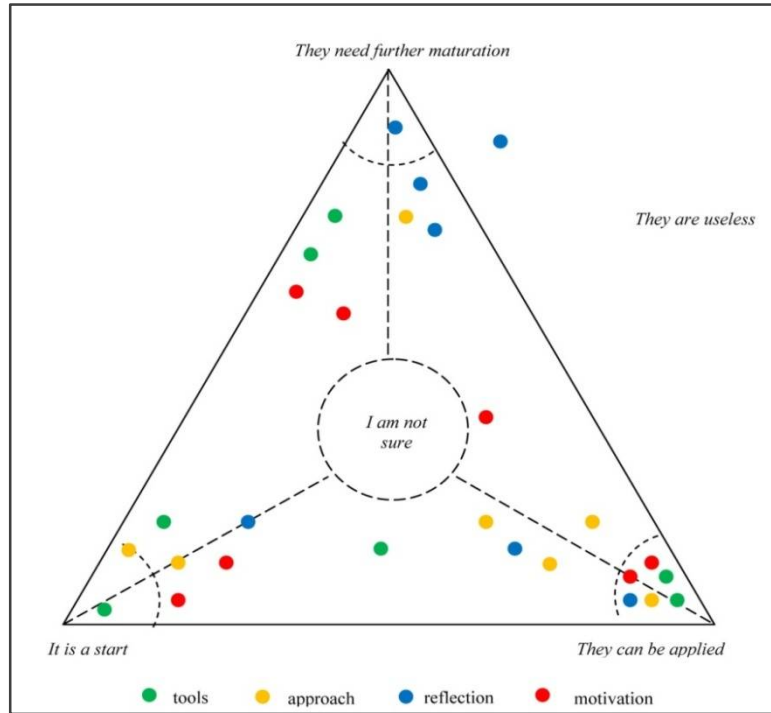


Figure A3.17: Evaluation of the tool's 'ingredients' (pilot test, Athens, 2011)

3.6 INDICATIVE DATA TABLES FOR DATA ORGANIZATION (Tool – Prototype)

Table A3.16: Frequency of appearance of the 12fold elements in present / future profile [priorities] (% of the total choices made by the participants of each group)

Profile's aspects [Operation fields] indicated as most relevant [important]	Present (current)				Future (desired)			
	G-1	G-2	G-3	Tot	G-1	G-2	G-3	Tot
1.	%							
2.								
...								
12								

Table A3.17: Frequency of appearance of the 4fold of corporate values [operation fields] in present / future profile (% of the total choices made by the participants of each group)

Profile's aspects / Operation fields indicated as most relevant/important	Present (current)				Future (desired)			
	G-1	G-2	G-3	Tot	G-1	G-2	G-3	Tot
1.	%							
2.								
3.								
4.								

Table A3.18: Frequency of appearance of the 3fold elements in present / future profile (% of the total choices made by the participants of each group)

Profile's aspects / Operation fields indicated as most relevant/important	Present (current)				Future (desired)			
	G-1	G-2	G-3	Tot	G-1	G-2	G-3	Tot
1.	%							
2.								
3.								

Table A3.19: Frequency of indication of each situation as familiar or impossible (% of the total choices made by the participants of each group)

Situations - challenges	familiar				impossible			
	G-1	G-2	G-3	Tot	G-1	G-2	G-3	Tot
1.	%							
2.								
....								
12								

Table A3.20: Properties and synonyms emerged (by all groups)

Most frequent	Synonyms				

Table A3.21: Properties most frequently related to the current reality (PRESENT) by each group

Properties emerged	Group-1			Group-2			Group-3			Total		
	#	%	rank	#	%	rank	#	%	rank	#	%	rank

Table A3.22: Properties most frequently related to a desired status (FUTURE) by each group

Properties emerged	Group-1			Group-2			Group-3			Total		
	#	%	rank	#	%	rank	#	%	rank	#	%	rank

Table A3.23: Comparison of most frequent properties related to PRESENT & FUTURE by each group

Properties emerged	Group-1		Group-2		Group-3		Total	
	P (%)	F (%)	P (%)	F (%)	P (%)	F (%)	P (%)	F (%)

Table A3.24: Comparison of properties related to PRESENT & FUTURE (all groups)

Properties emerged	Present		Future		Total	
	#	%	#	%	#	%

Table A3.25: Properties participated in Complexes (Part III)

Properties emerged	Group-1			Group-2			Group-3			Total		
	#	%	rank	#	%	rank	#	%	rank	#	%	rank

Table A3.26: Pairs of properties related in complexes by each group

Pairs of properties	Number of times created			
	Group-1	Group-2	Group-3	Total

Table A3.27: Most influential properties (% of properties totally emerged / connected)

Properties emerged	Expressing Present				Expressing Future				Part of a Complex			
	G-1	G-2	G-3	Tot	G-1	G-2	G-3	Tot	G-1	G-2	G-3	Tot

Table A3.28: A 12fold distribution of the 5 most influential properties of group-A (%)

Properties emerged	Pres/ Fut	Nodes											
		1	2	3	4	5	6	7	8	9	10	11	12
		%											

Table A3.29: A 12fold distribution of the 5 most influential properties of group-B (%)

Properties emerged	Pres/ Fut	Nodes											
		1	2	3	4	5	6	7	8	9	10	11	12
		%											

Table A3.30: A 12fold distribution of the 5 most influential properties of group-C (%)

Properties emerged	Pres/ Fut	Nodes											
		1	2	3	4	5	6	7	8	9	10	11	12
		%											

Table A3.31: A 12fold distribution of the 5-7 most influential properties of all groups (%)

Properties emerged	Pres/ Fut	Nodes											
		1	2	3	4	5	6	7	8	9	10	11	12
		%											

Table A3.32: A 4fold / 3fold distribution of the 5-7 most influential properties (%)

