HERITAGE OF THE 'OTHER'

THE FUTURE OF LOST ARCHITECTURAL HERITAGE

Serkan GÜNAY

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DECLARATION

I Serkan Günay hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the award of any other degree or diploma of the university of other institute of higher learning, except where due to acknowledgement has been made in the text.

Signed:…….

Serkan Günay

Date:……

Signed:…….

Dr. Aylin Orbasli

Director of Studies

Date:……

ABSTRACT

Digital technologies and their emerging role in architectural and archaeological heritage documentation and visualisation processes provide a conducive framework for new research questions. Technological developments in architectural visualisation and advancements in digital applications that use Geographical Information Systems (GIS), Virtual Reality (VR) and Augmented Reality (AR) platforms allow the integration of digital technologies in heritage visualisation more than ever before. Particular advantages of the integration of these digital technologies can be seen in the visualisation of lost architectural and urban heritage. Since these buildings or historic towns do not exist or are simply altered in a way that the historical aspects of these heritage places cannot be captured anymore, these digital technologies generate a valuable platform to experience these non-existing buildings as they were many years ago. Particularly dealing with the heritage that has disappeared with limited sources of information, these research questions generate discussions around heritage ownership, sense of belonging, the link between heritage and memory and ethical implications of the virtual reconstruction of lost architectural heritage. Furthermore, architectural and archaeological studies conducted in post-conflict societies also add to the complexity of these discussions in relation to the contestation of heritage places.

This research investigated the contribution of recapturing lost architectural heritage to cross-cultural understanding, place-identity and heritage relationship. In order to assess this research question, participants were selected as population exchange descendants of 1923, which took place between Turkey and Greece. As one of the primary ports of deportation and as significant cultural and economic centres of the early 1920s, Izmir and Thessaloniki provided valuable research areas with similar historical developments that resulted in the loss of many heritage buildings. In addition to the population exchange descendants, conservation specialists from Izmir and Thessaloniki were the other participants in this research. Accordingly, interviews, focus group exercises and participant observation practices have been performed with population exchange descendants and conservation specialists by using various digital visualisation of lost historic buildings from Izmir and Thessaloniki. Data was collected through fieldwork while participants were engaging with the virtual reconstructions and various mixed-media outcomes created by digital technologies. This mixed

media fieldwork material includes Virtual Reality (VR) and Augmented Reality (AR) examples as well as maps and rendered images of selected virtual reconstruction of lost heritage places in the case study cities. The collected data were then analysed by using qualitative methods, and emerging themes were identified accordingly. This allowed a comparative analysis of the impact of the use of digital technologies as part of the heritage visualisation of lost buildings. The identified themes were discussed around heritage memory relations, heritage ownership, importance of the reliability of primary source of information of historical data, the role of future interpretations of the generated digital reconstruction.

The findings of the study show that virtual reconstructions and mobile devices that can be used to experience these virtual environments are valuable tools to raise awareness about the lost heritage in previously diverse communities. The impact of these virtual reconstructions was mainly positive and generated interest towards these lost heritage places. Engagement with the visualisations not only generated a tangibly better understanding of ancestral heritage but also with the other in ways that could increase cultural and social dialogue between the communities of the two neighbouring countries.

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GUNAY, S (2022) Virtual Reality for Lost Architectural Heritage Visualisation Utilising Limited Data, Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.

GUNAY, S (2021) Impact of Integration of Digital Technologies in Lost Architectural Heritage Visualisation in Post-conflict Societies, Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XLVI-M-1-2021, 285–291, https://doi.org/10.5194/isprs-archives-XLVI-M-1-2021-285-2021, 2021.

GUNAY, S. (2019) Geographical Information Systems as a Tool for 3D Visualisation of Lost Architectural Heritage, 1-5 September 2019, Avila - Spain, https://doi.org/10.5194/isprs-annals-IV-2-W6-69-2019

GUNAY, S. (2018), Utilising Photographic Sources for the Visualisation of Lost Architectural Heritage, Faculty of Technology, Design and Environment Research Student Conference 2018, Oxford Brookes University, Oxford – UK ISBN:978-19997412-6-6

1. INTRODUCTION

1.1. Research Background

Lost architecture, disappeared civilizations and forgotten cities have always attracted researchers to learn more about this unapprehend past (Balletti et al., 2020; di Mascio et al., 2016; Glancey, 2008; Guidi & Russo, 2012; Pietroni & Ferdani, 2021; Vincent et al., 2016). The attraction of uncovering the truth about displaced or perished societies appeals to many scholars to research lost built heritages. Particularly archaeological studies use virtual reconstructions and visualisations to present an understanding of what ancient buildings and places would have looked like and how those societies would have lived. Even though the research about the ancient structures could be intriguing, they still belong to a distant past. This could generate challenges while investigating the link between heritage ownership and collective memory. Nonetheless, recently lost architectural and urban examples could support the investigation into the link between heritage and memory or place and identity relations. Thus, research into visualisations of lost architectural heritage of the recent past also needs to consider the link between collective memory and heritage ownership.

Architectural visualisation for heritage buildings is improving in line with the developing new technologies and utilising new tools in the production and visualisation processes of the digital models. It is a process where digital models can be created by documenting the historic building through conventional recording methods or by using new documentation tools. If a building has disappeared, visualisation process could be more challenging. The generation of digital drawings or a computer model may rely solely on historical resources such as historical architectural documents, cartographic records, drawings, relevant written or oral descriptions of places or buildings, etc. If this data from historical resources are limited. It becomes more challenging to generate accurate digital models of these lost buildings. On the other hand, these limitations also create a compelling research area around lost architecture that generates new possibilities for new research inquiries and challenges. Investigating

emerging digital technologies while documenting and visualising these lost heritage buildings opens up new areas of research. This study investigates the visualisation of lost architectural and urban heritage that disappeared within the last century without adequate historical records and the impact of these digital reconstructions on heritage and memory relations.

1.2. Rationale

Visualisation of lost or unbuilt architecture in digital platforms has developed in parallel with the advances in architectural representations by using computer technologies (Novitski, 1998). These studies range from the virtually realistic digital reconstruction of ancient buildings (Vincent et al., 2016) (Deggim et al., 2017) to 3D physical or virtual modelling of certain significant historic buildings of the past (Ferrari & Medici, 2017; Fieber et al., 2017). Even though good practice dictates that several data sources used while constructing the digital models of these examples in several cases historic data is limited due to the fact that these building disappeared because of a conflict or a natural disaster. However, limited data does not mean that it is not possible to create virtual reconstructions especially using rapidly progressing digital technologies.

The complex nature of conservation practices requires a systematic and organized data management process where data is collected, stored, and visualised (Feilden & Jokilehto, 1998; Günay, 2011; Letellier et al., 2007). Data collection and data management for historic buildings is a critical process for the future of the studied heritage buildings. The importance of collection of data is even more urgent for heritage places that are in danger of being lost that are under the thread of wars, conflicts, or natural disasters. From this perspective, the efficiency of managing information through information management systems such as Building Information Modelling (BIM) and/or Geographical Information Systems (GIS) for architectural heritage projects provides a well-designed methodology for more efficient information management (Counsell et al., 2017). Although it is more common to see applications of information management in the new-build construction industry, the use of BIM or GIS for heritage is an area of research that is increasingly of interest to heritage professionals and practitioners. For digital modelling of lost architectural heritage, the

visualisation process relies on data collected through historical research rather than data collected on the site. Therefore, data management is essential for the visualisation of lost architectural and urban heritage examples. The amount of available data through historical resources is another major factor for this visualisation process. Since the reason behind the loss of architectural heritage might determine the availability and reliability of collected data, it is essential to identify and review the history of the heritage building in detail.

Changes and alterations in architecture is a continuous process (Maudlin & Vellinga, 2014) that sometimes results in the deteriorations in the building that could turn them into ruins, or in worse cases, total demolition (Orbasli & Vellinga, 2020). There may be several reasons behind the demolishment and eventually the loss of architectural heritage. Notably, political developments could be the reason for the loss, an inevitable attribute for a historic settlement. Accordingly, architectural and urban context transforms. Whether it is a change due to a natural development of the city, or the aftermath of a conflict or a war (Bevan, 2016), or even a natural disaster, the transformation could also be the reason behind the loss of tangible and intangible heritage. Even though these buildings might have disappeared relatively recently, for instance around a 100 years, the cities' current residences might have limited knowledge about them. The communities that these lost buildings belonged to however, could still be maintaining a collective memory of the disappeared architecture.

Virtual reconstruction efforts of the lost architectural and urban heritage following a conflict often do not focus on the heritage of the communities' that have been displaced. Legner (2018) describes this effort as a result of the political process of shaping post-conflict societies and the creation of new identities (Legnér, 2018). Projects like 'ARCHES' (Carlisle et al., 2014), focusing on information management of heritage in conflict areas, and 'Anqa' (Brzezicki et al., 2019) or 'The History Centre' (Cremer et al., 2001) 'Palmyra 3D' (Arkawi, 2017; Denker, 2017) focuses on the digital reconstruction and documentation efforts of the post-conflict era buildings with the contribution and support of the current political powers and their ideological views.

Furthermore, recent studies also focus on innovative ways to experience or visualise lost heritage. Developments in mobile visualisation tools and technologies allow new ways of experiencing lost heritage by using Virtual Reality (VR) or Augmented Reality (AR) tools (Aydin,

2012; Cianci & Molinari, 2019; Cruz, 2017; Denker, 2017; Rattanarungrot, 2016). Since these buildings do not exist anymore, these mobile tools allow experiences close to the experience that the viewers'would have if the buildings still existed. 'Virtual Wolverhampton'(Ramsey, 2017) 'Arch of Titus' (Canciani et al., 2013)'Public Archaeology in Tuscany' (Prestipino & Ulivieri, 2012) are some of the examples of integrating digital mobile tools in the visualisation process of architectural and archaeological heritage. However, exploring how these technologies can be applied to lost architectural and urban heritage examples with limited historical data remains under-researched.

There is research focusing on displaced communities and their transition in their new location, (Karpat, 2002; Morel, 2013; Tanis, 2016) or investigating the link between their new and former identity and the role of heritage in this transformation (Ehrkamp, 2005; Feryal, 2011; Giudici Bangor, 2012; Kitromilides & Alexandris, 1984; Light & Dumbraveanu-Andone, 1997; Morel, 2013; Solomonidis, 1984) and yet there remains a gap in knowledge that brings the two fields together, virtual reconstruction and studies focusing on displaced communities.

1.3. Aim and Objectives of the Research

This study aims to investigate and evaluate the role visualisation of lost heritage in perceptions of identity linked to a place of residence and a place of origin. This will be achieved through the following objectives in line with the theoretical framework that is defined for the research.

Objectives that are set to achieve through this research are as follows;

_Through the study of existing literature, examine the relationship between memory, place, identity and heritage to develop a theoretical framework.

_To establish the potential of digital tools in effectively visualising examples of lost architectural heritage from Izmir and Thessaloniki based on the limitations of the available data.

