

STIR Workshop 20 June 2016: Small Steps Towards Sustainability

**Re-engineer cultural “DNA” of an innovation
in the process of adoption and diffusion:**

**In the lens of adopters of an eco-innovation in Honghe
UNESCO World Heritage Site in Yunnan China**

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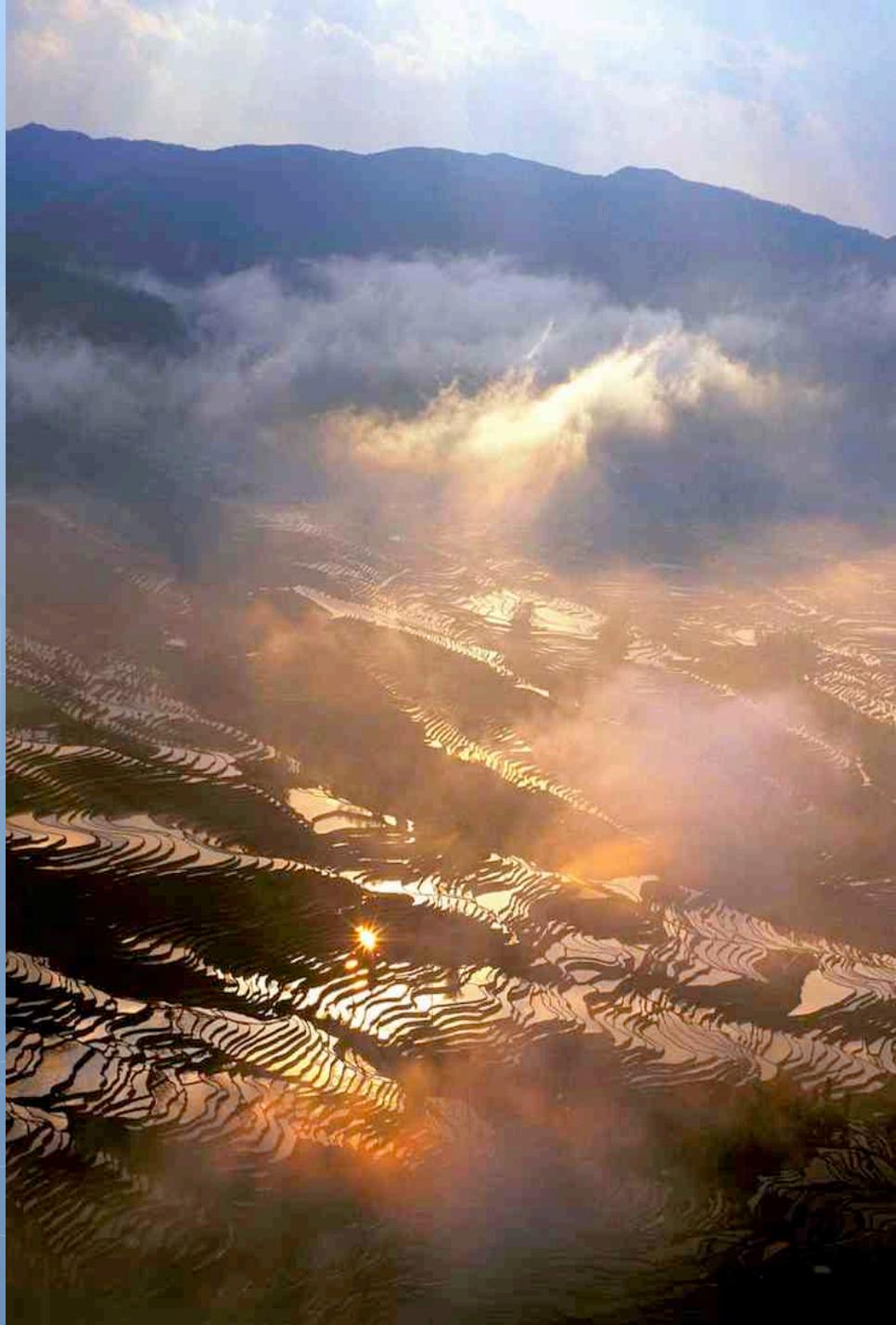
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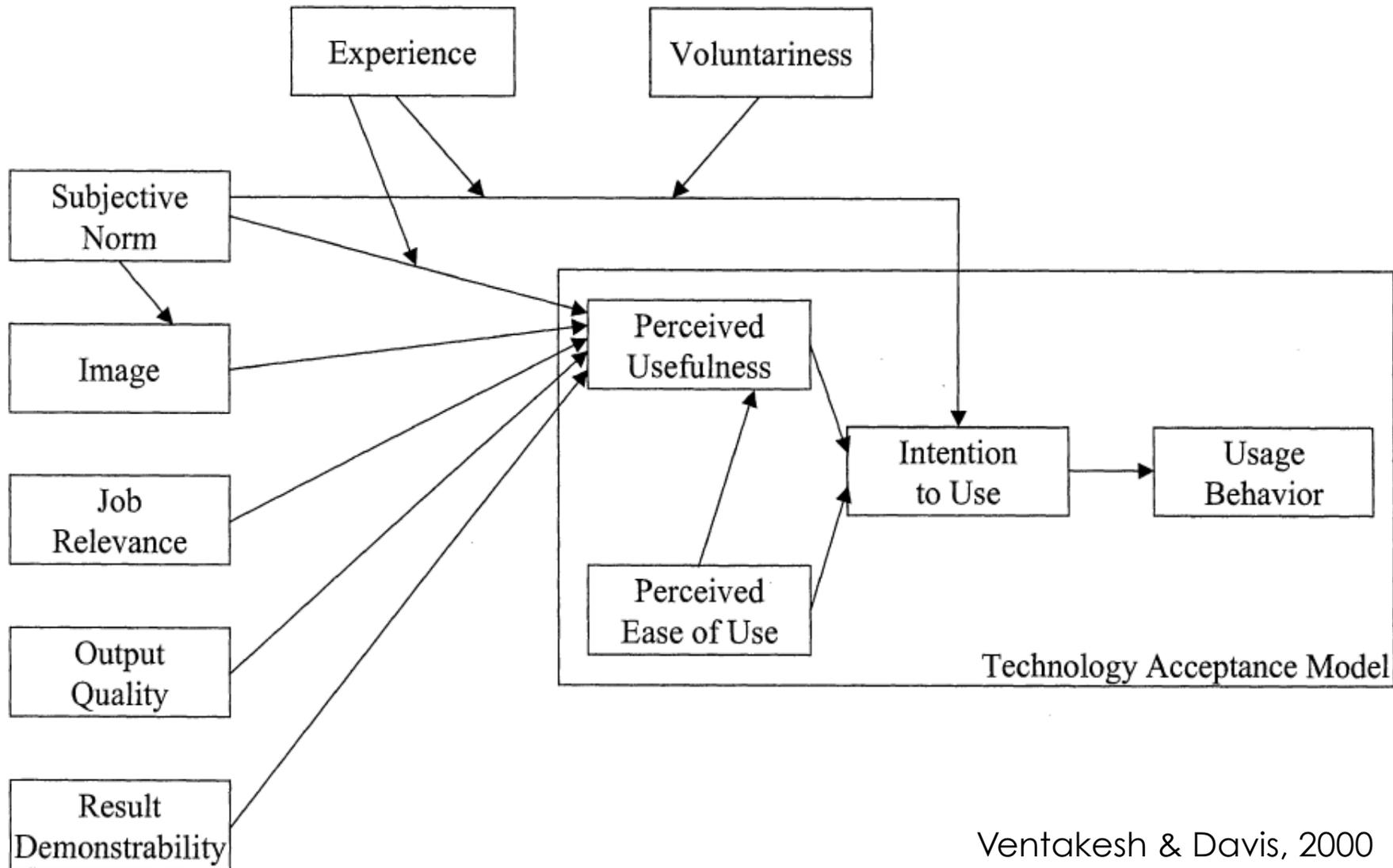
Introduction