Properties emerged	Pres/ Fut	4-fold				3-fold		
		f-1	f-2	f-3	f-4	f-1	f-2	f-3
		%						

Table A3.33: Alphabetical matrix of the properties emerged, organized by the relevant node and group

Nodes	Group-1	Group-2	Group-3
1			
2			
...			
12			

Table A3.34: Impeded transitions between current and desired profile aspects [operation fields]

Elements between which obstacles exist		Number of times an obstacle was identified
Present aspect [field]	Future aspect [field]	

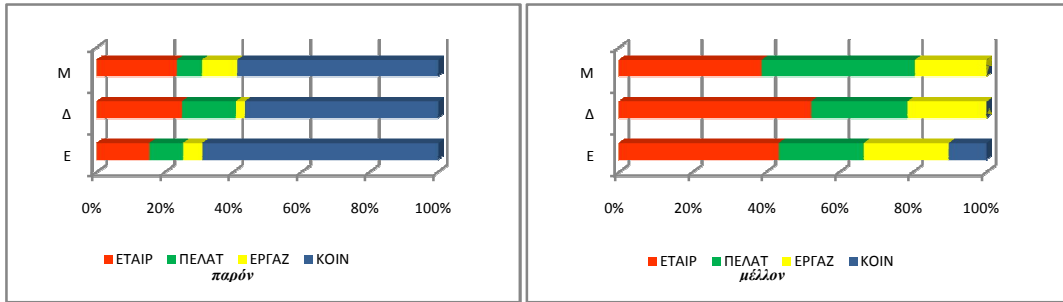
Table A3.35: Obstacles of the most frequent transitions

Transitions	Obstacles
X - Y	

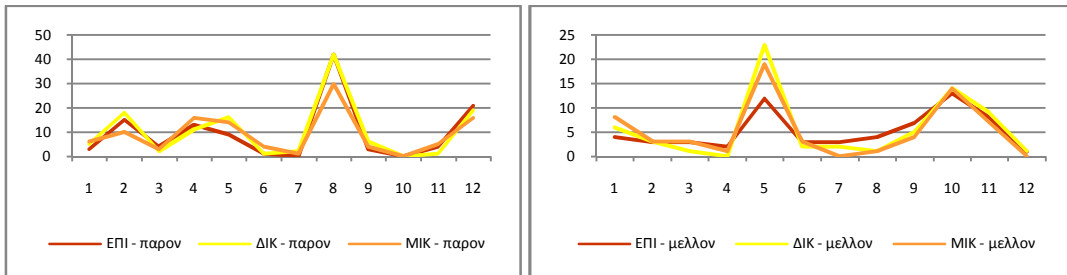
Table A3.35: most related nodes

Group-1		Group-2		Group-3		Total	
Relat.nodes	Freq.	Relat.nodes		Relat.nodes		Relat.nodes	
X	Y	%					

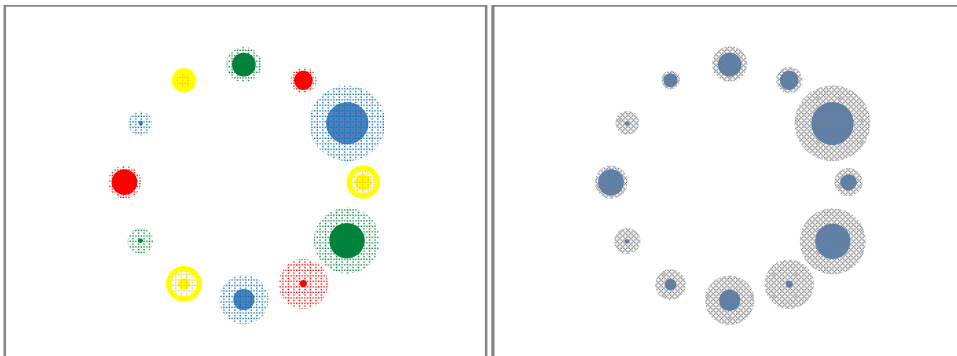
Graph A3.18



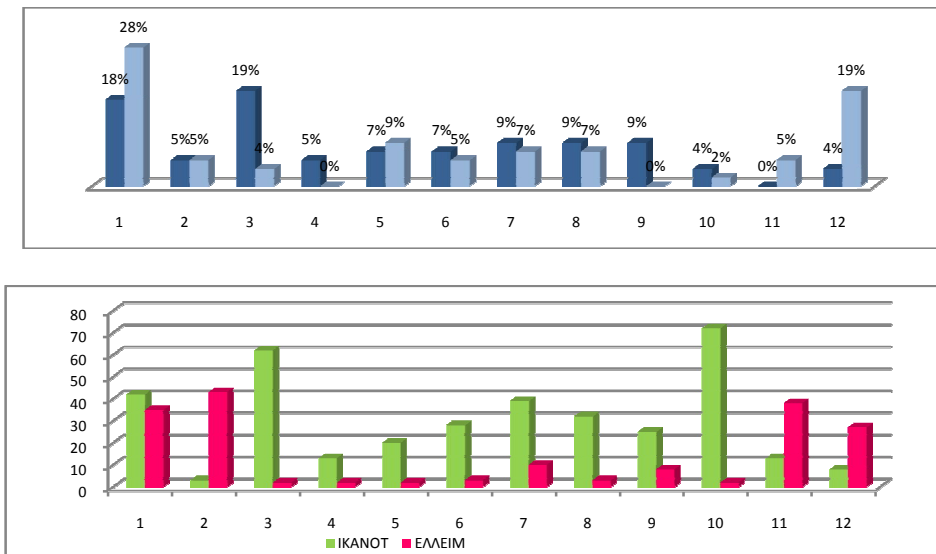
Graph A3.19: Comparison of groups' patterns regarding the present/future profile [priorities]