_To digitally reconstruct virtual models of selected buildings and urban neighbourhoods dating from the late 19th and early 20th century in Izmir and Thessaloniki using digital technologies.

_To assess the user experience of virtual reconstructions, with each city's heritage professionals and population exchange descendants, and evaluate the use of digital technologies and its effects on place-identity relationships and their link to memory and heritage ownership.

_To demonstrate and evaluate the applications and ethical implications of virtual reconstruction in the field of heritage conservation with relation to its area of use, accuracy, and reliability particularly in the context of contested heritage.

1.4. Summary of Methodology

This study mainly adopted qualitative research strategies in addition to case study and archival research methods. Within the framework of the phenomenological approach, the phases realized during the process were the systematic process of data collection, analysis and theory building.

The research commenced with a literature review that was divided in two phases. In phase one the review covered the relations between place and identity and also the link between heritage and memory. In phase two, the review focused on the emerging digital technologies in heritage visualisation. The reviews provided the formulation of research objectives and the research methodologies were designed to address the research objectives. Digital technologies were utilised while recreating the lost architectural heritage in virtual environment. This allowed the use of the technical component in the following parts of the research in terms of semi-structured interviews, focus group exercises, observation and historical data collection. Collected data was then analysed with the thematic analysis method.

The literature review provided an insight into the methods of using historical data in the visualisation process of lost architectural and urban heritage. Various alternatives were investigated during the exploratory research, testing different digital technologies for the

virtual models. Informal discussions and desk research provided further input for the development of the models and visual material. As a result, Geographical Information Systems (GIS) and Image-Based Modelling (IMB) were chosen as the primary tools amongst the available software options. These tools enabled the management and visualisation of the collected historical data and the generation of the digital models of the selected lost architecture and urban areas. Essentially, the literature review had two focuses. The first review phase allowed the formulation of research objectives and design of the necessary methodologies for the research. The initial literature review phase investigates the digital technologies in heritage visualisation and the second part examines heritage and identity relations and notions of memory for heritage ownership. Based on this, the problem formulation allowed the identification of the research processes and their respective methods.

Lost architecture and urban areas in Izmir and Thessaloniki were the selected sample architectural and urban examples for this research. The two case study cities were selected based on the similarities in their historical and urban developments throughout recent history and their role in the 1923 population exchange between Greece and Turkey. During the field-work in Izmir and Thessaloniki, historical documents, cartographic sources, publications, and field studies were the primary source of qualitative data. In each selected case study city, a historical cartographic resource recording the early 20th-century urban characteristics was utilised in the GIS environment as part of the data collection and data analysis base map. Additionally, three distinct locations were primarily selected for further development of the digital models capturing the lost heritage examples. Interviews and focus group studies with the population exchange descendants and conservation decision-makers from both cities generated substantial qualitative data.

Thus, the qualitative analysis of the data collected during the fieldwork from the two case studies provided a better understanding of the use of digital technologies in visualisation of lost architectural heritage and enabled the assessment of the heritage and memory relations through virtual reconstructions and other types of digital content created for the lost architecture. The interactions with the conservation decision makers and population

exchange descendants also provided a critical evaluation of the ethical implications of digital reconstructions and their area of use for the future of lost architectural heritage.

1.5. Significance and Limitations

This research contributes to two areas of heritage studies that are not commonly studied together, notably the link individuals and communities have with a past place that is lost to them through the processes of compulsory migration, and secondly the processes of virtual reconstruction that can provide a more tangible engagement with a lost architectural heritage. In doing so, the research also identifies some ethical challenges, particularly with relation to the possible manipulative power that is gained through the creation of virtual heritage and the construction of the past.

The findings of this research can be classified into two frameworks, one being a practical contribution and the other one within the theoretical context. Firstly, a model for an information management platform in a digital environment has been developed where data of lost heritage can be stored, visualised, and shared. This model can be scaled up applied in other places by other researchers. A user-friendly 3D reconstructions of the lost architectural heritage examples of Izmir and Thessaloniki allow the users to experience the previous lives of these cities in a digital environment. It enables a methodology to test the users' attitude and reaction towards the unknown recent past of their cities. For this research and within the limitations of the historical data available for selected lost architectural samples, HBIM was not considered. As a management tool, GIS enabled information management with the available cartographic sources. Although the storage and visualisation option is applied to tangible heritage samples, such as architecture and urban fabric, in future uses, it could also incorporate intangible heritage data. The platform also enables the update of the generated information by enabling data edits for future studies or any other new historical data discovery regarding the lost architectural and urban examples. Secondly, the study contributes to the literature on heritage ownership, place identity and the notion of memory studies while investigating the link amongst the three and the use of digital technologies. The study provides insight into how digital technologies might have an impact on the perception of heritage.

Additional contributions of this research includes future research on the subject of lost architectural heritage and previously multi-cultural societies. At city level, both of the case study cities' conservation decision-makers will benefit from considering the 'other' part of their city's history, especially in the context of future conservation projects related to already existing and lost architectural and urban heritage. Amongst the descendant communities, the chance to share knowledge through shared digital platforms and experiences will contribute to improved dialogue amongst different cultural groups.

The scope of the research is limited with the challenges of generating virtual reconstructions of selected lost architectural heritage examples particularly with limited historical data. These practical contributions of the research are subject to further improvements with the developments in virtual reconstruction techniques and tools. Furthermore, the research was conducted with the participation of primarily third and fourth generation population exchange descendants. The results of a similar research with group of participants in relation to a recent past might provide different outcomes.

1.6. Thesis Structure

This thesis is structured into eight chapters outlined as follows;

CHAPTER 1: INTRODUCTION

This chapter represents a general introduction with the identification of the research background and the research problems. It introduces the research background with the gap in the knowledge. It also includes the explanation of the research aim and objectives, significance and limitations of the research and summarises the research methodology and underlines the limitations and significance of the study.

CHAPTER 2: HERITAGE AND IDENTITY

This chapter examines the ever-changing definition of heritage through an extensive literature review. It reviews the link between heritage and memory discussing 'collective memory' and 'sense of belonging' in heritage practices. It then discusses the relations between identity and place and its link to contestation in heritage and its aftermath.

CHAPTER 3: DIGITAL TECHNOLOGIES IN HERITAGE VISUALISATION

The second literature chapter covers the development of the use of digital technologies in architectural heritage projects as well as the investigation about the recent digital technologies and in visualisation of lost architectural heritage examples.

CHAPTER 4: RESEARCH METHODOLOGY

This chapter discusses the research philosophy and approach and related methodologies selected for this research. It describes the qualitative methods and their application to the research, the selection of case study cities and case study buildings. The data collection and data analysis methods utilised are explained.

CHAPTER 5: VIRTUAL PAST AND CURRENT TRENDS IN HERITAGE VISUALISATION

This chapter describes the information and critical analysis of heritage discussions in the case study cities of Izmir and Thessaloniki and discusses the heritage ownership and identity relations in the context of the with two cities' heritage and cultural communities. This chapter also provides discussions related to the current and previous trends in architectural heritage practices of both cities and as well as their future plans as an outcome of the fieldwork analyses.

CHAPTER 6: IDENTITY, MEMORY AND HERITAGE; TURKISH SMYRNA, GREEK SELANIK

This chapter demonstrates how perception of the past is remembered by the members of the displaced communities of formerly diverse settlements and presents critical discussions related to the role of digital technologies in the visualisation of lost architectural heritage through the testing of the virtual models with their current residents and the descendants of the former residents. This chapter also presents critical constraints related to the visualisation of lost architectural heritage with limited data. Finally, it discusses the ethical framework of heritage visualisation as a future reference point for subsequent research studies.

CHAPTER 7: EVALUATION OF THE FINDINGS AND DISCUSSION

This discussion chapter discusses the findings from the analysis conducted and examines the broader impacts of the findings within the existing knowledge. Final conceptual framework is included in this chapter with the evaluation of the findings.

CHAPTER 8: CONCLUSIONS AND RECOMMENDATIONS

This concluding chapter revisits the aims and objectives of this research and highlights the original contribution in line with the methodological and practical conclusions. It also includes the possible further research recommendations in line with the limitations and opportunities that is conducted with this research.