The decision of adopting a particular innovation and the time and space dimensions of that decision has been widely studied.

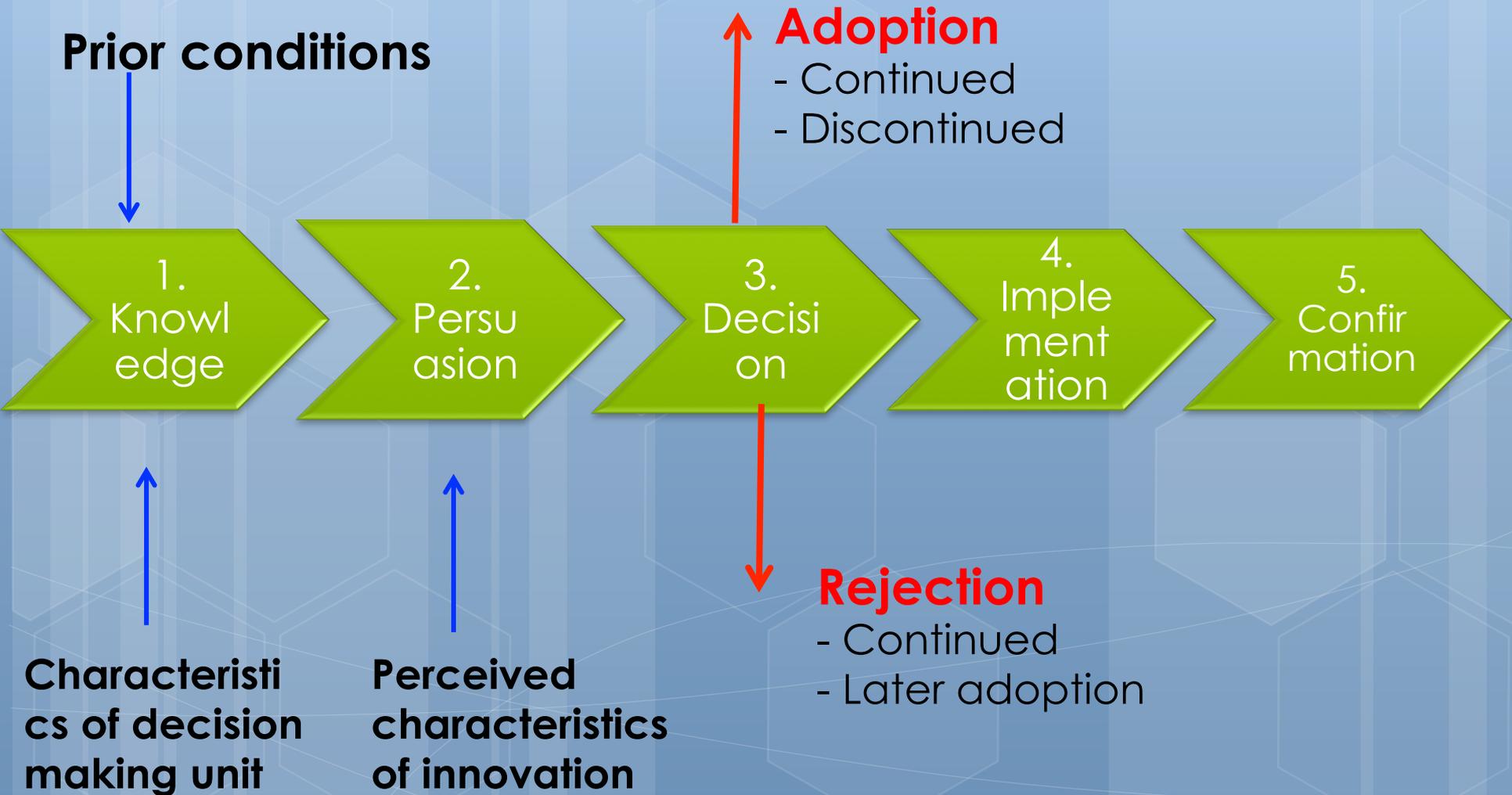
- ✓ Why does one choose to adopt an innovation while another person resists?
- ✓ What are the influencing factors on the decision to adopt?
- ✓ How extensive is the level of adoption across geography and time - diffusion?

What are the theories & models?