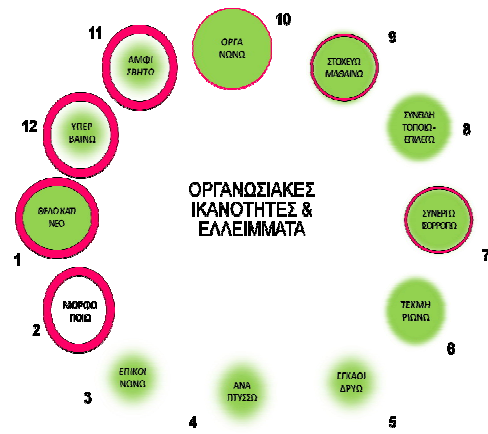
Graph A3.20: (present: dark, future: light)



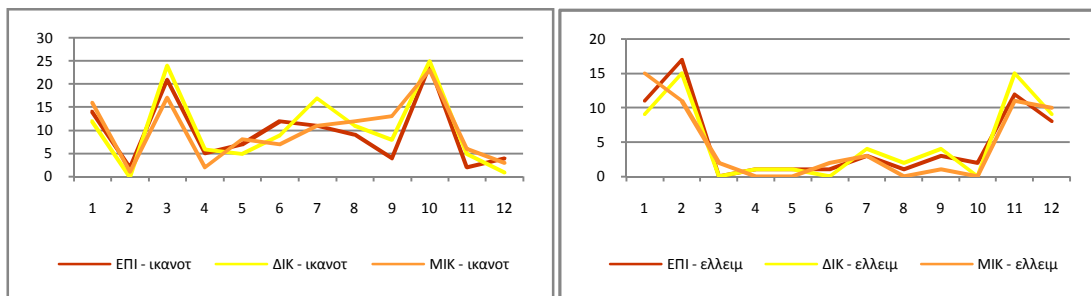
Graph A3.21a,b:



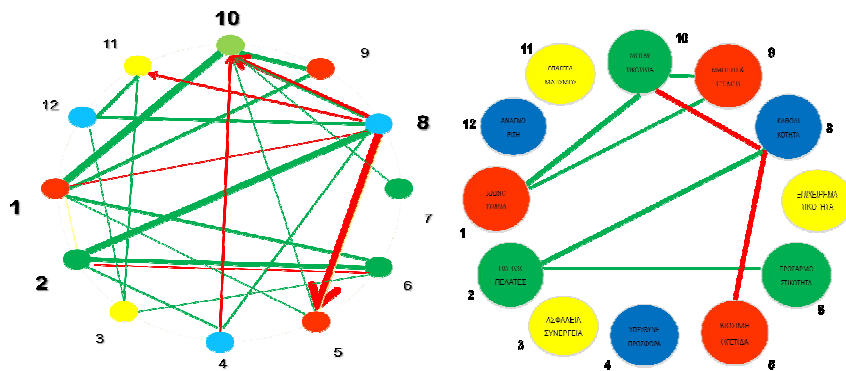
Graph A3.22:



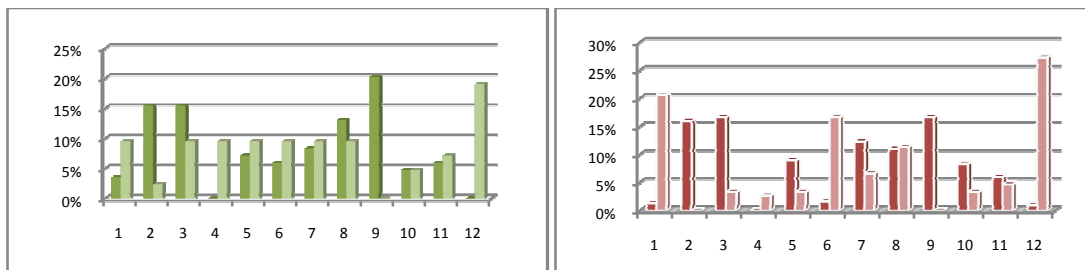
Graph A3.22a,b:



Graph A3.23:



Graph A3.24a,b:



APPENDIX 4:

MATERIALS USED IN THE CASE STUDIES

4.1. PARTICIPANTS CONSENT FORM AND INFORMATION MATERIAL

4.2. DATA COLLECTION FORMS USED IN THE WORKHOPS

4.1 PARTICIPANTS CONSENT FORM AND INFORMATION MATERIAL

4.1.1. Participant Consent Form

PARTICIPANT CONSENT FORM

Title of Research: An Archetypal model for change (Revealing intangible assets and archetypes for organizational change)	
Investigator's name: Stefanos Michiotis	
To be completed by the participant	
1.	Have you read the information sheet about this study? YES/NO
2.	Have you had an opportunity to ask questions and discuss this study? YES/NO
3.	Have you received satisfactory answers to all your questions? YES/NO
4.	Have you received enough information about this study? YES/NO
5.	Are you willing to have the outputs from your participation recorded by photograph or video? YES/NO
6.	Do you understand that you are free to withdraw from this study:
	• at any time? YES/NO
	• without giving a reason for withdrawing? YES/NO
	• without affecting your future with the University/studies/medical or nursing care? YES/NO
7.	Do you agree to take part in this study? YES/NO
Signed	Date
Name in block letters	
	Date
Signature of investigator	
This Project is Supervised by: Dr. Bruce Cronin	
Contact Details: +44 20 8331 9786	

4.1.2. Letter to participants in interviews



Letter to participants (in interviews)

Dear Mr. / Mrs. _____,

You are kindly requested to contribute to a research project that has been designed by the University of Greenwich Business School and is supported by the Municipality of Anixi and the local non-governmental-organization Euronet.

The research aims to give voice to different viewpoints and reveal underlying issues that exist in local communities and influence strongly the collective behavior. You can find more details on the research scope and methodology in the attached *Information Sheet*.

