

Heritage Reservation Theory and Technology and Futurism

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Abstract: *The studio 'Architecture between historical heritage and society' discusses the relationship between existing heritage and newly-built constructions. The Fortress Medicea in the site, Siena was built in 1561 as the mark of war defeat against Florence. It is a sensitive symbol for residents in the past, nowadays and in the future. This essay aims to research the development of international heritage reservation theories and practices and find suitable approaches to deal with the new and the old in the studio project. It would be interesting and worthy to rethink and adopt the identity of the Fortress. Local residents' and visitor's attitudes towards the fortress and develop new functions in the future are also needed to consider.*

Keywords: *Heritage reservation; Fortress; Theory and Technology; Futurism*

1. Introduction

More attention about heritage conservation and management have been paid from the mid-20th century [1]. Historical buildings have been usually abandoned due to inappropriate function, accessibility and so on. However, historical buildings still hold high cultural and economic values [2] and represents unique context and character of regional environment. Historical buildings would promote local tourism, recall context and meet sustainable development when adopted properly.

Theory and technology about heritage and Futurism theory have close link with the studio 'Architecture between historical heritage and society'. The Fortress Medicea in Siena, Italy was built in 1561 as the mark of war defeat against Florence. It is a sensitive symbol for residents in the past, nowadays and in the future. What is the relationship between existing heritage and newly-built constructions? How to make the heritage more accessible to residents and meet the modern society functions? These are problems needed to think.

This essay aims to research the development of international heritage reservation theories and practices and find suitable approaches to deal with the new and the old. With the guide of these theories and principles, it is possible to combine heritage management, policies, contexts, people's attitudes and new technologies together. It would be interesting and worthy to rethink the identity of historical heritage and develop new functions for the future.

There are mainly four parts in this essay:

- 1) Literature review about the present circumstance of the heritage conservation and the development of conservation goals
- 2) Explain the relationship between theory and technology about heritage and Futurism theory.
- 3) Show two precedent studies engaged with theory and technology.
- 4) Introduce the studio background and explain how these theories link with it.

2. Development of heritage reservation

The identity and main goals have been evolved gradually, as well as reservation function and practical approaches have been highlighted. As Edita Riaubienė [3] mentioned, the goal of heritage reservation is inspired of 'public awareness of heritage and use of it' [3]. 'Cultural and educational tourism' was one of the important functions of heritage reservation as well as retaining the heritage original form. Nowadays goals of reservation has evolved from 'protect', 'preserve and transmit', 'preserve authenticity

and transfer' in 20th century, to 'preserve and use for sustainable human development and quality of life' and become the catalyst of environment.

Heritage function have been undergone evolution since the development of society and changes of people's needs. Museums are often used in heritage projects where reservation and exhibition are their main function [4]. Frozen protection and traditional culture have left an enormous gap in residents' life. Recently with the development of economic and entertainment form, heritage function has been gradually turned to communication, immersive experience and digital interaction. More and more attention has been paid to visitors' needs, tourism influence and sustainable development. People are not willing to be limited by passive sightseeing [5]. Modern activities and services such as cafeteria, bookshops, amusement park, help heritage to be a core and catalyst for regional development and to reach their goals to improve living quality.

3. Relationship between theory and technology

'Technology is the means by which we transform reality, manifested in our capacity to design artefacts and mobilise complex and entangled networks of resources in order to bring them into existence...It is the means by which we transform our reality and we transform Ourselves.' [6]

Theory and Technology are usually thought as two separate and distinct realms. As architects, we don't need to 'build' a building or a house personally nowadays, what we do basically is 'drawing' the building, creating 3D models and renderings. For example, we usually draw a rectangle and cross it as a mention of lift in 2D drawings. We don't care the detail lift technologies and its parameter. We just leave the void here and call the engineer to specify it. But architecture should care deeply about technology. The construction of building requires a deep engagement with technical complexity.

Theory and technology about heritage and Futurism theory have close link with the studio. In this studio, the Fortress Medicea in Siena, Italy was built in 1561 as the mark of war defeat against Florence. It is a sensitive symbol for Siena residents in the past, nowadays and in the future. What is the relationship between existing heritage and newly-built constructions? How to make the heritage more accessible to residents and meet the modern society functions? These are problems needed to think about.

4. Case study

4.1. Different Attitudes from visitors and residents in Sirako, Greece

Thanks to Stella Giannakopoulou's research in Sirako, Greece, where the situation is similar with Siena (Figure 1&Figure 2), surveys could be conducted to reveal the attitudes and perceptions towards local architectural heritage from habitants and visitors.



Figure 1: Overview of Sirako



Figure 2: Spatial atmosphere of a narrow path [2]

As shown in Stella’s research (Table 1), heritage buildings are proved to make great contribution to social development which also promoted high economic, cultural and emotional value in some regions. Governments and management organizations are willing to make full use of construction funds and conduct measurements when heritage reservation imply more profit. When visitors’ and residents’ need and concerns are met, they become more attached to heritage environment and pay for it. Thus, the heritage economic value would be higher.