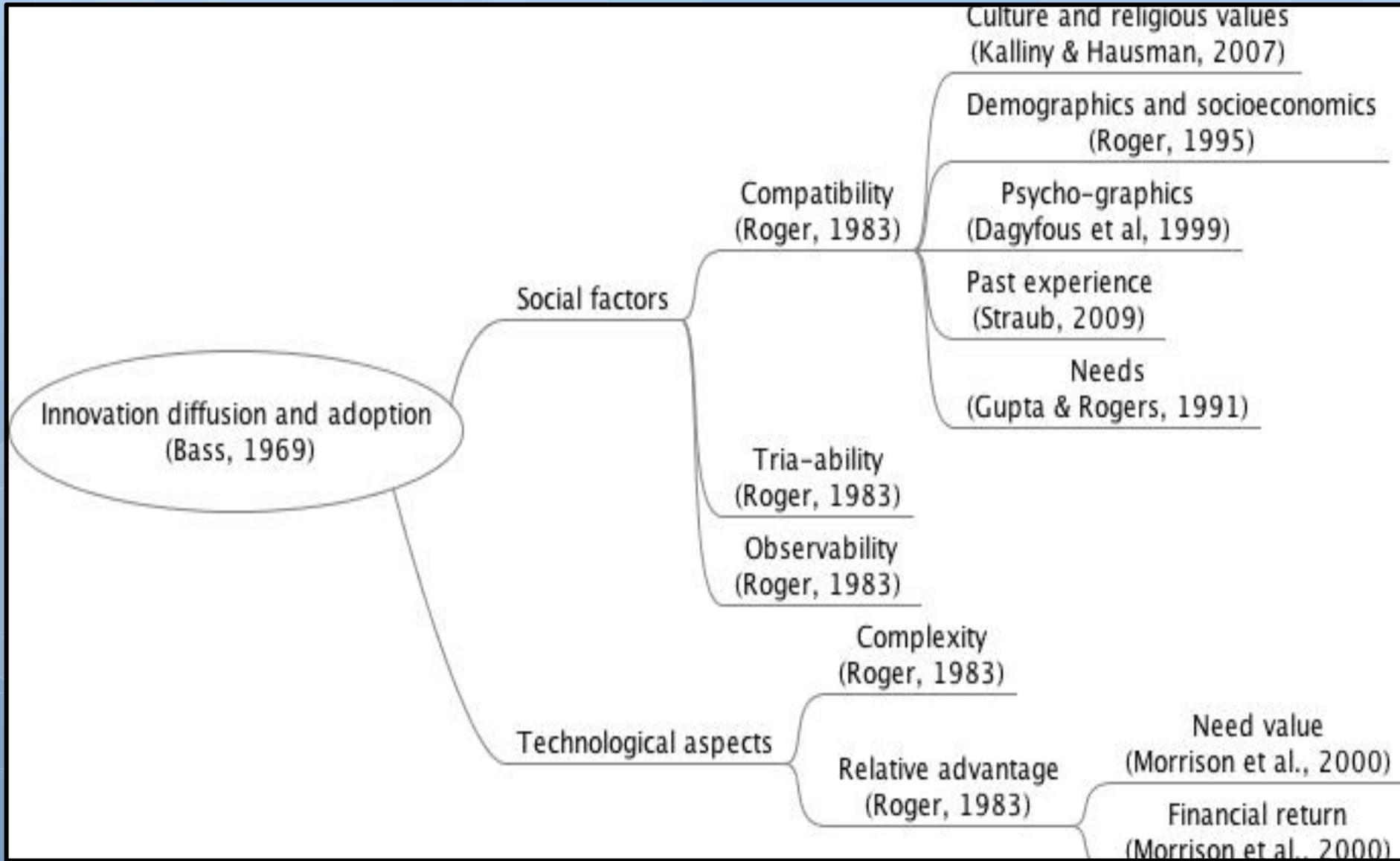
Figure 1 Proposed TAM2—Extension of the Technology Acceptance Model



5 stages Innovation Adoption Decision Process (Roger, 1995, 2003)



Social factors and technological aspects affecting adoption rate



Research gaps:

- Limited number of studies on how the receiver's cultural and religious characteristics promote or inhibit adoption by individuals and rate of diffusion of innovation in a community (e.g. Karahanna *et al.*, 2002; Meyers and Tan, 2002; Huang *et al.*, 2003; Miller, 2006; Kalliny and Hausman, 2007).
- Some of these studies advocate prohibitive effects of cultural and religious factors