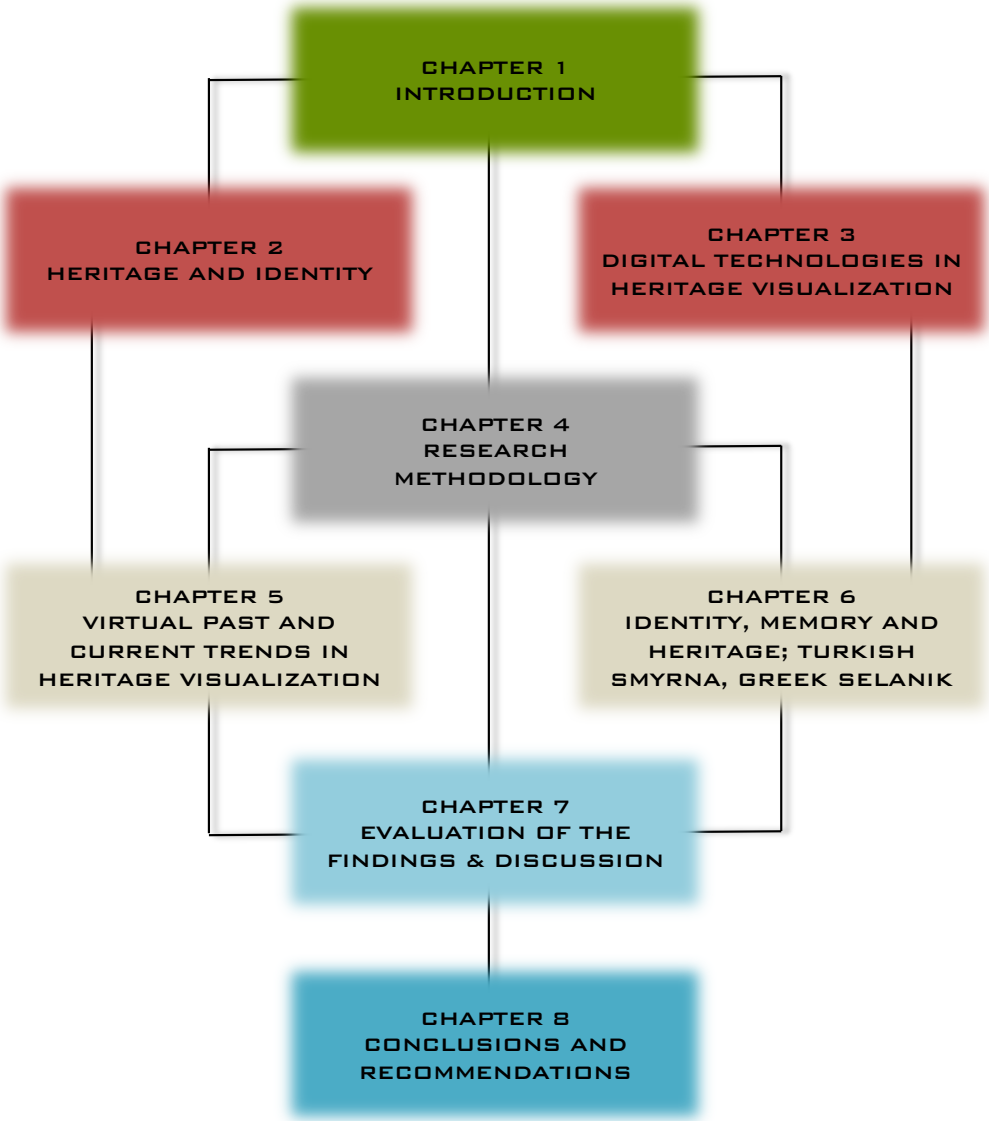


Figure 1. 1 Breakdown of the thesis structure

2. HERITAGE AND IDENTITY

2.1. Introduction

The purpose of this chapter is to position heritage into its theoretical context and to identify a theoretical framework for the link between cultural heritage and identity. The chapter starts with discussions around the definitions of the values and significance of heritage as well as the role it plays in shaping societies and people's perception of the past. In particular, the attitude towards the heritage of the 'other' and perceptions of each other's heritage places in displaced communities were examined. The chapter continues with investigating the significance of memory in cultural heritage studies and its impact on shaping the identities of individuals and communities by reviewing existing literature. The findings of this literature review are then used to examine the differing perceptions of heritage and people's understanding of its associated values and significance. In the context of this study, the focus is placed on the role of cultural heritage and its impact on the perceptions of the past in displaced communities. Architectural and urban heritage and its link to individual's memory and identity, particularly in post conflict areas is investigated to understand the attitude towards the heritage of the 'other'.

The first section of this chapter examines the complex and multifaceted discussions around heritage definition and interpretation. This section focuses on the changing descriptions around heritage values and their significance. It then expands on the discussions of heritage ownership and the attitude towards the heritage of the 'other'. The following section discusses the link between heritage and memory. The role of community in shaping an individual's identity is discussed within the arguments around collective memory and relevant definitions. The final section focuses on the discussions on the construction of identity and the strategic importance of heritage over (re)construction of societies following a traumatic event. Then it continues with the examination of the relations between identity and place in relation to the attitude towards heritage ownership and inheritance of architectural and urban heritage.

2.2. Identifying Heritage

Heritage professionals such as architects, historians, town planners, social scientists, and conservation specialists, define heritage within the framework of their respective disciplines. The increased interest in research in heritage studies in the aforementioned associated fields during the last several decades has generated an ever-changing interpretation of the meaning of cultural heritage.

Heritage is not only defined in different ways by different disciplines and professions but it is also perceived differently in relation to the meanings and values associated with it (Shore, 2006). Given the complexity of the scope and values linked to heritage studies, this review focuses on examples that underpin the concept of heritage in discussions of memory, identity and the perception of heritage in displaced communities. Within the scope of this research, the concept of heritage is investigated through the reviewed examples in the literature. Additional information is extracted from official documents, charters and guidance notes published by key international heritage organisations such as ICOMOS, UNESCO. Furthermore, contemporary debates surrounding the changing concept of heritage and its impact on the society is discussed in relation to heritage and identity studies.

A similar development is also evident in heritage definitions, as seen in international conventions, national-level legislation, and policy guidance documents (Harrison, 2012). Within this context, the scope of heritage studies ranges from tangible and intangible elements and expands to encompass the natural environment. Since the launch of the Venice Charter (ICOMOS, 1964), considered one of the earliest international charters, the definition and the remit of heritage and the guidelines concerning its protection and conservation have significantly evolved.

The variety in the scope of heritage studies complicates the definition of heritage with a comprehensive approach. Therefore, the interpretation of heritage and the meaning associated with heritage differs widely. In general terms, the standard explanation between the different disciplines' understanding of what heritage is defines a connection to the past and a reference to the present and the future. Not only because there are various study areas

within the general notion of heritage, but also because heritage is perceived as a vehicle of communication of ideas rather than exclusively an object or a tool (Avrami et al., 2015).

Current discussions on heritage conceptualize it as a social construct, its existence contingent upon the perceptions held by individuals (Ashworth, 1994; Graham and Howard, 2008). It was perceived traditionally around the tangible attributes of built heritage, specifically architectural features, elements, and its age. While scholars like Ruskin and Morris debated in the 19th century regarding the intrinsic qualities and values of objects as determinants of their categorisation as heritage, this viewpoint has been vigorously challenged by contemporary academics (Avrami et al., 2000; by Marta de la Torre, n.d.)

Viejo-Rose describes this changing way we look at cultural heritage as a dramatic evolution from monument and museum collection to encompassing a complex matrix of meaning, values, associations and related concepts (Viejo-Rose, 2015). Currently there is a broadening scope of heritage ranging from historic built environments to industrial structures, from archaeological findings to historic landscapes. Various types of heritage is classified and defined with relation to their tangible and intangible values (Schifferes, 2015).

2.2.1. Associated Values

The naturally contested character of heritage (Graham, H, Mason, R & Newman, 2009; Tunbridge, 1994; Tunbridge et al., 2013) necessitates a consideration of the link between heritage and the associated values. As one of the founders of art history as a discipline during the late 19th and early 20th century, Alios Riegl's theoretical works include discussions around the values of monuments and their historical development. Riegl describes the term "historical monument", which could be considered similar to cultural heritage, as a modern construct and defines the values associated with the historical monument as assigned meaning and significance to a monument by the modern viewer (Riegl, 1982). He classifies the values assigned to historical monuments into two categories: Commemorative Values and Present-Day Values (Riegl, 1982). This values-based approach has been incorporated into contemporary heritage discourse. (Ashworth, 2007; Avrami et al., 2015, 2019; Marie Marmion, 2012)

Not a bit, the 'Nara Document on Authenticity' (1994), prepared in cooperation with UNESCO, recognised the role of cultural diversity in heritage discourse as follows;

> The diversity of cultures and heritage in our world is an irreplaceable source of spiritual and intellectual richness for all humankind. The protection and enhancement of cultural and heritage diversity in our world should be actively promoted as an essential aspect of human development.

The Nara document also emphasises the importance of different cultures and societies as contributing expressions of their heritage and notes that these cultures should be respected. Jokiletho (1998) confirms this approach by adding the continuous changing of values over generations and cultures, which Feilden and Jokiletho identify values as 'continuously formed' in the process that establishes and re-establish the living culture and social context of society. This continuous reassessment of heritage values and authenticity verification is an essential part of heritage conservation management (Feilden & Jokilehto, 1998).

However, the process of ascribing values to heritage is not objective (Avrami et al., 2000). At this point, it is essential to recognise the relation between the appreciation of identified values of heritage and giving added value to it. Ashworth (Ashworth, 2007, p. 20) defines this process as an unintentional act of adding value to heritage as follows;

> …any designation of public heritage, whether monument listing, site or artefact labelling or guide book marking is a claim upon a place and thus a political act stemming from political choices, even if, as is usually the case, those who perform it have no such knowledge or intention.

On the other hand, ascribing additional values to heritage may not always be unintentional, and could even be considered potentially dangerous. In times of conflict, for example, architectural heritage can become a tool that creates or escalates tensions (Jensen & Lonergan, 2012).

Although it might be a discussion point or related to the creation of conflict and dispute around heritage, heritage values are essential. During the process of architectural

interventions and conservation decisions being made, the values are beneficial. Graham et al. emphasise importance of the heritage values in the conservation profession as follows;

> Conservation decisions whether they are concerned with giving a building "heritage" status, deciding which building to invest in, planning for the future of a historic site, or applying a treatment to a monument use an articulation of heritage values as a reference point. Assessment of the values attributed to heritage is a very important activity in any conservation effort, since values strongly shape the decisions that are made (Graham, H, Mason, R & Newman, 2009).

There are still gaps in the knowledge concerning how values are associated with heritage within specific scenarios, even though there is a growing interest in studies related to heritage values and their description (Marie Marmion, 2012). Heritage values can be contextualized about how people associate themselves within various dimensions, including historical, artistic, social, and religious values. These values emerge from different communities' subjective perceptions, interpretations, and evaluations. Consequently, questions arise regarding how individuals and different communities perceive these values, the factors that trigger their recognition and appreciation, and how they define the significance of heritage (Sandis, 2014).

2.2.2. The Significance of Heritage

The reference to historical values and collective or individual identity while describing heritage significance is commonly found in several heritage studies (Gillis, 1994; Karpat, 2002; Light & Dumbraveanu-Andone, 1997; Pollock & Sharp, 2007). Kerr's description of cultural significance as part of the policy developments of cultural heritage mentions individual and societal connections between heritage and its significance as follows;

> Cultural significance is a simple concept. Its purpose is to help identify and assess the attributes which make a place of value to us and to our society (Kerr, 2013 p.4).

Although the topic of identity concerning heritage studies has received significant attention and analysis, this study places particular emphasis on the link between heritage and identity for the appreciation of heritage places. By doing so, it seeks to investigate the underlying

reasons and methods through which conservation specialists, descendants of displaced communities, and current residents assign value to heritage.

In line with this, it is also possible to assess the link between heritage and the identities of the societies concerning the political and manifesting power of heritage. Ashworth (Ashworth, 2007, p. 13) describes this link as the most important instrument through which societies shape place identity. Ashworth also highlights the importance of this in particularly pluralized societies. Similarly, Halbwachs and Coser (Halbwachs & Coser, 1992) describe the link between heritage and collective identity as a significant symbol while discussing the collective memory. Therefore, if heritage is considered an asset, it is essential to discuss the importance of the meanings and values ascribed to heritage and the memories as a powerful tool to keep communities together.

2.2.3. Heritage as an Asset

In addition to diverse classifications and associated values of heritage, there is also a broader understanding of the concept of heritage that can be referred to as an asset for various intentions. For instance, Ashworth describes it as a commodity that evolved from a historical monument to a heritage product (Ashworth & Larkham, 1994). This 'concern from the past' represents a curiosity for the tangible and intangible components of the lives of the people prior to our lifetime. Furthermore, contrary to previous scholars' identification as to what could be considered as the values associated with heritage, the definition of heritage is changing from the attributes like 'masterpiece' or 'intrinsic value' to more conscious and unspoken values of particular groups of people and their place association (Avrami et al., 2019). This consideration of heritage as an asset also brings out different discussions that enable the appreciation of heritage in various ways.

The commodification of heritage as a revenue-generating entity has also brought about some critical discussions regarding the meaning of heritage while identifying its values and identifying it as an asset. In the case of commercial values, for instance, it is possible to incorporate the intended heritage values when it was first built while indicating new usage or functions. On the other hand, In the case of tourism-related activities, we see examples of heritage buildings being utilised primarily as externalist or façade-concerned approaches to

conservation (Orbaşli, 2000). The primary outcome of this would be seen in many parts of Europe as historic urban areas focusing on tourist attractions. At this point, the impact of tourism on heritage can be seen as a reproduced authenticity, which is described by Nilsson (2018) as 'the past but is perceived and consumed in the present' (Nilsson, 2018). The idea of heritage as a consumable project for commercial or touristic activities indicates the critical impact of heritage on consumers, in this case, the visitors, as a heritagization process that can attract capital and facilitate political power (Walsh, 1992).