Table 1: Outcomes of residents’ attitudes about Sirako heritage [2]

Why is it important to preserve the local architecture?	Residents
It is an important national cultural heritage and tradition.	35.8%
It is a beautiful and harmonic built environment of high aesthetics.	19.3%
It is unique and it is the characteristic of local place identity. It should be protected for general architectural divergence to be maintained.	10.2%
It is our history, our ancestors’ heritage. We ought to preserve it.	10.8%
It is our cultural heritage, which we should bequeath to our children.	10.2%
It should be protected in order to attract tourism and generate local development.	6.3%
It’s the place I have lived in. It holds my memories, my life experiences.	2.8%
It holds educational value.	1.5%

4.2. New Techniques in heritage reservation

Large quantity of data is needed to be measured, analyzed, filtered, recorded, and regularly updated when managing the heritage reservation project [7]. The data capture and management of data can be significantly affected when based on different digital approaches and building information system. Due to the complicate circumstance of heritage and site, it usually takes a lot of time when making handy drawing and photography as traditional ways of investigation and measurement. When the data are later transferred to engineering 2D drawings, it is difficult to make practical intervention based on these 2D drawings due to the lack of enough information [8].

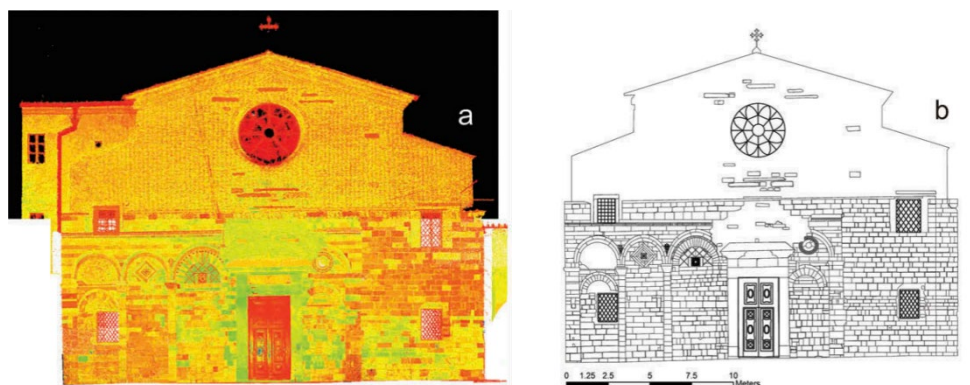


Figure 3: The facade of the St. Nicholas Church: (a) the point cloud colored by the different effects of the reflecting material surface properties; (b) the facade 2D drawing. [9]

Thus, with the help of development of information technology, architects began to pay more attention to building information system (BIM). Digital archiving techniques such as Empirical recording, Topographic recording, 3D Scanning, Structure from motion, Photogrammetry method have begun to play a important role to manage and preserve data and reconstruct heritage situation (Figure 3). In a wide range of field and different architecture scales, digital archiving system could be put into use and modified conveniently. The digital documentation research method is divided into through four stages: literature review & data collection, database model design and development, findings, descriptive recommendation & historic buildings interactive platform.

5. Application based on theory and technology

5.1. Brief introduction of Siena

The ‘Medici Fortress’ was the most important architecture in the site, Siena, Italy. It was built to control Siena people as the defeat war against Florence in 15th century. The fortress now has not been fully utilized. It couldn’t provide basic functions such as information center, toilets, seats, food and drink for the visitor car park nearside. Residents are either not willing to enter the fortress due to the lack of accessibility attractive function even through the fortress has quite a good view to city center.

Very little was discussed about the modern use of Fortress and its interpretation. It is interesting and worthy to consider how to play its role in this historic site in the future, and how to awaken people’s memory of it and make it renew to go back to people’s lives.

5.2. Application based on theory and technology and Futurism

The two precedent studies mentioned before displayed different approaches to heritage reservation - surveys and modern technologies. Therefore, based on the background and case studies, not only Fortress form and space can be studied, but also, the Fortress history and people relations are needed to be researched. It is necessary to examine the socioeconomic dimensions of the Fortress and to compare the different attitudes from visitors and residents in order to develop the potential functions of reservation.

At concept design stage, it is useful to conduct online questionnaire or conclude guidelines with the help of principles of heritage architecture, local regulations and building technologies. Site survey could also be transformed into a more creative and effective tool, ‘which provokes new and potent relationships between site, user and architect.’ Using experiments and interactions with a more provocative form of site survey, it can go beyond the normative model and yield far greater insight and engagement than is usually the case.

When working on details and practical factors, it is difficult to make computer models and detail designs due to the strong inclination of the site and complicate Fortress situation. With the help of local university and new methods mentioned before, it would be more possible to reflect the fortress environment completely and conduct strategies from this. In this way, the entire process of protection could take material, decay, building elements, evolution history into consideration.

6. Conclusion

To conclude, heritage preservation process needs to achieve the balance between the new and the old. Situation in Siena actually indicates the lack of interpretation of two complementary elements: to remain the authentic form or to adjust to the modern society that needs active entertainment and diverse functions.

For local residents, residents need heritage buildings play an active role in modern society. Residents are more familiar with the local context and built environment. Residents’ memories and sensations should be covered and a strong link could be built after developing new and modern functions.

For visitors, visitors would be more willing to protect and pay for architectural heritage when the heritage could meet their concerns and provide convenient accessibility. Heritage could provide more social value when are adjusted for tourism needs and provide complex and unique function.

For architects and heritage management organization, it is necessary to help heritage to meet their primary goals to improve life quality through combining theories with technologies, using interviews, principles, regulations, new techniques to protect heritage. By evaluating the past, maintain the consistency of the present, making interaction with the present, heritage reservation could lead to be a

catalyst for local development.

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