Context: Honghe Hani Rice Terraces, Yunnan, China: UNESCO World Cultural Landscape Site



Site Characteristics:

- Very remote area with some 16,603 hectares of core area and 29,501 hectares of buffer zone
- 82 villages with a total population of about 50,000
- Ethnic minority of 'Hani' and 'Yi' with distinctive culture and religious values – relatively less exposure to the modern world
- spectacular man-made rice ecosystem has existed for circa 1,300 years, supported by an integrated cultural and religious concept of an harmonious co-existence between the natural environment, villages and rice terraces.
- Supported by religious beliefs – sacred forest located above the village. It becomes the water catchment area to store water for the rice terraces

寨神林 Sacred Forest



水系 Water Worship



蘑菇村寨：





居住 环境与 经济 活动



有机肥料： Household and animal waster water as organic fertiliser



红米梯田: Traditional red rice species



Solar Heating System: A small guesthouse



Extensive use of solar heating system: Photo shown one of the villages



Research questions and objectives

How do these cultural and religious factors influence the adoption decision and diffusion of the selected eco-innovation?

- To map out the innovation-decision process - knowledge and persuasion stages (Rogers, 1995) - of adoption of an eco-innovation in the study site.
- To identify and analyse the factors which encourage or impede the adoption and diffusion of the eco-innovation in household and small hotel.
- To gain an understanding of the issues of compatibility in the adoption decision in the case of interactions between prior knowledge (particularly in cultural and religious elements) and the green philosophy behind the eco-innovation.

Methods:

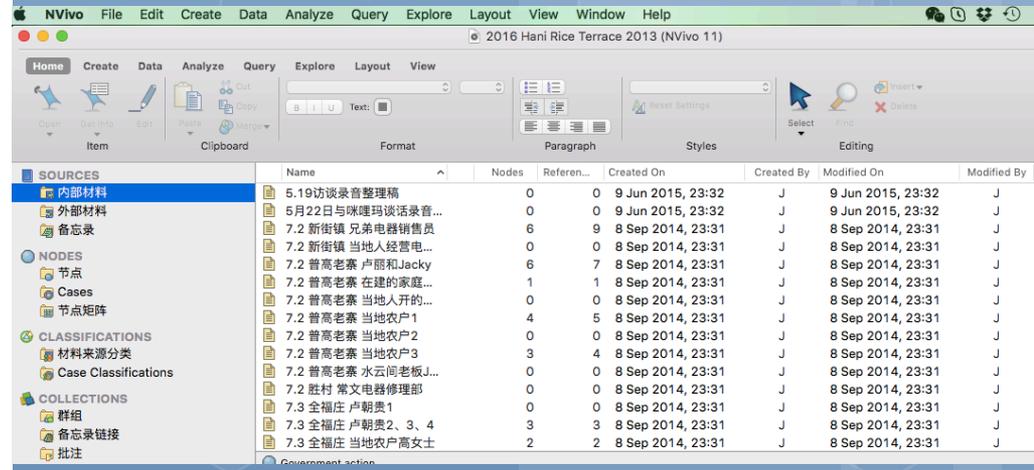
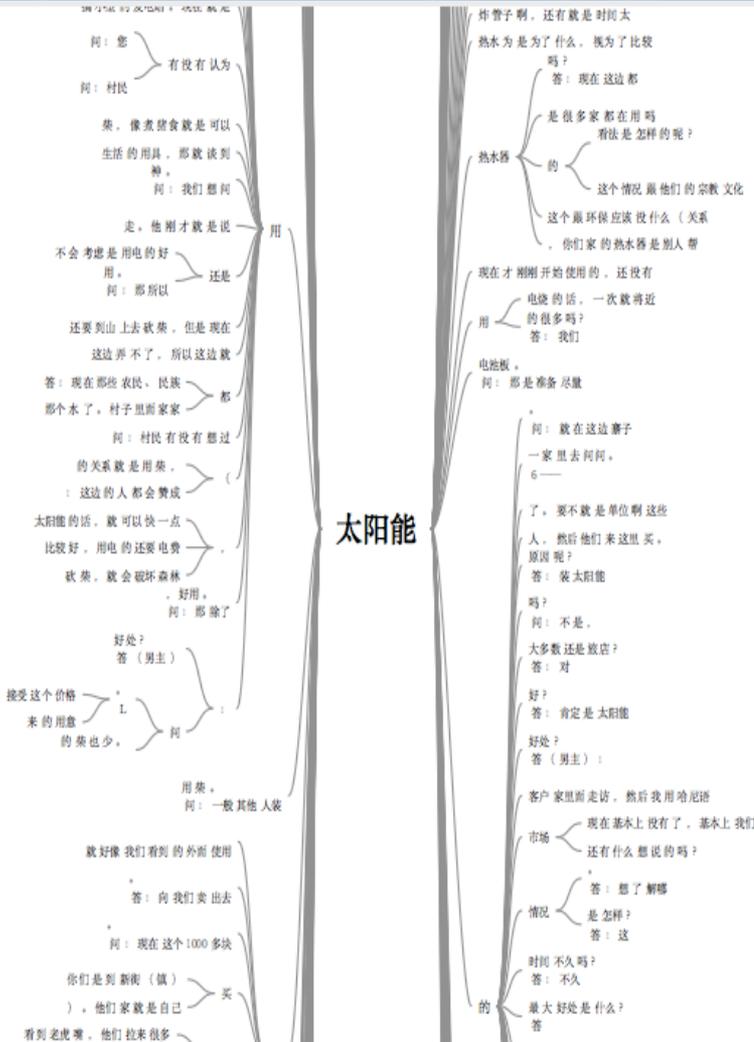
- Qualitative research: to analyse qualitative data, primarily collected through interviews and observation on the site.
- Qualitative method is selected because of the complexity of cultural and religious factors in influencing the adoption decision.
- It allows us to understand how cultural and religious factors influence the decision of adoption based on the words uttered by the local communities.
- The fieldwork team consists of three experienced researchers, two student assistants and a local translator-guide. We obtained approximately 200 hours of audio-recorded interviews.
- In addition, we took photographs, conducted observations and engaged with unrecorded discussions in order to provide us a better understanding of the site and dynamics in the community.
- Data transcribed, stored in Nvivo and coding conducted