The political power associated with heritage is subject to diverse perceptions and valuation approaches shaped by different motivations that result in constant evolution in the identification of heritage values (Bozoglu et al., 2019; Smith, 2006). This construction of meaning and referring to heritage as an asset individuals assign based on their contemporary motivations might result in differing perceptions of the past.

2.2.4. Differing Perceptions

There can be multiple and differing perceptions of heritage places (Marie Marmion, 2012), and different communities might associate different values with heritage examples (Smith, 2006). Heritage values can be assigned to objects and places according to specific cultural and sometimes evolving contexts (Coeterier, 1996). For instance, in conflict or post-conflict situations, what can be considered heritage value for a specific place could be different from another community's perception.

Several studies examine the importance of heritage for individuals and different communities especially in times of conflict. The link between cultural heritage, memory, and ethnic wars (Bevan, 2016a) pluralizing the past with heritage policies (Ashworth, 2007) heritage and its link to its geography (Silverman, 2013) destruction of heritage as a result of a conflict (Stone & Bajjaly, 2008) could be some examples for such discussions. These studies emphasise the role and importance of heritage places concerning current and past conflict situations that result in differing perceptions of the past events and differing value association of heritage in diverse communities. Thus, conflict and post-conflict situations require a keen understanding of the various aspects of heritage and its values from different communities' perspectives. Accordingly, several integrated aspects are involved in the definition of heritage and the

identification of the associated values. In some cases, it is linked to the decisions made to protect the heritage through claiming ownership.

2.3. Heritage Ownership

Ownership of heritage is a term that scholars define in different ways. concerning several associated attributes and the complex and contested nature of the heritage inheritance (Marmion et al., 2010, Harvey, 2008). It is defined as 'a created delusion' (Ashworth, 2007), 'an inheritance from the past destined for the future' (Evans, 2010), 'the process by which people use the past' (Harvey, 2001), 'interpretations attributed to various sources derived from the past' (Tunbridge et al., 2013). Many who attempted definitions of 'heritage ownership' have been trying to clarify "how" the heritage is owned and "in what ways" the cultural heritage is controlled and managed (Evans, 2010; Shore, 2006; Tunbridge, 1994). Other discussions have focused on the reason behind claiming the ownership of heritage (Silverman, 2011). Consequently, discussions on heritage ownership or "Who is the owner of the heritage?" focus on the central question of "Whose heritage is it?".

Harvey (2001) describes the ownership of heritage, specifically the link between heritage and its owners, as a link that we should investigate beyond current perceptions and instead identify the heritage as a process we explore over time. He also argues that the economic and cultural commodification process is reflective of a relationship with the past, even though the past is perceived and defined from current perspectives;

> 'Every society has had a relationship with its past, even those which have chosen to ignore it, and it is through understanding the meaning and nature of what people tell each other about their past; about what they forget, remember, memorialize and/or fake, that heritage studies can engage with academic debates beyond the confines of present-centred cultural, leisure or tourism studies.' (Harvey, 2001, p. 320)

Tunbridge and Ashworth (1996) criticize the attempts to coin terms such as "universal heritage", which refers to a heritage that belongs to all, by Western scholars that are predominantly based on Western examples. They argue that if all heritage is someone's heritage, it is, therefore, not someone else's. They define the idea of "dissonance in heritage" as a classification that underlines a discordance or a lack of consistency between the

architectural heritage's past and the building itself as a contemporary product shaped by history. This definition underlines a discordance or a lack of consistency between the heritage's past and the heritage itself as a contemporary product shaped by history. Tunbridge and Ashworth (1996) describe the dissonance as follows;

> At its simplest, all heritage is someone's heritage and therefore logically not someone else's: the original meaning of an inheritance implies the existence of disinheritance and by extension, any creation of heritage from the past disinherits someone completely or partially (Tunbridge & Ashworth, 1996, p. 21).

They also criticize the simplification of heritage into a generalized entity that a simple national or local identity can be shaped through a few selected stereotyped qualities, representative personalities and supporting mythologies. This generalization results in using heritage as a powerful tool to rewrite history regarding the dominant ideology in society. This can also be seen as a reason or justification for the loss or alteration of particular heritage as a cultural expression.

For some societies, questions such as "Whose inheritance?" or "Whose ancestor?" may not be that easy to answer, and several contemporary heritage theories have considered such questions from different angles (Bevan, 2016a; Evans, 2010). Lowenthal (2003) identifies heritage as the privilege of the rich that they inherit from their ancestors. Furthermore, in modern times, he argues that the heritage ownership has become more democratic. Today, heritage identification ranges from the shared values communities hold to nation-states' claims over particular heritage as belonging to their national identity (Naef & Ploner, 2016). As permanent and long-lasting aspects of our history, architecture has a power that enables authorities to claim the memory of a settlement, even in some cases by disregarding certain portions of their city's past (Silverman, 2011). The architectural heritage thus remains open to manipulation and interpretation, especially in conflict zones and situations. Silverman (2011) describes the issue of manipulation and its possible impacts on this on society:

> This is because we live in an increasingly fraught world where religious, ethnic, national, political and other groups manipulate markers and manifestations of their

> own and others' cultural heritage as a means for asserting, defending, or denying critical claims to power, land, legitimacy, and so forth. (Silverman, 2011, p. 1)

Although it is relatively recent that concepts such as dissonance or disinheritance are discussed in the context of architectural and cultural heritage, it is possible to witness contestation in various locations and geographies. However, a rigorous and questioning approach to heritage ownership might transform it into a contested subject and provoke conflicts. More importantly, there is a need to identify the relationship between society and heritage, as different interpretations of heritage could lead to serve political and social agendas.

2.3.1. The Interpretations

Heritage studies as a discipline generate a comprehensive contemplation on the perception of different communities in manifesting their interest in heritage and the process of protecting them (Mason, 2002). They are associated with different values by scholars. Therefore experts and conservation specialists categorise heritage, and describe the interpretations by the communities (Smith, 2006). This leads to heritage interpretations sometimes beyond the scope of heritage studies or its primary objective of safeguarding the historic built environments, embracing various subjects such as environmental politics, urban planning, housing, urban economics, and even wartime destruction and renewal (Glendinning, 2013). This process involves multiple members of the society. It remains open to interpretations for different reasons because it generates a link between the communities and their past and opens up opportunities for the future.

Naturally, heritage studies have long roots in history. From the Ancient Monuments Preservation Act of 1882 in England to the policies of the Burra Charter of the Australia ICOMOS (2013), conservation principles have developed and evolved for different heritage interpretations. These philosophical shifts also alter perceptions and understanding of heritage (Avrami et al., 2000). Every decision, whether a simple maintenance or a more complex intervention, prioritizes a particular meaning or set of values. This also shows the power of heritage interpretations in today's and future societies since the impact of these

decisions could be perceived in the near future. Ashworth (2007) describes heritage as 'delusion' and differentiates it from illusion because the process is based on a purpose:

> Heritage is delusion. It is not just that what we create is illusory and has no direct connection to any supposed realities of past, present or future, it is that the process of heritage creation, exists within a miasma of necessary delusion. This is delusion and not illusion because of a deliberate distinction between illusion and reality is knowingly and purposefully maintained.

Variety in interpretations also enables designating new meanings and values to heritage for different purposes, such as commercial, economic, and/or political reasons consequently making heritage the subject of different agendas. While the value of heritage is defined, appreciated, and recognised with these protective actions, there is also continuing debate around the production of heritage as a political, commercial, touristic, and historic entity (Orbaşli, 2000; Tunbridge et al., 2013; Walsh, 1992) and the (ab)use of heritage buildings or places as power and authority generating tools (Bevan, 2016a; Lowenthal, 1996; Tunbridge et al., 2013).

2.3.2. Heritage of the 'Other'

Lowenthal (2006) argues that how we perceive past events from different perspectives creates multiple versions of a past, even if they are recent events with recent documents. He explains the "myriad novel ways" of history as follows;

> The past, now longer, larger, more inclusive than ever before, is perceived in myriad novel ways. But these accretions cost the public much of what history previously promised and delivered _ ordered coherence, casual continuity, consensual assurance, contextual clarity.

In this context, the attitude towards the heritage of another community becomes a discussion point, which in some cases may be significantly conflicting. A challenging position is created while dealing with heritage values that conflict with one another. The perception of one another's heritage in diverse communities is a multifaceted and complex process involving various factors and parties (Jokilehto, 2005).

The perception and value estimation of heritage places indeed hinges upon the level of acquaintance that various communities possess with the material culture of the past and the present. Although several studies discuss heritage and identity relations in terms of place identity, place attachment, and perception of home, little attention has been paid to the attitude toward one another's heritage in previously diverse communities.

The heritage interpretations in previously diverse communities are also linked to what people remember or are told. Moreover, the notion of heritage would be incomplete without this remembrance and memory. Thus, given the diverse ways heritage can be defined, one essential item within these definitions is the link between heritage and memory. This link could also be discussed through the heritage approaches that could be viewed as products of interpretations and as the consumed commodity. Accordingly, there is a need to evaluate the link between heritage and identity while discussing issues around heritage ownership and attitude toward the heritage of the 'other'. The following section will discuss the role of heritage in defining identity for society as well as the linkages between cultural heritage and memory.

2.4. Heritage and Memory

The studies investigating the link between heritage and memory have gained an ever-rising interest amongst researchers from diverse backgrounds within the last few decades. The examples range from 'critical' heritage studies (Bozic-Marojevic, 2016; Fiesolana, 2017; Kisić, 2013; Murtagh et al., 2017; Winter, 2013) to 'difficult' heritage (Bevan, 2016a; Christian, 2016) as well as topics involving 'dissonance' and 'contestation' (Bozic-Marojevic, 2016; Hill, 2010; Kisić, 2013).

Therefore, similar to the discussions around heritage definition, different studies consider 'memory' in different ways while investigating the link between heritage and memory. For instance, Viejo-Rose (2015) argues that many researchers have been taking for granted the link between heritage and memory, emphasises the value of understanding the complex relationship between the two;

> '…without the notion of memory and everything that it suggests about time and narrative, continuity and change, individual and collective identifications, heritage would be reduced to 'old things'.' (Viejo-Rose, 2015, p 2)

Others consider heritage to be interpreted differently by different cultural groups and even throughout time (Ashworth, 2007) or that the heritage creation process is connected to memory and commemoration (McDowell, 2008). Therefore, in considering heritage and memory relationships, it is important to highlight what is remembered, and identify what is not remembered.