Within this frame, **you are invited to give an interview** on social coherence and change issues that you consider to be of great significance for you personally, for the community and for the local authority.

The interview will be focused on expressing your own opinion and perspective and on revealing issues that usually remain unsaid. Therefore, the confidentiality and the accuracy of the process are of particular importance and will be ensured by:

- not disclosing your name or any specifying details of the cases you will refer to during any published output of the research and
- verifying your stated opinions by asking you to check the transcript following the interview.

The interview will be conducted by an experienced researcher in the offices of the Municipality or of the NGO and its duration will not exceed the 1 hour.

Following this letter, a person from the abovementioned collaborating establishments will contact you, in order to certify your intention to participate or not in this activity and to specify the place and the time of the interview.

In case you would like any additional information, please free to communicate with Mr. Stefanos Michiotis at: 210 8132 633, 6944 205 306 or stefanos@tetras-consult.gr.

Thank you in advance for your time and future collaboration.

Stefanos Michiotis

PhD researcher

University of Greenwich Business School

4.1.3. Letter to participants in workshops



Letter to participants (in workshops)

Dear Mr. / Mrs. _____,

You are kindly requested to contribute to a research project that has been designed by the University of Greenwich Business School and is supported by the Municipality of Anixi and the local non-governmental-organization Euronet.

The research aims to give voice to different viewpoints and reveal underlying issues that exist in local communities and influence strongly the collective behavior. You can find more details on the research scope and methodology in the attached *Information Sheet*.

Within this frame, you are invited to participate in a workshop, where along with the other participants you will process narrative material, previously gathered from your community. Using pleasant techniques, the process aims to reveal the deeper collective characteristics of your community and local leaders. You can benefit from participating as you will be able to learn state-of-the-art methods that enable the synthesis of solutions from the opposite sides of demanding problems.

The confidentiality of the process is of particular importance and will be ensured by:

- not disclosing the name of the people involved or any specifying details of the cases they will refer to during any published output of the research and
- asking permission to take photos or video of the outputs of your work, while ensuring that no faces will be captured.

The workshops will be conducted by experienced facilitators / adult trainers in the offices of the Municipality or of the NGO and its duration will not exceed the 4 hours.

Following this letter, a person from the abovementioned collaborating establishments will contact you, in order to certify your intention to participate or not in this activity and to provide you details on the place and the time of the event.

In case you would like any additional information, please free to communicate with Mr. Stefanos Michiotis at: 210 8132 633, 6944 205 306 or stefanos@tetras-consult.gr.

Thank you in advance for your time and future collaboration.

Stefanos Michiotis
PhD researcher
University of Greenwich Business School

4.1.4. Letter to participants in focus groups



Letter to participants (in focus groups)

Dear Mr. / Mrs. _____,

You are kindly requested to contribute to a research project that has been designed by the University of Greenwich Business School and is supported by the Municipality of Anixi and the local non-governmental-organization Euronet.

The research aims to give voice to different viewpoints and reveal underlying issues that exist in local communities and influence strongly the collective behavior. You can find more details on the research scope and methodology in the attached *Information Sheet*.

Within this frame, you are invited to participate in a focus group that will explore hidden preoccupations and factors that influence social coherence and change in your local community. Using methods such as anecdote circles and dialogue sessions, the focus groups will provide narrative material on issues that the participants consider being of great significance for themselves, for the community and for the local authority.

The confidentiality and the accuracy of the process are of particular importance and will be ensured by:

- not disclosing the name of the people involved or any specifying details of the cases they will refer to during any published output of the research and
- using recording devices in parallel with written templates that will enable the participants to check the transcript following the session.

The sessions will be conducted by an experienced facilitator in the offices of the Municipality or of the NGO and its duration will not exceed the 2 hours.

Following this letter, a person from the abovementioned collaborating establishments will contact you, in order to certify your intention to participate or not in this activity and to provide you details on the place and the time of the event.

In case you would like any additional information, please free to communicate with Mr. Stefanos Michiotis at: 210 8132 633, 6944 205 306 or stefanos@tetras-consult.gr.

Thank you in advance for your time and future collaboration.

Stefanos Michiotis
PhD researcher
University of Greenwich Business School

4.1.5. Letter to participants in events



Letter to participants (in sensitization events or seminars)

Dear Mr. / Mrs. _____,

You are kindly requested to contribute to a research project that has been designed by the University of Greenwich Business School and is supported by the Municipality of Anixi and the local non-governmental-organization Euronet.

The research aims to give voice to different viewpoints and reveal underlying issues that exist in local communities and influence strongly the collective behavior. You can find more details on the research scope and methodology in the attached *Information Sheet*.

Within this frame, **you are invited to participate in a sensitization event or a seminar**, where it will be attempted to share the understandings and to reflect on the findings of the research, regarding issues relevant to social coherence and change that your community considers to be of great significance. You can benefit from participating in this community consultation, as you will be able to express your opinion in favor or against various developmental scenarios.

The confidentiality of the process is of particular importance and will be ensured by not disclosing your name or any specifying details of the cases you will refer to during any published output of the research.

The seminar will be conducted by experienced facilitators / adult trainers in the offices of the Municipality or of the NGO and its duration will not exceed the 3 hours.

Following this letter, a person from the abovementioned collaborating establishments will contact you, in order to certify your intention to participate or not in this activity and to provide you details on the place and the time of the event.

In case you would like any additional information, please free to communicate with Mr. Stefanos Michiotis at: 210 8132 633, 6944 205 306 or stefanos@tctras-consult.gr.

Thank you in advance for your time and future collaboration.

Stefanos Michiotis
PhD researcher
University of Greenwich Business School

4.1.6. Information sheet for participants



Information Sheet for participants (IN WORKSHOPS)

The University of Greenwich Business School has designed a research project, which is supported by the Municipality of Anixi and the non-governmental-organization Euronet. The research aims to develop a methodology that will enable local leaders to make sense of hidden preoccupations within the community and to assess the collective will and maturity towards or against various developmental scenarios; thus it will enable them to deal successfully with change.