Preliminary analysis: Discussions on Solar Heating System:

The villages talk freely about the following topics:

- Where they learnt about the solar heating system?
- From who?
- Why they adopt the system?
- What benefits?
- What contradict or agree with their lifestyles? Their religion?

Their conversations have been recorded, stored, coded and analysed in Nvivo.



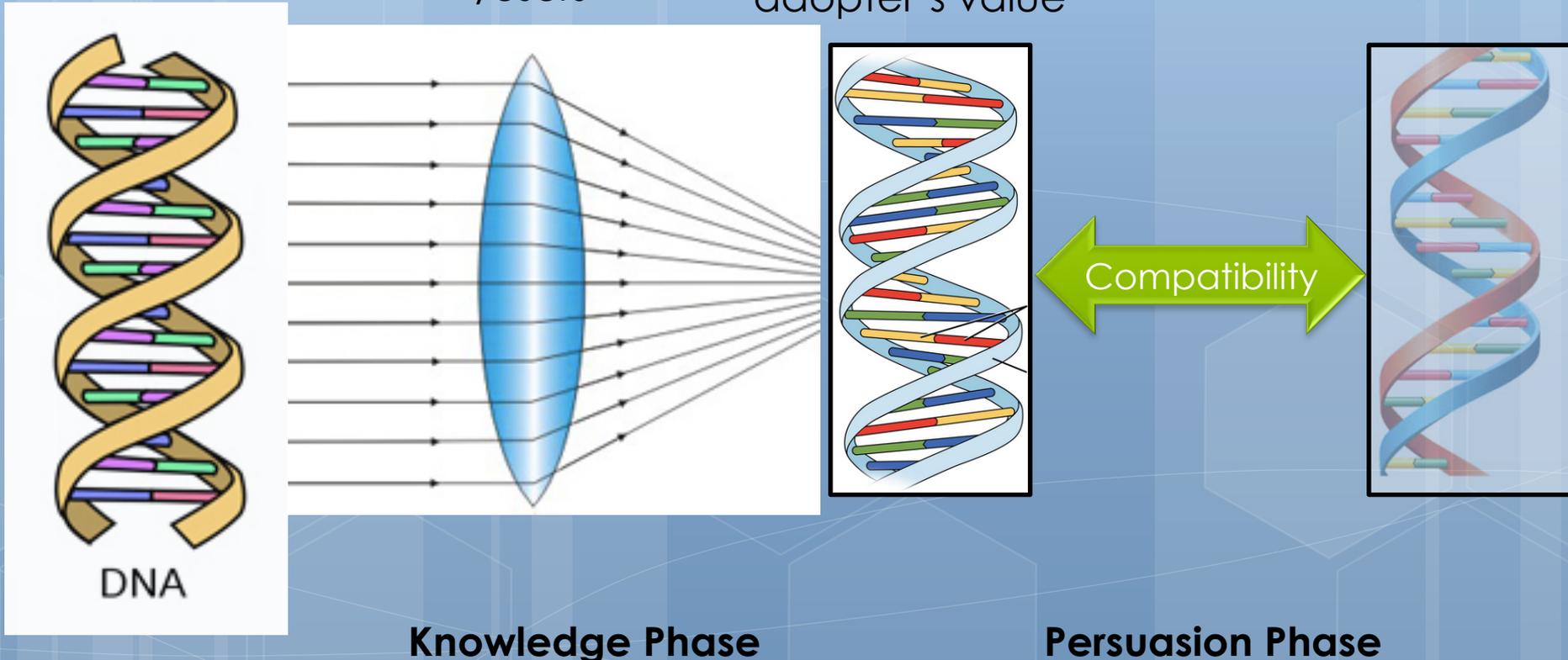
Process of objectification

Innovation laden with DNA of Creator's value

Lens of potential adopters /users

Domesticated Object after normalised by adopter's value

Institutional, Individual, Technical factors of adopters



Creator's DNA in an Innovation

Phenomenology of Spirit, Hegel (1977) :

“...no fundamental separation between humanity and materiality – that everything that we are and do arises out of the reflection upon ourselves given by the mirror image of the process by which we create form and are created by this same process.” (Miller, 2005: 8)

Domestication of innovation

- The desire to 'see oneself' in the object transforms the meaning (DNA) of the object
- Sociology of technology (Silverstone et al., 1992):
 - Four processes: appropriation, objectification, incorporation, and conversion, but it describes post-ownership of the object.

