

INTRODUCTION

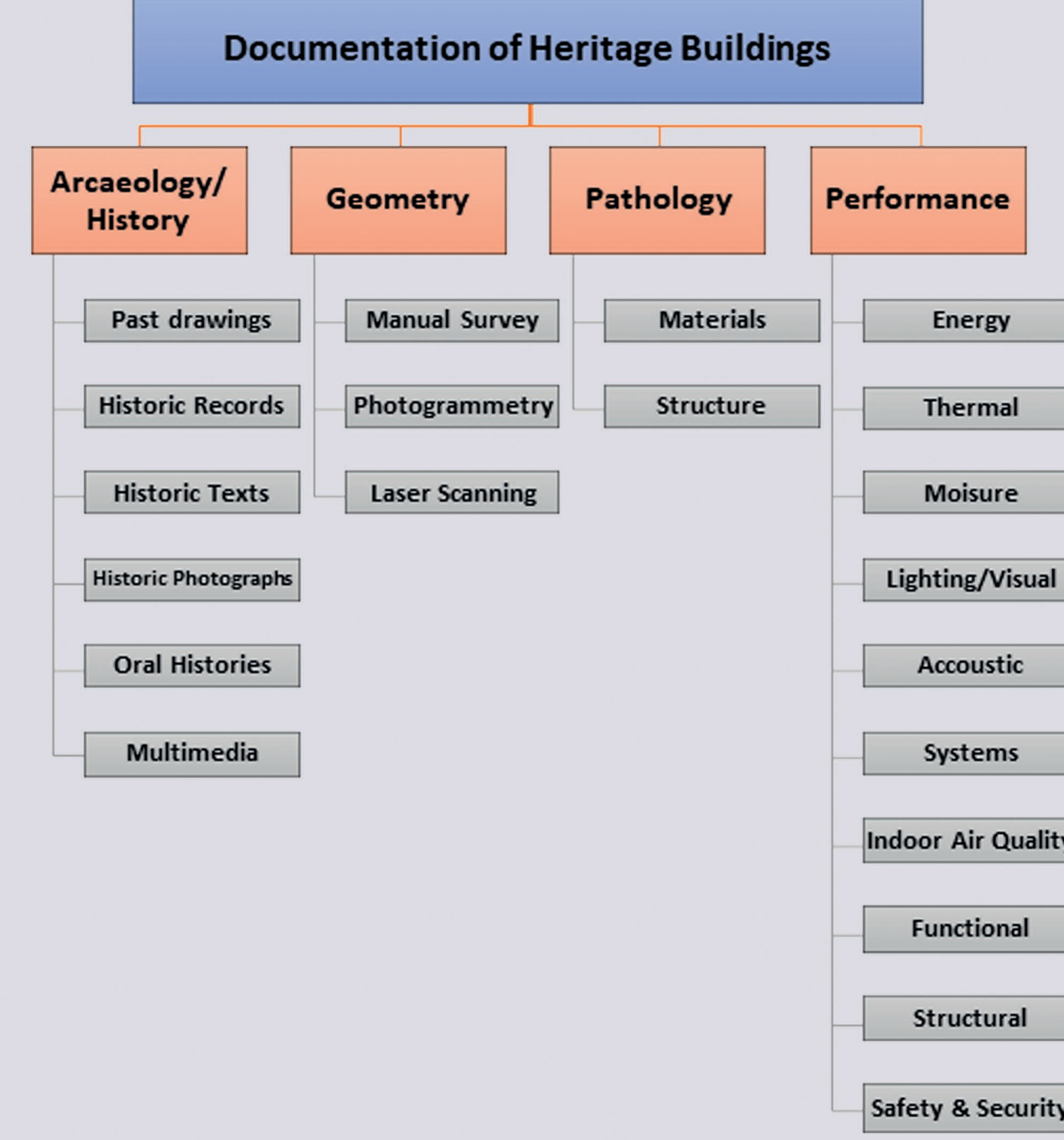
Documentation of heritage buildings is the preliminary action to deal with any problem related to the built heritage. Documentation is usually the most basic and fundamental process that can affect and facilitate any required procedures to preserve the building for next generations or enhance its performance in order to enable it to achieve its current or future functions. Heritage buildings documentation have a role, as well, in forming our understanding of the building's history, its historic socio-economic context, its building technologies, construction materials, and, on a larger scale, our knowledge concerning its historic period and ancient societies.

This poster aims to categorise and analyse the different domains of digital documentation data that could be incorporated into documenting heritage buildings and analyse how different types of data can be interpreted.