Giving voice to different viewpoints and revealing underlying issues that influence strongly people's attitude and behavior is essential for the success of the research. For this, the methodology will use narrative material that will be collected directly from your community and will be later processed by its members. The techniques designed are based on dialogue and storytelling and include a variety of simple, pleasant and creative activities, such as interviews, focus groups in dialogue, anecdote circles, workshops, and seminars.

We are looking for recruiting participants in these activities with a variety of viewpoints, attitudes, and qualities. They will be derived from different groups, such as: town councilors, representatives of local organizations and neighborhoods, municipality and government officers, local tutors, change agents and initiatives leaders, as well as local residents (general public).

The potential benefit for them will be:

- Expression of their own viewpoint and suggestions
- Conscious self-reflection on personal stereotypes
- Enriching mental models and expanding their viewpoints
- Increasing competencies in complex and chaotic situations
- Developing better communication and leadership skills.



Further, they will contribute to the long-term scope of the research, which is:

- utilization of the collective local knowledge, which for now rests unexploited,
- building consensus for dealing with complex and tough problems, and
- co-creation of a community consultation culture using participatory procedures.

All activities will be hosted in the offices of the Municipality of Anixi or of the NGO EuroNET, both in the same region.

The confidentiality and the accuracy of the whole process are of particular importance for the University and will be ensured by:

- not disclosing the name of the people involved or any specifying details of the cases they will refer to during any published output of the research,
- asking permission to take photos or video of the outputs of your work, while ensuring that no faces will be captured, and
- verifying the stated opinions by asking participants to check the transcript or the outcome following the activity.

In case you would like any additional information or place your intention to participate, please free to communicate with Mr. Stefanos Michiotis at: 210 8132 633, 6944 205 306, stefanos@tetras-consult.gr.

Thank you in advance for your time and future collaboration.

Stefanos Michiotis

PhD researcher

University of Greenwich Business School

4.1.7. Information material for the schools (case study-3) (in greek)



Πώς φαντάζεστε την επιχειρηματικότητα;

Το Υπουργείο Παιδείας ξεκίνησε μια προσπάθεια να φέρει τα **νέα προγράμματα επιχειρηματικότητας** πιο κοντά τις ανάγκες των μαθητών, των αυριανών πρωταγωνιστών της οικονομικής ζωής. Να τα κάνει πιο κατανοητά, πιο ρεαλιστικά, πιο αποτελεσματικά.

Για το σκοπό αυτό πρόκειται να διεξαχθεί μια επιστημονική έρευνα σε 10 σχολεία της χώρας, ένα από τα οποία είναι και το δικό σας.

Η έρευνα αυτή θα γίνει εντός σχολικού ωραρίου, από **28 Απριλίου έως 23 Μαΐου** και θα έχει χαρακτήρα **βιωματικού παιχνιδιού**. Οι μαθητές που θα συμμετάσχουν στις ομάδες, θα μιλήσουν για το πώς βλέπουν το επιχειρείν σήμερα και πώς θα το ήθελαν αύριο. Θα σχηματίσουν φιγούρες από επιχειρηματίες, επαγγελματίες και καταναλωτές. Θα εκφράσουν τη γνώμη και τις ιδέες τους για το περιεχόμενο των καινούριων προγραμμάτων επιχειρηματικότητας, τη μορφή και τη διάρκειά τους. Και το σημαντικότερο, θα πουν τι εφόδια θα ήθελαν να πάρουν απ' αυτά.

Παράλληλα, θα διεξαχθεί μια παρόμοια έρευνα ανάμεσα σε εκπαιδευτικούς και στελέχη του Υπουργείου που θα συμμετάσχουν στα νέα προγράμματα. Μέσα από τις **διαφορετικές οπτικές** των συμμετεχόντων θα φανούν όψεις που συνήθως αγνοούμε ή δεν είναι εύκολο να διακρίνουμε.

Η **ανωνυμία** θα εξασφαλιστεί πλήρως και οι συμμετέχοντες δεν θα δώσουν κανένα προσωπικό τους στοιχείο. Τα δε στοιχεία της έρευνας **θα αναρτηθούν σε ειδική ιστοσελίδα**, χωρίς καμία παρέμβαση. Χάρη στη καινοτομική μεθοδολογία της, δεν θα χρειάζεται να είσαι ειδικός για να καταλάβεις τα αποτελέσματα που θα προκύψουν.

Με την δημοσίευση των τελικών προτάσεων της ερευνητικής ομάδας, θα ξεκινήσει ένας **κύκλος δημόσιου διαλόγου**, όπου όλοι θα μπορούν να συμμετάσχουν. Στόχος είναι η σχεδίαση των νέων προγραμμάτων να βασιστεί στον κοινό παρονομαστή και στη σύνθεση των διαφορών.

- Για **περισσότερες πληροφορίες**, επισκεφθείτε το blog: <http://eduepexeirein.wordpress.com>
Εκεί μπορείτε να κάνετε και ερωτήσεις ή σχόλια.
- **Αιτήσεις συμμετοχής** μπορείτε να βρείτε στην πιο πάνω ιστοσελίδα ή στη διεύθυνση του σχολείου σας. Συμπληρώστε την, καταθέστε την κι ελάτε!

Ο ρόλος σας είναι σημαντικός. Διεκδικήστε τον!