2.4.1. Collective Memory

Lowenthal (1985) describes the importance of collective beliefs as a critical notion that generates a sense of togetherness and cultural solidarity as vital formations of national identity. The generation of this national identity indicates a critical link between collective memory and 'identity politics' (Lowenthal, 1985). Gillis (1994) emphasises the validity of this link as a response to the demand from the nations or subgroups demanding individuals to claim their own identity, whereby identities and memories are used to serve particular interests and political ideologies (Gillis, 1994). Nonetheless, memory and identity enable us to live in groups and communities where having a common shared memory amongst different community members can be very important (Assmann, 2008). The same author describes 'cultural memory' as a form of collective memory, and he defines cultural memory as a memory that is shared by several people in order to form an awareness of selfhood, in other words, identity, both on the personal and on the collective level (Assmann, 2008).

Memory, whether individual or collective, is essential to the identity of individuals. Blunt distinguishes the objectification of identity while discussing the links between memory and identity and highlights the subjective dimensions of selfhood and its link to people's memories (Blunt, 2003). Koshar (2000) builds on this understanding and defines the towns, voluntary groups, churches and nations as examples of collectivities where the role of memory could be seen as part of individuals' past and the future. The author further describes the two types of memory as different in scale but similar in many ways. For example, they both rely on stories told and retold, adapted and, in some cases, shaped in response to specific events in time or

trauma or a challenge (Koshar, 2000). Furthermore, memories are not only shaped by our personal experience but also by collective memories and based on shared experiences (Halbwachs & Coser, 1992). Thus, it is possible to state that, regardless of the type or scale of the memory, remembrance can have a significant impact on a person's sense of identity and also plays a critical role in shaping society's sense of belonging and inform the political narratives that set out to generate national identity.

2.4.2. Remembrance

Much depends on what is remembered through the much-debated notion of remembrance. For instance, the individual and collective memory and the areas of implications of both terms often juxtapose (Kansteiner, 2002). McDowell describes the difference between the two as a matter of scale (McDowell, 2008). Individual memory is more personal and based on personal experiences such as loss or suffering, and collective memory is related to local or communal experiences linked to critical events that have occurred within a close-knit group (McDowell, 2008). Accordingly, it is essential to distinguish the widely accepted terminology around how memory functions. Firstly, there is individual memory which is based on personal experience. Secondly, there is public or collective memory which is assumed to be collective in the sense that it can be incorporated into people's lives through events beyond lived experiences (Coser, 1992).

Furthermore, concerning the link between heritage and memory, Ashworth (2007) describes heritage as a vehicle of communication, a means of transmission of ideas and knowledge, which includes the tangible and intangible characteristics of both cultural and natural heritage. These intangibles have been constructed as an outcome of the relationship between individuals and the members of the societies through memories developed, remembered and transferred from one generation to the next (Ashworth, 2007).

As part of the discussions on remembrance and the link between heritage and memory, it is also vital to include the term 'forgetting' in the discussions. Harrison identifies the link between remembrance and forgetting as follows (Harrison, 2013, p. 579);

> …the process of forgetting is in fact integral part of remembering – that one cannot properly form new memories and attach value to them without also selecting some things to forget.'

Assmann (2008) agrees with the argument and suggests that the interaction between remembering and forgetting constitutes the main elements of individual memory. The author argues that memory involves forgetting an essential aspect of creating personal identity (Assmann, 2008). Since our personal experiences are remembered and also forgotten, it is crucial to identify what is remembered. On the other hand, considering what is forgotten is also critical while discussing the relevance between memory and identity.

While investigating forgetting as an essential factor in developing personal identity, as asserted by Assman, the link between forgetting and heritage could also be identified. Harrison (2013) mentions the term 'absent heritage', which could also indicate heritage buildings and places that have been lost or deliberately destroyed. The term represents the partially or fully destroyed objects actively conserved following their loss (Harrison, 2013). Examples include the Bamiyan Buddhas destroyed by the Taliban or the collapsed Berlin Wall, which was actively memorialized through organized events or traces of the wall that runs through the streets of Berlin. Another type of memorialization is places that are 'passively memorialized', which are deliberately rebuilt or replaced after they have been partially destroyed (Harrison, 2013). Hetherington describes the process of the creation of absent presence:

> The object as gift…are all made as conduits of order through their disposability in a cycle of ongoing events. In engaging such acts, members of a society can be seen to get rid of unwanted things and thereby to stabilize social categories of membership and belonging around their removal. In making something absent, either through death or destruction a representation of social order is apparently secured but never for all time. (Hetherington, 2004, p. 161)

Hetherington's reference to social order as part of the destruction of specific memories fits with the importance of the link between heritage and memory, either through remembering or forgetting. Harrison also emphasises the link between heritage and remembering as well

as forgetting. He argues that archives and museums select and interpret as part of the practices linked to deposition, preservation and interpretation (Harrison, 2012). Huyssen highlights the challenges of these processes as the danger of the musealization of both memory and the object while trying to keep the memory alive (Huyssen, 2016).

Huyssen also highlights the overlapping discourse of individual and collective memory. He emphasises the political aspect of the memory and the link between heritage and memory as 'subjective experientialism' unless the memory, or the objects as he describes it, is embedded in a larger social and political sphere (Huyssen, 2016). Thus, to understand the link between heritage and memory it is also critical to acknowledge the role of collective memory in society and its link to political ideologies, such as the construction of a sense of belonging.

2.4.3. Construction of Sense of Belonging

> National memory is frequently thought of in conjunction with official memory that, most societies emanates from the state and its institutions, often representing the hegemonic needs and values of the general public.(Mcdowell, 2008, p. 40)

The definition of 'official memory' also emphasises the notion of narratives shaped by states or different political agendas while defining the identity of its members and the relevant trials of creating a sense of belonging in their societies (McDowell, 2008). Lowenthal also describes a similar process in forming and legitimising the national identity and emphasises the sense of togetherness and cultural solidarity within this process as a critical aspect of collective beliefs (Lowenthal, 1985). While forming a national identity, remembering and commemorating the past is essential to the present. Lowenthal describes the creation of identities as a form of validation that reinforces a sense of natural belonging, purpose and place (Lowenthal, 1985). He also describes this form of identity that could be classified as contested, as it is a part of memories that are 'conflated and embellished' (Lowenthal, 1985).

The way that communities and individuals generate their sense of belonging is identified within the scale of a family and defined as 'the power of traditions belonging to each family' (Halbwachs & Coser, 1992). These authors emphasised the critical role of memory recollections in the framework of societies. They also defined the altering mode of thinking

as being a part of a family as well as the changes in recollections. From the perceptions of a family and its links to society, it is possible to see the impact of memory on different scales while constructing an individual's identity. Individual's creation of this type of identity, based on collective memory, is a critical point while researching societies that have diverse members in terms of their cultural memory and identity.

2.5. The Identity Question

The way in which individuals relate themselves to the past in different ways is also linked to the ways in which they relate to or engage with heritage. Howard (2003) supports this argument by suggesting the link between the shaping of heritage and how people engage with it and identifies heritage as part of people's identity as follows:

> In order to establish identities, as well as attracting visitors, the natural and cultural heritage is protected, conserved, managed and interpreted, by families, by cities, by nation states and international level. (Howard, 2003, p. 147)

The notion of remembering the past and the link between this remembrance and inheritance of heritage represents an important topic of discussion while investigating heritage and identity relations. This section will further elaborate on the link between heritage and identity as well as the transformation of heritage as a subject not only perceived but also remembered and politicized.

2.5.1. Belonging to a Place

Place identity is explained as a person's incorporation of place into the larger concept of self (Proshansky et al., 1983). It is also relevant to an individual's self-experience, emotions and remembrance of a physical setting. In some ways, the self-experience could be subjective and generate discussions around the impact of this remembrance while discussing the place identity. Within this context, Ashworth argues that the importance of place identity is overestimated in the context of heritage ownership because of the fact that it is a truth, based on self-evidence (Ashworth, 2007). The author further argues that the identifying someone with a place could occur within culturally pluralist societies, which results in the claim of

specific locations by multiple cultures (Ashworth, 2007). This claim may eventually trigger discussions towards the ownership of architectural heritage. On the other hand, McDowell (2008) links the efforts of claiming territory to efforts done by a collectivized community that shares a collective identity or heritage. The author describes the link between heritage, identity and place as a simultaneous attempt for communities to mark some territories by inserting symbols into the cultural landscape that resonates with their sense of heritage and identity (McDowell, 2008).

The inhabitants of multicultural cities identify themselves as the residents of the same city even though they could belong to a different cultural group. Nevertheless, several perceptions and memories of their life in those cities possibly were characterized by different cultural societies. In the example of the selected case studies, whether it is Greek, Jewish or Turkish communities, in the late century and early 20th century, many were only experiencing their city primarily within their quarters and interacting with one another through commercial activities (Mazower, 2005). However, this does not justify eliminating particular culture or certain heritage examples from the city's past and memory just because it does not belong to surviving or dominant political power (Tunbridge, 1994). Therefore, in this study, the concept of place identity is examined concerning the participants' ancestor's place of origin and the participants' current place of residence since both communities had culturally diverse residences before the population exchange.

2.5.2. Heritage in Diverse Communities

Cultural heritage and its inheritance are vital to discussing heritage ownership in diverse communities (Tunbridge, 1994). The inherited heritage's links to different identities, with references from individual or collective memory, could also lead to contestation and, in some cases, the deliberate destruction of the heritage and memory of the minority groups (Bevan, 2016a). As outlined above, the link between heritage and memory might provide multiple outcomes in the discussions around heritage ownership. Whether it is a collective memory that involves a group of people who share values similar to each other or individual memory in relation to personal experiences, the link between heritage and memory is significant yet challenging in societies that have been through traumatic experiences such as farmed conflict or forced migration.

The practice of systematic destruction of particular building types or architectural traditions is critical in conflict areas (Bevan, 2016a). It has a totemic quality, and the practice of this destruction is identified by Bevan (2016) as 'enforced forgetting'. The author's examples vary from mosques in the Balkans to Synagogues in Germany and Armenian Churches in Anatolia to Ottoman-era buildings in Mostar. In many of these examples, it is evident that architectural heritage was not perceived as a value that provides richness to the settlement. On the contrary, they were seen as a part of history or the heritage of the 'other' that needs to be forgotten. In most of these cases, even if the intention is to erase these from the city's history, achieving this was impossible. Moreover, reconstruction efforts following losses to cultural heritage following conflict often do not focus on the historic buildings that belong to or represent an identification for communities the conflict has displaced. This can also be seen as an effort resulting from the political processes that shape post-conflict communities and intentions of creating new identities (Legnér, 2018).

The complex relationship between the memory and heritage of war and conflict has been an area of research for many locations worldwide. Followed by major catastrophic events like regional wars (Naef & Ploner, 2016), civil wars (Murtagh et al., 2017) or as a result of an authoritarian regime (Prizeman et al., 2019) or terror developments, heritage is often appropriated or used by different groups to symbolise survival or power (Creighton, 2007). Thus, a thorough investigation and comprehensive approach to the conservation process could limit the loss of heritage or provide a setting to gather relevant data about the historic building and its contested past.