OF HERITAGE BUILDINGS

Heritage documentation is the systematic collection and archiving of tangible and intangible elements of historic structures. It aims to supply accurate information that enables correct conservation, monitoring and maintenance for the survival of the building (Dore and Murphy, 2017), (Letellier, 2007), (Bryan et al., 2009). Documentation is the first step towards heritage buildings analysis, conservation, retrofitting, renovations, and management. It can incorporate both quantitative assets (geometric data, performance data) and qualitative assets (historic photographs, oral histories, music,...) (Fai et al., 2011).



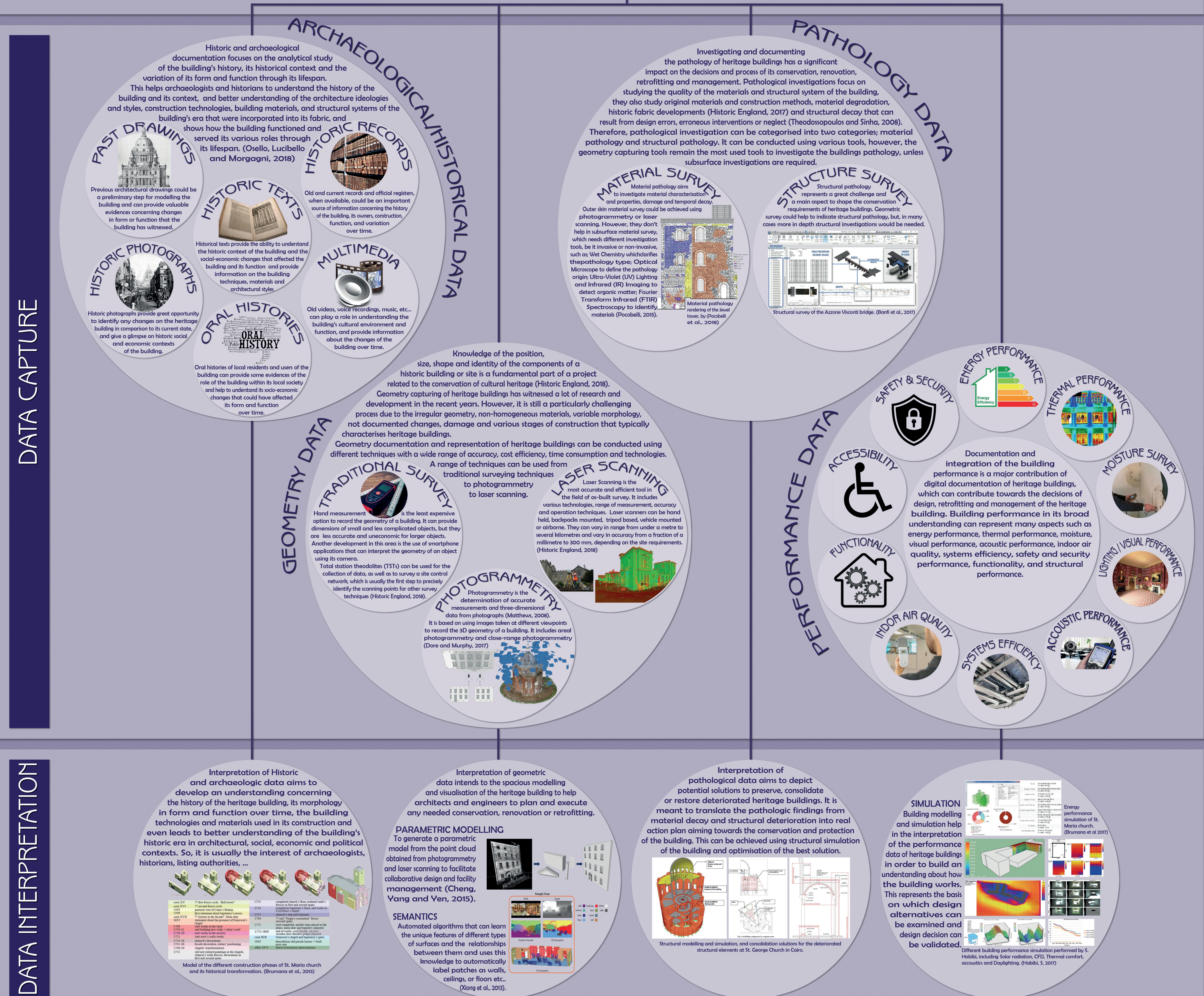
The documentation process incorporates a wide range of data, from quantitative to qualitative and from tangible to intangible. It represents also numerous types of data. Different stakeholders are interested in different types of documentation data.