1.5 Οργανωτικά και διαδικαστικά ζητήματα διεξαγωγής της έρευνας

1. Στα πλαίσια της έρευνας θα διεξαχθούν βιωματικά εργαστήρια και συναντήσεις με:
 - 150 (τουλάχιστον) μαθητές από 10 επιλεγμένα Λύκεια της χώρας που ανήκουν στους νομούς Αττικής (4), Θεσσαλονίκης (2), Κορίνθου (1), Βοιωτίας ή Φθιώτιδας (1), Λέσβου (1) και Ηρακλείου ή Λασιθίου (1).
 - 50 (τουλάχιστον) εκπαιδευτικούς από τα επιλεγμένα σχολεία ή τους επιλεγμένους νομούς
 - 30 (τουλάχιστον) στελέχη θεσμικών αρχών που εμπλέκονται στη σχεδίαση και υλοποίηση παρόμοιων προγραμμάτων και
 - στελέχη επιχειρήσεων που ενδεχομένως θα ενδιαφέρονταν να συμμετάσχουν σε νέα προγράμματα.
2. Τα βιωματικά εργαστήρια για τους μαθητές:
 - θα διεξαχθούν εντός σχολικού ωραρίου και σε σχολικό χώρο
 - θα διαρκέσουν δύο εκπαιδευτικές ώρες, που θα οριστούν από την διεύθυνση και
 - θα συντονίζονται και θα εποπτεύονται από δύο εκπαιδευμένους συνεργάτες - facilitators της ομάδας έργου
3. Σε κάθε σχολείο, οι μαθητές:
 - θα προέρχονται από ένα σχολικό τμήμα, κατά προτίμηση της Β' Λυκείου
 - θα είναι κατ' ελάχιστον 15 και κατά μέγιστο 25 και θα χωριστούν σε ομάδες των 5-6 ατόμων και
 - θα εργαστούν με την καθοδήγηση των ερευνητών πάνω σε έντυπα που θα τους παρασχεθούν.
4. Τα εργαστήρια για τους εκπαιδευτικούς
 - θα διεξαχθούν σε χώρο και χρόνο που θα υποδείξει η διεύθυνση κάθε σχολείου
 - η διάρκειά τους θα είναι περίπου 45 λεπτά
 - θα διεξαχθούν με βάση το ίδιο ερευνητικό εργαλείο, όπως και οι μαθητές και
 - θα συμμετέχουν κατ' ελάχιστο 5 εκπαιδευτικοί (και κατά μέγιστο 15) ανά σχολείο (ή νομό).
5. Η ανωνυμία τόσο των μαθητών όσο και των εκπαιδευτικών που θα συμμετάσχουν στην έρευνα διασφαλίζεται πλήρως, καθώς:
 - Δεν θα τους ζητηθεί να δώσουν ούτε καν το ονοματεπώνυμό τους.
 - Οι Διευθυντές των σχολείων θα δώσουν απλώς μια βεβαίωση με τον αριθμό των συμμετεχόντων ανά περίπτωση.

4.2 DATA COLLECTION FORMS USED IN THE WORKHOPS

4.2.1. First Case Study (Hellenic Post SA)



RESEARCH WORKSHOP
**REVEALING THE ELEMENTS of
 HIDDEN POTENTIAL and
 ORGANIZATIONAL CULTURE.**

Place _____ Date _____ Group: _____

Part 1 (*Participants are working alone*)

A. Choose 1-2 of the following phrases that depict better the CURRENT situation of your organization. Then choose the one that symbolize better the FUTURE that you desire.

Hellenic Post is / would like to be an organization that

1. *Innovates and develops new products*
2. *Has loyal and satisfied customers*
3. *Creates a safe and team-based environment for its employees*
4. *Contributes in a responsible way to the nation and culture*
5. *Leads sustainably in its market*
6. *Adapts fast to the needs of its customers*
7. *Is characterized by the uneasy entrepreneurial spirit of its people*
8. *Serves (delivers) everything and everywhere, with no exceptions*
9. *Is able to learn and evolve*
10. *Opens to new markets and conquers them*
11. *Has professional employees, operating in stable quality and performance*
12. *Is distinguished for the directness and the friendliness of its people.*

- Express at one word the values, principles or emotions (1-3) that your choices bring up to you.
- Which is the main obstacle for a change from today to the desired future?
- Write your answers using the following table.
- Rewrite them to the relevant post-its

	PRESENT <i>(yellow)</i>		FUTURE <i>(orange)</i>	OBSTACLE <i>(pink)</i>
No of phrase				From to
Qualities				

B. Which of the situations below seem FAMILIAR to you (choose 1-2) and which one seems UNLIKE / IMPOSSIBLE to happen in your workplace.

1. *I want things to change*
2. *I can shape new abstract notions*
3. *I exchange thoughts and ideas*
4. *I carefully develop some of them*
5. *I try to implement and extend them*
6. *I analyze data & document pathways*
7. *I balance the opposites to make them synergize*
8. *I transform experience into conscious re-orientation*
9. *I take targeted actions towards new knowledge*
10. *I organize & systematically apply the knowledge obtained*
11. *I question & revision the old knowledge*
12. *I transcend shortages and start again.*

- What skills (1-3) are needed for someone to face each of the familiar cases?
- What shortages (1-3) you think that impede the second?
- Write your answers using the following template.
- Rewrite them to the relevant post-its

	SKILLS <i>(green)</i>		SHORTAGES <i>(red)</i>
No of phrase			
Qualities			

PART 2 (*Teamwork at the table*)

A. Stick the post-its onto the large paper (put them next to the relevant numbers; put the obstacles on a 'present-future' arrow).

B. Discuss with your team and then with the other teams the following:

- *To which 'prototypes' your values relate? From which are they missing?*
- *Which of the 4 main corporate principles seem to be the most popular?*
- *Where to / from are the obstacles?*
- *Which situations can you easily face? Which do you avoid?*
- *Which qualities (values, skills) seem to dominate?*
- *What common things and differences you have with the other teams?*

PART 3 (*Teamwork at the table*)

A. **Relate in sets of 3 any visions you consider compatible in your working place** (they can fit together, even if this is not ‘logical’ or ‘accepted’ at the first glance). **Do the same with the situations.**

- Create 2-3 triads of visions and 2-3 triads of situations. Specify the dominant nodes in each triad.
- Use the table below (Part a) to write your answers.