Those memories celebrated as heritage values today might be different from the case of characteristics of residents of a city in the past. It could still be possible to find common points identifying these examples of diverse architectural heritage, commercial and, up to a certain aspect, educational activities in what is considered multi-cultural cities with diverse communities. Consequently, this could provide a common ground for those who shared memories across the different ethnic and religious groups of a multi-cultural settlement (Mazower, 2006).

Discourses on lost historic urban fabric and its relation to the contestation of heritage are multifaceted. Therefore, examples of contested heritage often relate to an ongoing or past

conflict between different ethnic or religious groups (Singh & Howard, 2008). There are several contributors to the contestation of architectural heritage, they are context-dependent, and the loss of historic urban fabric is one of the associated implications. This does not, however justify or give a reason for today's authorities to use their architectural heritage as a power tool. They may intentionally neglect those architectural remains from their city's current conservation policies or develop new urban plans to support their national identities. However, it will not be possible to totally destroy the memories of former residents of those settlements. In several post conflict areas, heritage places or architecture become contested, and this could be a subject of discussion for the future of these places. The following section will discuss the role of descendants in formerly diverse communities.

2.5.3. The Descendants

Being the subject of this study, the Balkans, like many other areas where religious and ethnic diversity exists, have several examples of dissonant heritage and evidently lost heritages. Each national territorial state today houses various ethnic and religious groups, including; Greeks, Bulgarians, Slavs, Turkish and most notably, their tangible and intangible heritage legacies. Most of these nation-states were created with the 1878 Berlin Treaty in divisions marked by religion and ethnicity (Karpat, 1972). Karpat also links the reasons for the loss of architectural heritage in this region, where previously a multi-ethnic population existed, to the creation of nation-states and their generated nation state identity that does not fit comfortably with these nation-states' claimed history (Karpat, 1997).

Due to forced displacement or migration, historical buildings are considered to be the heritage that belongs to a community that does not have representatives; in other words, the heritage of the 'other'. Evidently, heritage might not be prioritized for protection, and is subsequently lost. Feilden and Jokiletho (Feilden & Jokilehto, 1998) describe this as the elimination and destruction of some historic buildings linked to specific periods or associated with the past of certain groups, that are contrary to the political goals of the politically dominant group. Today, it is still a reality in many geographies that settlers migrate to different places, and they are leaving behind a tangible and intangible heritage that may not survive these migrations. Additionally, pressures of economic development and urbanization

have often resulted in the loss of a significant amount of historic buildings, and the loss due to conflict.

Accordingly, conflict situations that lead to the contestation of architectural heritage are often critically linked to heritage ownership. Hence, it is important to understand the reasons behind contestation while investigating issues regarding the impact of this period on the loss of architectural heritage, considering the future of the historic settlements. Moreover, the reasons behind the migration of certain groups, the values they associated with their homeland and the assessment of all the values and attributes of this heritage need to be discussed and evaluated while dealing with situations of contestation.

Moreover, in the areas of conflict, even the role of these architectural remains from earlier civilizations can become a powerful tool supporting re-writing history (Creighton, 2007). McDowell (2008) emphasises the importance of heritage in contested territories as a power tool where some autocratic leanings can intend to seize the contested territories (McDowell, 2008).

Researching the past of a historic building often includes references to its owner, history or architectural style. This categorisation almost forces the researcher to link the building with a social group. It is a challenging task to identify the explicit ownership of the building if it is located in an area that contains remnants from various civilizations simultaneously or chronologically. It is an even more complex task if the building function is not exclusively associated with any cultural groups that share the memory of the settlement.

2.6. Summary and Conclusion

This chapter has reviewed the complex definition of heritage and its associations with tangible and intangible heritage studies. The concept of heritage in general and its associated meaning have been discussed in order to shed light on the idea of perception and interpretation of heritage and as one of the objectives of this study to identify the relationship between memory, place, identity and heritage.

Although there are many approaches towards the definition of heritage, identifying values is an established and commonly accepted approach when assigning meaning to a heritage place

(Avrami et al., 2000). Different perspectives expressed as the values associated with heritage also reveal the link between heritage, tangible or intangible, and identity. Identity in the context of heritage interpretations is closely associated with individual or collective memory and past experiences. Although it is essential to highlight the link between identity and memory, it is also important to highlight the link between identity and forgetting. Hence identity, as shaped by memory, is about the things that are remembered and the things that are forgotten.

The loss of heritage provokes a sense of association ownership and, at one level, personal connections with the heritage object (Gillis, 1994). The conditions and reasons associated with the loss of architectural heritage can profoundly impact how heritage is linked to a sense of identity, especially among displaced communities(Singh & Howard, 2008). In multi-cultural societies with shared memories and values, a conflict era, certain types or areas of architectural heritage might be elevated and promoted to support processes of identity construction to conform to a chosen political narrative, while other elements of the architectural heritage abandoned or deliberately destroyed as an act of destroying memories (Bevan, 2016a).

Heritage ownership, conflict situations and the role of heritage in these post-conflict societies will be the focus of this study. The study will investigate the link between heritage and memory, focusing on the population exchange descendants and their perception of their ancestor's place of origin and the role of heritage in future debates through the conservation decision maker's attitude towards the heritage of the 'other' in their future conservation approaches.

3. DIGITAL TECHNOLOGIES IN HERITAGE VISUALISATION

3.1. Introduction

Digital technologies and their use in architectural heritage visualisation have become a significant research area for many scholars. There is a growing interest in the virtual reconstructions of historic towns, archaeological sites or significant landmark buildings and how they used to look in their original setting. The famous historic sites or well-known historical buildings of the past and the historic locations that have gone through major urban and architectural transformations are noticeably getting some attention from researchers and conservation decision-makers as part of heritage visualisation studies.

This chapter presents an overview of the utilisation of digital technologies in heritage visualisation and data management and how it is applied to examples of lost architectural heritage. Based on a comprehensive literature review, the chapter discusses the challenges and gaps in the digitisation process of historical data and the integration of digital technologies, mobile devices and information management systems.

The chapter has four main sections. Section 3.2 investigates using different digital technologies and tools for visualising architectural heritage. Section 3.3 discusses the data collection and data management processes during the information management practices for heritage projects. Section 3.4 discusses emerging technologies in heritage visualisation. Section 3.5 explores the utilisation of limited data for the visualisation of lost architectural heritage in post-conflict contexts. Each section of the chapter discusses relevant terminology and its implications for this research.

3.2. Digital Heritage

In architecture, drawings provide visual communication to understand the architectural design in terms of dimensions, materials, finishes, etc. These visual communications vary from the technical drawings produced to communicate the construction drawings for the purpose of construction to the visuals produced to describe the end-result to the clients or users as

early as the Greek and Roman periods, builders used different representations to guide them with the construction process. These representations including architectural models, written descriptive information, sketches, and even construction drawings that included measurements (Hewitt, 1984). The discovery of the scientific construction of perspective drawings by Brunelleschi in the mid-15th century introduced a new form of 3D representation (Privitelli, 2012). Further advancements allowed significant improvements to architectural visualisation in parallel with technological and scientific progress. More recently, these achievements were possible by incorporating different kinds of media, both physically and digitally. Moreover, architectural visualisation became a digital field with the emergence and developments in computer-aided drawings from the latter part of the 20th century.

Given its scale, making real-size physical representations of architecture is often impractical. Therefore, it is necessary to use representation techniques such as two-dimensional (2D) drawings or three-dimensional (3D) visualisations by using different media to capture the planned future expressions. In this context, 3D visualisation has been integral to architectural education and professional practice. Using conventional techniques, and more recently, through digital platforms, visualisers can produce 3D visualisations of how proposed buildings will look. Hence, using various digital technologies has enabled the dissemination of design ideas to larger audiences. Furthermore, it has also allowed the integration of these varied digital platforms into the visualisation process of existing buildings, such as historic buildings and ancient structures.

Using digital technologies for the visualisation of architectural heritage is a developing area of study that first emerged in the early 1980s building process in architectural visualisation has become increasingly advanced, and accordingly, this enabled the potential of utilising digital techniques as a tool in the context of research (N. Webb & Brown, 2016). Depending on the research project's objective, there are various tools and outcomes. For instance, information management projects can use Building Information Modelling (BIM) and Geographical Information Systems (GIS) technologies to provide storage, visualisation, analysis, and management of data (Günay, 2007). On the other hand, the application of Virtual Reality (VR) and Augmented Reality (AR) by using smart technologies provides state-of-the-art visualisation of architectural heritage (Bartle, 2004). These tools and technological

developments enable the use of mobile devices in the visualisation processes of architectural heritage projects. Moreover, mobile tools provide a new setting to test virtual reconstructions for alternative visualisation techniques.

With current technologies, visualisers can produce architectural heritage in 3D using various software types. Virtual reconstructions of architectural heritage, 3DGIS using web-based platforms, virtual museum applications, and virtual reproductions of some of the components of architectural heritage are some of the advancements in the utilisation of digital technologies in heritage projects. Some examples include “The MayaArch3D” (University of Nebraska, 2009) a 3D Web GIS project that combines GIS and 3D models to visualise and query with a limited database (von Schwerin et al., 2013); “Temple 22” (Harvard University, 2001) a 3D visualisation project for ancient Maya structures (Ahlfeldt, 2003); “Via Appia Antica Project” (Virtual Heritage Lab, 2003) 3D reconstruction of an archaeological site that can be fully integrated with informative systems (Forte et al., 2003); “Safranbolu 3DGIS” (Istanbul Technical University) a GIS based data management project with the integration of 3D models (ARCA et al., 2018); “HBIM for the Basilica di Collemaggio” (ENI, 2012) an HBIM project for the damaged basilica for the restoration of the building (Oreni et al., 2014); “SAHRIS” (NHRA South Africa, 2012) a GIS based information management system for heritage projects in South Africa (Smuts et al., 2016); “JHBIM” (King Abdul Aziz University, 2012) an architectural heritage library for Hijazi architecture in Jeddah (Baik et al., 2014); “HeritageTogether” (Bangor University, 2010) a crowd sourced digital modelling for archaeological remains as a base for GIS database (Grifffiths et al., 2015); “Byzantium1200” (nonfunded) a 3D model of Istanbul through Allan Sorrel painting. These projects exemplify the integration of digital technologies in heritage projects with the management of data and the 3D visualisation of historical buildings. The level of detail in these projects relies on the information’s source and the software’s capabilities.

With rapidly developing digital technologies and the integration of mobile digital devices, the outcome of heritage visualisation projects is diverse. Based on the projected outcome, the process of utilising digital technologies in heritage projects includes various stages. Even though the outcome of the project determines the various stages of the digitisation process, collecting data from historic resources is an essential first step. In order to achieve a level of

accuracy, and generate authentic virtual heritage outputs, a methodological approach to data gathering and research is essential.

3.3. The Process of Data Collection

Adopting many innovative technologies enables the visualisation and data integration stages to be improved and more systematic (El-Hakim et al., 2005). Studies have shown an improving trend towards integrating various digital technologies in heritage projects' visualisation and digital reconstruction processes. This enables the improvement of visualisation techniques through the data capture and the software that is used for the visualisation. The process from collection of data to information management incorporates various tools, and accordingly. an improved integration of new technologies allows an improvement.