Considering these variety of documentation purposes, stakeholders' interests and data typology, documentation data concerning heritage buildings can be categorised into four distinct areas:

- Archaeological and historical data; aiming towards the archaeological investigations and understanding of the historical context of the building.
- Geometry; aiming to record, survey and visualise the spacious characteristics of the building's fabric on its current state.
- Pathology; aiming to discover and survey any potential damage or decay of the fabric of the historic building over time.
- Performance data; aiming to understand and analyse the current status of the building's operability and performance.

The process of digital documentation consists of two phases; the data capture phase and the data interpretation phase.

HERITAGE BUILDINGS DOCUMENTATION PROCESS



PURPOSE OF THIS RESEARCH

This poster is part the literature review of a PhD project about digital documentation of heritage buildings and its challenges. The purpose of this poster is to categorise different data domains that could be investigated within the process of the documentation of heritage buildings and analyse how each domain of data is interpreted to facilitate the conservation, renovation and management of heritage buildings.

REFERENCES

- Bonif, F. et al. (2017) Historic BIM: A new repository for structural health monitoring. International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences - ISPRS Archives, 42(01/02), pp. 209-214. doi:10.5194/isprs-archives-XLII-5-209-2017.
- Brunano, R. et al. (2018) From survey to BIM for documentation, dissemination and management of built heritage. The case study of St. Maria in Scotis (Rovato). Proceedings of the Digital Heritage 2018 - Federating the 16th Intl VISUAL 2018 Eurographics CGA and 2nd UNESCO Memory of the World Conference, Plus Special Sessions from CAIA, Archaeology 2.0 et al. IEEE, 1, pp. 497-504. doi:10.1109/DigitalHeritage.2018.0747879.
- Brunano, R. et al. (2017) BIM challenge among the paradigm of complexity, risk and preservation. The Basilica di Colosseum 8 years after the earthquake (L'ascolto). International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences - ISPRS Archives, 42(01/02), pp. 97-104. doi:10.5194/isprs-archives-XLII-5-97-2017.
- Brown, G. et al. (2009) Metric Survey Specifications for Cultural Heritage. Edited by D. Andrews. English Heritage.
- Cheng, H. M., Yang, W. Bin and Yen, V. N. (2015) BIM applied in historical building documentation and refurbishing. International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences - ISPRS Archives, 42(01/02), pp. 89-90. doi:10.5194/isprs-archives-XLII-5-89-2015.
- Dore, C. and Murphy, M. (2017) CURRENT STATE OF THE ART HISTORIC BUILDING INFORMATION MODELLING. The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, XLII-2(145/146), pp. 185-192. doi:10.5194/isprs-archives-XLII-2-145-185-2017.
- Fai, S. et al. (2011) Building Information Modelling and Heritage Documentation. Proceedings of the 23rd International Symposium, International Scientific Committee for Documentation of Cultural Heritage (ISCDC), pp. 12-16.
- Habibi, S. (2017) The promise of BIM for improving building performance. Energy and Buildings, Elsevier B.V., USA, pp. 523-548. doi:10.1016/j.enbuild.2017.04.009.
- Historic England (2016) BIM for Heritage Developing a Historic Building Information Model. Swindon.
- Historic England (2018) 3D Laser Scanning for Heritage. Advice and Guidance on the Use of Laser Scanning in Archaeology and Architecture.
- Letellier, B. (2007) Recording, Documentation, and Information Management for the Conservation of Heritage Places, guiding principles. Los Angeles: The Getty Conservation Institute, doi:10.6392/GCI.
- Matthues, N. A. (2008) Aerial and Close-Range Photogrammetry: Technology, Providing Resource Documentation, Interpretation, and Preservation. Technical Note 428. Denver, Colorado: U.S. Department of the Interior, Bureau of Land Management, National Operations Centre, Denver, Colorado.
- Osello, A., Lucibello, G. and Morgagni, F. (2018) BIM and Virtual Tools: A New Chance to Preserve Architectural Heritage? Buildings, 8(3), p. 12. doi:10.3390/buildings803012.
- Pocobelli, D. P. (2015) Can heritage be high-tech? Building Information Modelling (BIM) for built heritage: Material characterisation: Terrestrial Data Acquisition Points Cloud Pathologies: Revit 3D Model Future work. (2015), p. 2015.
- Pocobelli, D. P. et al. (2018) Building Information Models for Monitoring and Simulation Data. ISPRS TC 11 Mid-term Symposium "Toward Photogrammetry 2020". XLII(04), pp. 4-7. doi:10.5194/isprs-archives-XLII-4-4-2018.
- Theodossopoulos, D. and Sinha, B. (2008) Structural safety and failure modes in Gothic vaulting systems. ... Int. Seminar on Structural ... pp. 2-9.