B. **Based on the emerged qualities, create 4-5 contextual figures that exist in your working place**

- Start with the 3 fundamental values or skills of the figure. Add 1-2 obstacles or shortages and (if needed) some extra quality that has not been mentioned. Finally, give a meaningful name (or nickname) to the figures you have created. Write your answers in Part B.

Nodes		Fundamental qualities (3)			Obstacles / Shortages (1-2)		Extra quality	Name
Visions	Situations							
- -	- -							
- -	- -							
- -	- -							



A



B

Figure A.4.1: The Data Collection Form of the 1st case study (translated from the original)

4.2.2. Second Case Study (Municipality of Dionysos)



GROUP: A, b, M

Date : ___ / ___ /2013

PART A' (individually)

1.1. From the following phrases that depict your city:

- Choose 1-2 to which **you agree a lot or disagree completely**. (Mark P next to the number)
- Choose 1 that describes the future **that you would like** for your place. (Mark F).

Dionysos is (is not) / I would like to be a municipality that

1. Promotes the spirit of local development and innovation
2. Protects natural environment and thinks / acts ecologically
3. Consultation and accountability institutions are applied
4. Creates common-used infrastructure (education, sports, welfare)
5. Sustains local traditions and social cohesion
6. Ensures safety and aesthetics in common used areas
7. Its services operate in an planned, organized, and evaluated way
8. Serves people and resolves daily issues
9. Supports the spirit of social solidarity
10. Guards citizens' life and property
11. Enacts virtue administration (egalitarianism – transparency – effectiveness)
12. Promotes culture among the residents.

1.2. Express at one word the VALUES or EMOTIONS (positive or negative) that emerge from your choices (write 1-3 words for each choice).

1.3. Which do you think is the MAIN OBSTACLE for such a change; from today to the desired future?

Write your answers using the following table. Rewrite them to the relevant post-its

	PRESENT (<i>yellow</i>)		FUTURE (<i>orange</i>)	OBSTACLE (<i>pink</i>)
No of phrase				From ___ to ___
Qualities				

2.1. Which of the following situations seem FAMILIAR in your social context today (choose 1 or 2 and mark them with F) and which seems mostly unlike (IMPOSSIBLE) to happen (choose 1 and mark it with I).

1. *I want things to change*
2. *I can shape new abstract notions*
3. *I exchange thoughts and ideas*
4. *I carefully develop some of them*
5. *I try to implement and extend them*
6. *I analyze data & document pathways*
7. *I balance the opposites to make them synergize*
8. *I transform experience into conscious re-orientation*
9. *I take targeted actions towards new knowledge*
10. *I organize & systematically apply the knowledge obtained*
11. *I question & revision the old knowledge*
12. *I transcend shortages and start again.*

- What skills (1-3) are needed for someone to face each of the familiar cases?
- What shortages (1-3) you think that impede the second?
- Write your answers using the following template. Rewrite them to the relevant post-its

	SKILLS <i>(green)</i>		SHORTAGES <i>(red)</i>
No of phrase			
Qualities			

PART B' (teamwork)

3.1 Read loud your choices within your group and place the post-its onto the 12fold template (put the post-its next to the relevant numbers and the obstacles on a 'present-future' arrow).

3.2 Discuss with your team and then with the other teams the following:

- What kind of pattern has emerged? Where do your choices concentrate and where they are missing from?
- Where to/from are the obstacles?
- Which qualities and skills seem to dominate?
- *What common things and differences you have with the other teams?*

4.1. Relate in sets of 3 any items from the first 12fold (visions) you consider compatible for your municipality and indicate the 'dominant' element of each triad; create 2-3 triads.

In the following table fill the numbers of the visions chosen.; they gray cells are for the dominant elements.

Municipality's visions		

4.2. Do the same with the second 12fold (situations) considering that the triads should characterize the people and the associations of your place.

Social context		

5.1. Based on the emerged qualities, create 4-5 contextual figures that exist in your social surrounding.

Start with 3 fundamental values or skills that usually coexist; add 1-2 obstacles or deficits that usually come together with these qualities; if needed, add some extra quality that has not been mentioned; give a meaningful name (or nickname) to the figures you have created.

Fundamental qualities / skills			Obstacles / deficits		Extra quality	Name

6.1. Please discuss in your group the following questions and answer them in the space below.

Question	Answer
How did the workshop seem to you?	
How was your collaboration as a team?	
What impressed you most?	
Do you think the results are close to the truth?	

Figure A.4.2: The Data Collection Form of the 2nd case study (translated from the original)

4.2.3. Third Case Study (Entrepreneurial studies)

ΕΡΕΥΝΑ ΓΙΑ ΤΗΝ ΕΠΙΧΕΙΡΗΜΑΤΙΚΟΤΗΤΑ

Σχολείο: _____ Ημερ/νία: _____

ΜΕΡΟΣ 1^ο

Βήμα 1: (ατομικά)

Σκέψου **δύο πρόσωπα** από τον χώρο της αγοράς (επαγγελματίες ή πελάτες) που:

- το ένα είναι για σένα παράδειγμα προς **μίμηση** και
- το άλλο είναι παράδειγμα προς **αποφυγή**.

Για κάθε πρόσωπο, σκέψου **3 χαρακτηριστικά** (αξίες, αντιλήψεις ή πρακτικές) που:

- **θαυμάζεις** στο πρώτο και
 - **αντιπαθείς** στο δεύτερο.
- Γράψε τις λέξεις που σκέφτηκες στον Πίνακα 1 και
 - Αντίγραψε κάθε λέξη σε ένα πράσινο ή φούξια post-it.