The digital reconstruction process of a historic building or a site is a complex and challenging procedure that requires the integration of diverse data sets from different sources (Kuroczyński et al., 2014). This data collection starting from the documentation phase, also suggests dealing with a large amount of data generated during the analysis and evaluation phases (El-Hakim et al., 2005). Whiting and Nickerson (1997) describe the importance of the collection of data and its relevance to architectural heritage as follows;

> To be considered as the basis for a site information system, the heritage record must be comprehensive and living document. It must reflect the full scope of all the information collected on the resource at many points in time. It must reflect both as-found condition of the resource as well as its current state….It must reflect the interest of a wide variety of disciplines interested in its care. (Whiting & Nickerson, 1997)

It is evident that data collection is essential for any research about historic buildings, and it is also essential for the visualisation projects for historic buildings. Historical data provides an essential base for understanding and analysing the historic building. This data is one of the primary sources of information, even if the process integrates new digital technologies and tools.

3.4. The Use of Emerging Technologies

Technologies dealing with 3D visualisation are widely used in several disciplines in various formats. In architecture and particularly in heritage visualisation, the use of 3D computer graphics in different formats starts with the digital reconstruction process using various software options. Effectively the process generates digital models in a 'Virtual World' (Bartle, 2004).

The term 'virtual world' in the context of architectural visualisation is often referred to as simulation. The Oxford Dictionary describes simulation as "the technique of imitating the behaviour of some situation of the process by means of a suitably analogous situation or apparatus" (Oxford Dictionary, 2022). Bartle (2004) describes the term as an environment implemented by the computer, partially controlled by the individuals (Bartle, 2004). Bell (2008) highlights the differing definitions of a virtual world. It identifies the comprehensive look of the interpretation of the virtual world as with its facilitation by networked computers and a synchronous network of people represented as avatars (Bell, 2008). Gursimsek (2014) describes the term from a spatial experience point of view as follows;

> The multi-user online platforms known as virtual worlds (VWs), represent, and in many ways simulate, three-dimensional spatial experiences, and provide their users with resources to personalize their communicative environments.

Although architectural heritage visualisation does not necessarily focus on personalised communicative environments, it is still possible to integrate new technologies into architectural heritage visualisation as one of the application areas of the virtual world. Even though virtual reconstructions could be considered popular since they provide a better understanding of architectural heritage with rendered digital images by using computer technologies, they also present challenges of visualising data interactively in a 3D format (Richards-Rissetto et al., 2013). Whether the visualised data is related to material usage, finishes, or historical detail, interactive visualisation could achieve the data visualisation by seeing analytics presented visually with real-time changes using mobile tools and

devices(Prestipino & Ulivieri, 2012). Mobile tools and devices generate a digital interface where the digital content can be viewed.

3.4.1. The Use of VR & AR Technologies and Mobile Devices

Studies in the virtual environment for creating digital spaces are the earliest examples of today's mobile devices, such as tablet computers, mobile phones and digital glasses. The earlier examples of such technologies go back to the late 1950s, when the first virtual environment, called Sensorama, was created by Morton (Damer, 2008). This virtual creation included a multisensory immersive virtual space and a simulator that created an illusion of reality using 3D motion pictures. Starting with this invention, the use of the virtual environment, particularly in the gaming industry continued to evolve (Damer, 2008). With the growing research achievements and developments in technology, the use of mobile devices in the gaming industry, and other visual representations has become more affordable (Kanamgotov, 2015). In addition to the technological developments, the wide availability of wireless networks, and advancements in electronics and sensing technologies that allow the devices to reduce in size, it is now possible to utilise different user interfaces (Cakmakci & Rolland, 2006).

Virtual Reality (VR) and Augmented Reality (AR) technologies represent the potential of emerging visualisation tools in heritage visualisation. During the last three decades, significant improvements in environmental data acquisition and data management in multidimensional virtual environments allowed the integration of VR/AR devices for architectural heritage visualisation (Tomilina et al., 2020). The use of VR/AR technologies in heritage visualisation, particularly in virtual museums, generates possibilities to integrate these technologies into visitor experiences. They are effective platforms that the public can access via the internet or through screens to view objects' presentations. Alternatively, museums also use digital tools for visitors to virtually perceive the historical artefacts or spaces (Huang & Han, 2014). For example, a partnership between "The History Centre" in Cedar Rapids and the University of Iowa developed a museum exhibit called "This Old Digital City; Virtual Historical Cedar Rapids circa 1900" (Cremer et al., 2000). With this project, the museum exhibit uses state-of-the-art interactive virtual environment technology as an interface to display the historical archives. The project includes an extensive real-time 3D visual database representing five blocks of

Cedar Rapids, Iowa, from the early 20th century and multimedia historical archival material related to the historic buildings. With the help of display screens, the visitors displayed and interacted with three projects. Additionally, the project also has an interaction device named 'time machine; where the visitors control their tour through the old city. Historical documents such as old photos, blueprints and insurance maps were relevant historical documents for the GIS-based virtual city model (Cremer et al., 2000). Although many of the buildings of early 1900s Iowa were lost, there were historical documents that provided information about the architectural and urban features of this lost architectural heritage which was then possible to apply image-based modelling to create 3D architectural models.

The studies related on mobile digital technologies in heritage visualisation enable an exciting and developing research area. Testing digital models within the context of applications of mobile digital technologies in lost architectural heritage visualisations provides a real-like experience for the viewers. In response to this interest, the research areas are developing, and it is worth looking into the link between mobile digital technologies in lost heritage visualisation and viewers' experience.

3.4.2. The Use of Information Management Systems

The use of information management systems for conservation projects and the visualisation of historic buildings are advancing with the help of new research and improving technological abilities (Reindel & Wagner, 2009). The need for managing the data collected for the historical building through various resources is an essential part of understanding the building's current and former states (Harvey, 2001). The ability to represent and analyse the diverse data to generate a holistic understanding of the building's past and present allows the possibility to evaluate the building's spatial and historical characteristics, thus supporting the researchers and heritage managers to make decisions about the future of historic buildings (Myers et al., 2016).

Information management systems could be a suitable tool in dealing with this heterogeneous information and transferring the data between different heritage professionals. It allows the researcher to look into different aspects of architectural heritage through its historical context, place in the urban fabric, or its stylistic architectural features (del Curto et al., 2019).

It also involves the contribution of different disciplines working together to comprehend the value of architectural heritage from various points of view (Letellier et al., 2007). As mentioned above, as a multi-disciplinary field, information management of architectural heritage deals with different kinds and formats of data from its data collection phase to the implementation phase. Within this context, Geographical Information Systems (GIS) and Building Information Modelling (BIM) are becoming recognised as valuable tools through different stages of architectural heritage conservation and decision-making processes, and to manage historical data (Jouan & Hallot, 2019). The use of GIS and BIM technologies in managing historical data is discussed in the next section.

3.5. Managing Historic Data

Data management and its role in heritage visualisation concerning authenticity and accuracy discussions are critical while dealing with lost architectural and urban heritage. This section outlines the importance of historical data during the collection and visualisation processes and discusses the role of historic data for disappeared examples.

Data has a principal role in defining the strategies through the conservation decision-making process of a historic building. Information management of this data provides a setting suitable for a multi-profession framework. This process includes stakeholders with different backgrounds dealing with specific data types such as art history, archaeology, structural engineering, architecture etc. It is also a valuable attribute that provides essential discussion points concerning the values of historical buildings and sites from the different perspectives of these professions. While dealing with this complex and multi-faceted data, it is essential to provide convenient data management by storing, visualising, and analysing the historical data to support the architectural heritage conservation process (Letellier et al., 2007).

A comprehensive study of a historic building consists of several stages and avenues of enquiry. In each stage, data collection from various sources provides a better understanding of the heritage values (Jokilehto, 2005). The on-site fieldwork stage enables the data collection from the building itself. Additionally, it makes it possible to interact with the different stakeholders of the architectural heritage, such as current residents, former residents, site managers, etc. During this stage, it is also possible to undertake archival and documentary research in

institutions, museums, archives, etc. Consequently, studies dealing with architectural heritage involve collecting different types of data in different formats at different stages of the operation (Feilden & Jokilehto, 1998).

As mentioned above, architectural heritage itself is an essential data provider through the conservation decision-making process of heritage studies. The researcher could capture various exposed or hidden valuable data by studying the different historical periods of the architectural heritage as traces on the building (Letellier et al., 2007). The conventional data collection methods on the site are still valuable even with the rapid technological advancements for the survey phase of architectural heritage studies. However, with the integration of digital technologies, it is now possible to consider the digitisation process from data collection to data visualisation with the help of GIS in map formats. Hence, digital technologies can critically support architectural heritage conservation at different stages by digitising, analysing and managing the data.

BIM in the construction industry allows data to be integrated into different stages of the construction process. It also facilitates information sharing amongst different users through digital representations (Eastman, 2008). The use of BIM in heritage projects is referred to as Historic Building Information Modelling (HBIM) (Murphy et al., 2009). HBIM is described as a library of objects based on historical data (Bruno & Roncella, 2019). It is a system that allows mapping these objects on digital models (Letellier et al., 2007). Murphy et al. (2009) describe the HBIM as the modelling and documentation of architectural elements according to artistic, historical, and constructive typologies (Murphy et al., 2009). Current approaches involve a wide variety of usage of HBIM, focusing on data sharing by web-based solutions, user-friendly information sharing and 3D data visualisation (Bruno & Roncella, 2019).

3.5.1. Data Collection and Digitisation

Following the data collection and digitisation of data phases, the visualisation of data for historical buildings in various formats could be achieved using different digital tools (Campi et al., 2017). As previously mentioned, digital maps, 2D and 3D drawings, and recently popular VR and AR technologies provide the viewers with an understanding of architectural heritage at a time in history or with a proposal that sheds light on possible future interventions. Digital

reconstructions of architectural heritage in 3D platforms offer users visualisation options that require a combination of different data sets by using various digitisation technologies (El-Hakim et al., 2005)

Current developments in GIS technologies allow users to manage geographical data and acquire analysis as part of data management for heritage projects (Petrescu, 2007). Within this context, web-based GIS applications are often seen as suitable tools for digitising and managing data (Brovelli et al., 2016).

Digitising the data for research or other purposes for future studies also enables generating a valuable data source (del Curto et al., 2019). For instance, if the building is lost or in danger of being damaged due to conflict, economic, or any other political reason, maintaining digital archives allows the protection of heritage places for future interpretations. Furthermore, the digitised data can be stored as an open-source for other researchers to use and on the other hand, it can be visualised by using different software and platforms (Steiniger & Hunter, 2013).

3.5.2. Data Visualisation

Web-based open-source platforms allow users to share information and provide a valuable setting for future research, building on the knowledge that is already created (Myers et al., 2016). With rapidly spreading internet access and developments in digital technologies, it is possible to integrate web platforms into information management systems. These web-based platforms include functionalities for collecting, sharing, and managing of data related to architectural heritage (Richards-Rissetto et al., 2013).