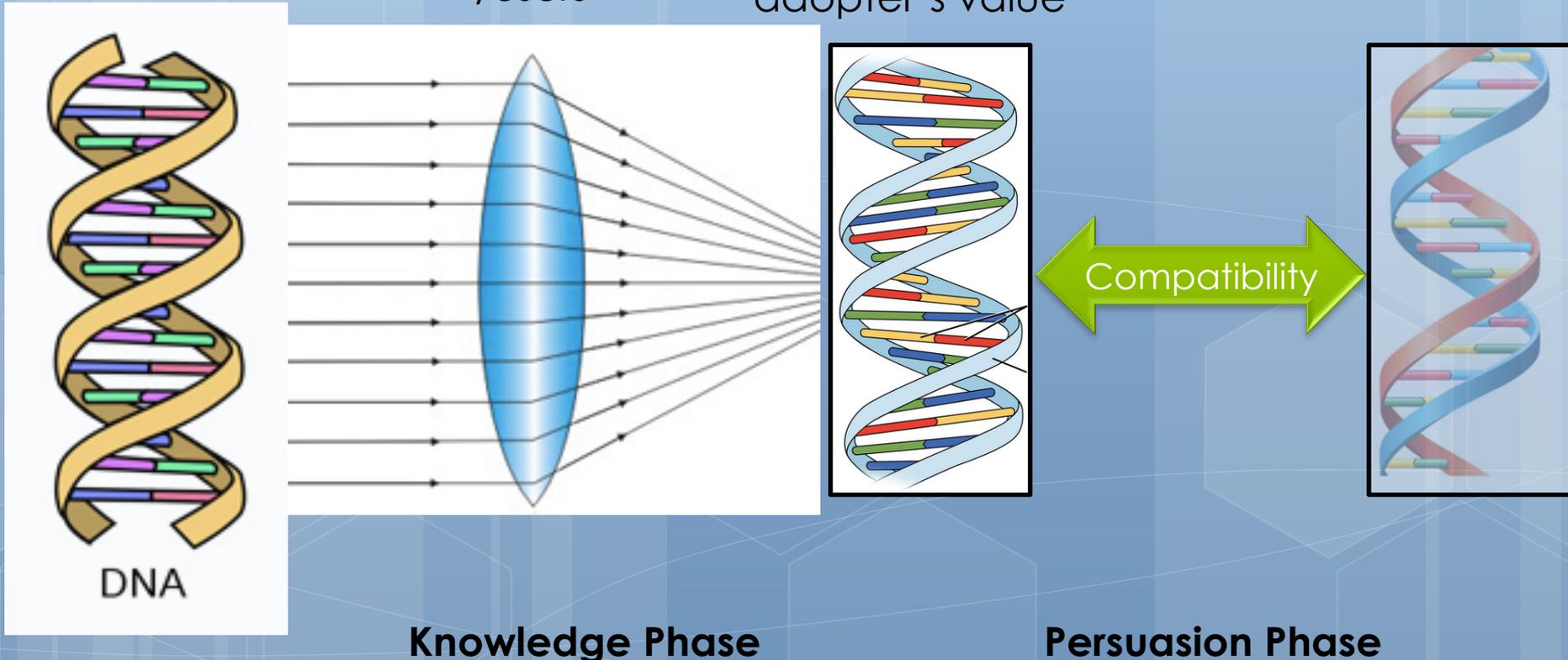
Process of Re-Engineering

Innovation laden with DNA of Creator's value

Lens of potential adopters /users

Domesticated Object after normalised by adopter's value

Institutional, Individual, Technical factors of adopters



Traces of creator's DNA

- Renewable energy
- Reduction of carbon emission

“太阳能的话因为它会热水啊，它会自动地热嘛，又省电。。。”

“太阳能热水器这个跟环保应该没什么（关系）吧。用的话一来是觉得很方便”

Examples of Domestication

- Use for hygienic purposes - Untapped needs – readily available hot water for domestic usage: e.g.: shower – changing of hygienic habits
- Use for cooking animal feeds – reduction in the use of firewood, and thereby reducing deforestation and protecting water catchment
- Use as wedding gifts
- Compatible and no contradiction with religious belief

“太阳能的话。。。就不用再去砍树了，砍树砍多了如果不保护它的话，这些哈尼梯田就没有充足的水源了“

“就是以前在家里面洗澡这些都是用锅烧，要用柴和大铁锅烧，然后它第一也是方便洗澡，这是第一个，就是说讲究卫生嘛”

“我装太阳能是为了让家里人经常有热水洗澡，还可以用来煮猪食，按个水是温的嘛，煮猪食的时候就可以少费一点燃料，减少用柴。。。”

Persuasion factors: Re-engineering DNA

Individual factors

- Needs
- Psychographics
- Demographics
- Economics
- Education

Technical factors

- Complexity
- Technical system compatibility
- Trial-ability
- Observability
- Financial soundness (capital and returns)
- Post-adoption supports

Institutional factors (normative, cultural-cognitive, regulative)

- Family
- Social
- Political
- Religious

Other observations & challenges:

- Government policy encouraging (the act of village committee?) and subsidizing the cost
“农村的是国家扶贫的，各家600块就可以装一台，是国家扶贫以后给的价格”
- not everyone want to change showering habits
- The traditional mushroom roof cannot accommodate the solar heating system – see photo in the next slide
- Changes of traditional roof structure thereby ecstatic value of the surroundings
- Lack of supporting infrastructure (drainage system)
“村子一下子多了100多台太阳能。。。每一户都搞一个卫生间卫生间的水都排到街上了，乱七八糟到处都有”
- Other more pressing issues – solid waste from tourists, lack of water during draught session (related to cutting off trees)

Traditional mushroom roof & modern flat roof



- Cannot put solar heating system on mushroom roof
- Need a modern roof – against principle of protection of traditional building style in the World Heritage Site



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