Πίνακας 1: Χαρακτηριστικά που ...	
... θαυμάζω (πράσινο post-it)	... αντιπαθώ (φούξια post-it)

Βήμα 2: (ατομικά)

Οι παρακάτω φράσεις - καταστάσεις αντιστοιχούν στα βασικά στάδια μιας όποιας προσπάθειας:

1. Θέλω ν' αλλάξουν τα πράγματα
2. Συγκεκριμενοποιώ αφηρημένες ιδέες
3. Επικοινωνώ κι ανταλλάσσω απόψεις
4. Προετοιμάζω αυτό που θέλω
5. Το εφαρμόζω & προσπαθώ να κυριαρχήσω
6. Αναλύω, τεκμηριώνω & προχωρώ
7. Εξισορροπώ αντίθετες τάσεις
8. Κάνω επιλογές με βάση τις εμπειρίες μου
9. Βάζω στόχους κι επιδιώκω νέες γνώσεις
10. Συστηματοποιώ τη γνώση που απέκτησα
11. Αμφισβητώ & αναθεωρώ τα δεδομένα μου
12. Υπερβαίνω τις αδυναμίες μου & ξαναρχίζω.

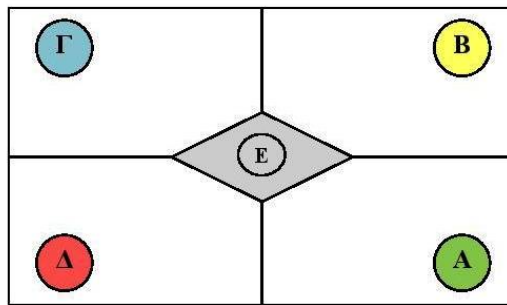
- α) Ποια πιστεύεις ότι είναι η **πιο συνηθισμένη** στο χώρο που ζεις ή κινείσαι; (σημείωσε την με ✓)
- β) Ποια πιστεύεις ότι είναι **απίθανο** να συμβεί στο χώρο σου; (σημείωσε την με X)
- γ) Ποιες **ικανότητες** απαιτούνται για την πρώτη; (γράψε έως 3 ικανότητες σε ισάριθμα **κίτρινα post-its** και αντίγραψε τις στον Πίνακα 2)
- δ) Τι πιστεύεις ότι **εμποδίζει** την δεύτερη να συμβεί; (γράψε έως 3 εμπόδια σε ισάριθμα **καφέ post-its** και αντίγραψε τα στον Πίνακα 2).

Πίνακας 2: Αυτά που υπάρχουν σήμερα σαν ...	
... ικανότητες (κίτρινο post-it)	... εμπόδια (καφέ post-it)

Βήμα 3: (ομαδικά)

Διάβασε στα άλλα μέλη της ομάδας σου τις λέξεις που έγραψες και τοποθέτησε τα post-its στις περιοχές του χάρτη, ανάλογα με το νόημα κάθε περιοχής:

- A: Υπάρχει μια μόνο αλήθεια και όλοι τη γνωρίζουμε - πρέπει όλοι να την εφαρμόσουμε
- B: Υπάρχει μία αλήθεια που την ξέρουν μόνο οι ειδικοί - πρέπει να τους ακούμε
- Γ: Υπάρχουν πολλές αλήθειες, αντιφατικές μεταξύ τους - πρέπει να τις συζητήσουμε
- Δ: Δεν υπάρχει καμιά αλήθεια, δεν βγάζω νόημα - κάποιος πρέπει να κάνει κάτι
- E: Δεν ξέρω - δεν μ' ενδιαφέρει - δεν παίρνω θέση.



- Συζητείστε για 3' τι σας έκανε εντύπωση από την άσκηση.
- Γράψτε με δυο λόγια τα σημεία που συμφωνήσατε κι εκείνα που διαφωνήσατε.

ΜΕΡΟΣ 2^ο

Οι παρακάτω φράσεις περιγράφουν τα κυρίαρχα χαρακτηριστικά 12 διαφορετικών τύπων ανθρώπων, είτε αυτοί είναι επιχειρηματίες, είτε καταναλωτές.

1. αφοσίωση & γενναιοδωρία
2. επιβίωση & αλληλεξάρτηση
3. θάρρος & μαχητικότητα
4. ιδεαλισμός & εμπιστοσύνη
5. δημιουργική έκφραση
6. πάθος & ευαισθησία
7. ρήξη & ανατροπή
8. αναζήτηση – εξερεύνηση
9. κυριαρχία & έλεγχος
10. ευχαρίστηση & προκλήσεις
11. μεταμόρφωση - μαγικές λύσεις
12. σοφές & δίκαιες επιλογές

Βήμα 4: (ομαδικά)

Ανάμεσα στα 12 αυτά χαρακτηριστικά, συνδυάστε ανά τρία (3) αυτά που νομίζετε ότι εκφράζουν το προφίλ του **επιχειρηματία**,

- που κυριαρχεί σήμερα (2 τριάδες)
- που θα θέλατε να υπάρχει στο μέλλον (1 τριάδα).

Πίνακας 3: Ο επιχειρηματίας σήμερα / αύριο			
	Τριάδες (Α/Α φράσεων)		
Σήμερα (1)			
Σήμερα (2)			
Αύριο			

Βήμα 5: (ομαδικά)

Αντιστοίχως, δημιουργήστε τις τριάδες που νομίζετε ότι εκφράζουν το προφίλ του **καταναλωτή**,

- που κυριαρχεί σήμερα (2 τριάδες)
- που θα θέλατε να υπάρχει στο μέλλον (1 τριάδα).

Πίνακας 3: Ο καταναλωτής σήμερα / αύριο			
	Τριάδες (Α/Α φράσεων)		
Σήμερα (1)			
Σήμερα (2)			
Αύριο			

Figure A.4.3: The Data Collection Form of the 3rd case study (in Greek)