One of the well-recognised collaborations that could be a useful example for such studies is the Arches software developed by Getty Conservation Institute (GCI) (Carlisle et. al., 2014). It is a system developed in collaboration between GCI and World Monument Funds since the year 2013. The primary purpose of this software is to realize an international web-based GIS for heritage projects that provides inventory and management of immovable cultural heritage. Middle Eastern Geodatabase for Antiquities (MEGA-Jordan) was a test case when the software was developed for Jordan's archaeological sites. Jordan's Department of Antiquities manage MEGA-Jordan, and it primarily works to inventory, monitor, and manages

the country's archaeological treasures. It was developed in collaboration with GCI as an open-source web-based platform to overcome challenges related to data management in the Middle East (Myers et al., 2016). With the help of this system, it is possible to easily retrieve information necessary to conserve, visualise, and manage data related to the selected archaeological sites in Jordan. It is a system developed using state-of-the-art and open-source information technologies that allow users to access the data for relevant research or subject-related activities (Kersel & Hill, 2020).

Moreover, Arches is an open-source platform where open-source software is integrated with the capabilities of GIS technology to adopt a cost-effective strategy and allow heritage professionals to share information. Initiatives like Arches prove that web-based open-source data management platforms could be suitable for developing heritage management systems and sharing and visualising the data related to architectural and archaeological heritage. They also provide platforms to deal with complex data from different sources. They establish a useful purpose-built platform for cultural heritage organisations to independently deploy to help manage their cultural heritage data (Myers et al., 2016).

Another recently developed digital platform focusing on the management and visualisation of archaeological data from the Middle East is a project called the Digital Archaeological Atlas of the Holy Land (DAAHL). The project is an international collaboration between several universities from North America, the Middle East, and Europe, including research institutes like Thomas Levy's Levantine Archaeology Laboratory. The focus of this project is to develop a GIS-based information management system to record and visualise the archaeological sites from Israel, Palestine, Jordan, Lebanon, Syria, and the Sinai Peninsula (Savage & Levy, 2014). The project also focuses on developing a comprehensive digital Atlas of archaeological sites from the three monotheistic faiths. The web-based digital atlas includes maps, photographs and other related artefacts from the region. Evidently, digital storing and visualising projects allow data storage for archival purposes and enable researchers to manage the data for different projects as well as the conservation decision makers to produce inventories and manage the historic data for specific places. Furthermore, these digital platforms are increasingly becoming important in capturing information on the heritage places at risk due to a conflict, or other environmental problems.

3.5.3. Data Collection for Lost Heritage

Despite the numerous challenges examined above, data collection and data management require a systematic and comprehensive approach where all the relevant data sources are investigated. For existing architectural heritage projects, the relevant data could be constructed from the case study building or any relevant historical document. This type of data collection could also be beneficial for the missing components of the building, where a comparative study could reveal the missing elements' details. In addition to the challenges of the complex nature of heritage projects, the challenges also might occur with the limitations of available and reliable data. More specifically, if the building that is investigated disappears without sufficient historical data, visualisation could be challenging in relation to the accuracy of the final outcome and the authenticity of the visualisation.

Data collection for lost heritage projects will rely heavily on historical documents (Morabito et al., 2019). Cartographic resources, historical drawings, and photographs could shed light on lost architecture's past even if the building has no traces left. Regardless of the condition of the building or the evidence of remaining elements of the previous periods of the building, the integration of digital technologies into lost architectural heritage visualisation is a developing area of research (Kuroczyński et al., 2014).

Whether it is an existing building or a disappeared settlement, data collection and management require an extensive examination. However, once a building has disappeared, the available data about lost heritage as it is mostly the only source of information. Hence, while researching and exploring the lost architecture, the quality and reliability of the historical data become more critical.

3.6. Visualising the Lost Architecture

Producing digitally reconstructed models of lost settlements or buildings provides a virtual platform where digital models of these lost examples can be visualised. One of the earlier examples of such studies in the UK is the virtual reconstruction of a 10th century Norman Cathedral in Winchester based on the drawings and documentation of an excavation project from the 1960s (Burridge et al., 2010; Reilly et al., 2016). Over the years, with the help of technological developments and advances in digital reconstruction, similar projects have

been prepared for various lost buildings and sites. Another recent project is the 'Oxford Friars' project for the virtual reconstruction of mendicant architecture in medieval Oxford from the 13th and 16th centuries (Knowles, 2018). The virtual reconstruction process of the Oxford Friars project investigates the different phases of the building by creating virtual reconstructions based on excavations and historical drawings. (Knowles, 2018). Knowles refers to digital reconstruction as a digital ghost. He emphasises that the intention of it is not to generate a precise digital reconstruction of the buildings' various phases. Instead, to ask questions about the past and are questioned by it (Knowles, 2018).

Glancey (2008) highlights several reasons why buildings or cities are lost, and he defines *humankind* as one of the primary reasons for the loss of architecture throughout history, including war, conflict, political, economic, and structural reasons, amongst others. Moreover, the author identifies two categories under the lost buildings that were never built. One of them is the imagined buildings or cities from fictional novels or movies, and the other one is the buildings that were designed but never been constructed (Glancey, 2008). Di Mascio et al. (2016) categorise lost architecture as buildings that are totally lost, partially lost or transformed. Alongside architecture lost to natural disasters, demolition and abandonment, they also identify unbuilt architecture as another form of lost architecture, separate from their categorisation. The examples under this category not only consist of architectural examples but also includes examples from archaeology (di Mascio et al., 2016).

Archaeology is the primary study in which lost heritage is investigated, and the majority of virtual representation examples are from archaeological sites or ancient buildings (Glancey, 2008). Virtuality in archaeological representations has generated new terminology linked to the outputs produced. In some cases, virtual reconstructions are referred to as "cyberarchaeology" (Forte, 2008), and some other scholars introduce the terminology "virtual archaeology" (Reilly, 1991). Forte (2008) argues that the more general term "digital archaeology" does not specify the particular kind of methodologies or the specific tools. Hence the necessity of using "virtual archaeology" or "cyberarchaeology" as a way to distinguish the outcome as well as the methods used for the digitalization process (Forte, 2008).

Investigating rigorous practices and questioning the validity and credibility of virtual reconstructions is linked to the ever-growing popularity of virtual reconstruction of architectural and archaeological heritage (Beacham et al., 2006). The Ename Charter (Charter for the Interpretation and Presentation of Heritage Sites) (ICOMOS, 2008) is the first international charter to refer to and validate the use of virtual models in different contexts of heritage management and interpretation. The charter provides a structure for the terminology around heritage interpretation and started the debates for a more systematic understanding of authenticity in interpretation (Silberman, 2009). The charter also opened up discussions on subjects like heritage ownership, inclusiveness, and contradicting sources of information (Silberman, 2009).

Virtual reconstruction of lost architectural heritage has its unique challenges. These challenges are primarily related to the availability and reliability of historical data. Many of the previously mentioned examples of lost architectural heritage visualisations use the traces of the historic building and archaeological remains or historic drawings as the primary resources of information to reconstruct the digital models (Balletti et al., 2020; Davis et al., 2018; Forte, 2008; Glancey, 2008; Knowles, 2018; Morabito et al., 2019; Pietroni & Ferdani, 2021; Reilly et al., 2016; Tomilina et al., 2020). Hence, the outcome is also linked to the building's past or the reason behind its loss. For instance, ongoing or post-conflict situations could affect access to adequate or trustworthy historical data. Furthermore, different than research for a historic building that has partial or complete remains, investigating a lost heritage might end up with limited data sources such as a single photo or even in some cases, just a written description that can give clues about the building's past.

3.6.1. Conflict Areas

Digitisation of data can be critical for historical architectural or archaeological heritage in conflict areas (Bevan, 2016a). Recording basic information and creating a database of historical records enables a better understanding of the heritage for future preservation decisions (Bewley et al., 2016; Kersel & Hill, 2020; Savage & Levy, 2014). The conflict scenarios may have deliberately destroyed the historic building (Glancey, 2008). Furthermore, the role of organisations and institutions taking part in the reconstruction efforts of these areas might have different agendas that could affect the final results or aim of the projects (Legnér, 2018).

Globally, an increasing number of historical buildings and sites are being destroyed or lost as a result of conflict. For instance, in the late 1990s in the Balkans, in the early 2000s, Iraq and Afghanistan, and the 2010s, Yemen and Syria experienced the destruction and loss of architectural and archaeological sites through conflict. This indicates the importance of data collection before the loss of historic fabric (Bewley et al., 2016). The Great Buddhas of Bamiyan in Afghanistan and the damage inflicted in Palmyra and other archaeological sites in Syria are very recent examples of architectural and archaeological heritage that have been lost to the deliberate actions of destruction and highlight the importance of digitisation of data for the future of architectural and archaeological heritage (Arkawi, 2017).

Endangered Archaeology in the Middle East and North Africa (EAMENA) is another project aiming to establish a spatial database system for documenting and sharing information about endangered sites around the Middle East and North Africa (Bewley et al., 2016). The project is a collaboration between the Archaeology departments of the University of Oxford, the University of Leicester, and Durham University and has been funded by Arcadia Fund. The Cultural Protection Fund provided the funding for the project (Bewley et al., 2016). By working with the local Department of Antiquities, the project has recorded archaeological sites from the region with satellite imagery and allows the public to access them (Bewley et al., 2016). The EAMENA project aims to document archaeological sites that are not only endangered because of a conflict or looting but also agricultural and construction activities as well as natural erosion. As part of the methodology utilised in the EAMANA project, the identified sites are documented as site records, including satellite and aerial photos in order to create archival documents. The project also includes monitoring the condition of the sites using remotely-sensed data and ground verification, which also allows management of the sites for possible future projects. The project provides archival imagery and records for study areas in conflict locations within this perspective. Also, it enables the documentation of some areas that could possibly be damaged in the future. By using the Arches software, the project stores its data and, for possible locations, undertakes ground works to enrich the database records (Bewley et al., 2016).

Project Anqa is another multi-partner initiative that is an example of digitising data as an asset in conflict situations. Its aims to produce digital documentation and conservation

management of heritage sites in danger in Syria and Iraq (Brzezicki et al., 2019). The project is a partnership between the Syrian Directorate of Antiquities and Museums, CyArk, ICOMOS, Yale University, Carleton University, and Mitacs. It aims to digitise and document cultural heritage in the Middle East and make the data accessible for future use by different scholars (Akhtar et al., 2017). Specifically, focusing on Syria and Iraq, the platform provides viewers with educational information through research, digital storytelling, and by experiencing the sites in a virtual environment. This virtual experience provides a web-based tour of 3D-recorded selected buildings and their location maps. The project focuses on the existing context and remaining buildings by recording them with digital tools and generating 3D imagery that users can navigate around the building. Similarly to the EAMANA project, Anqa also focuses on the existing endangered buildings in a conflict setting and provides documentation of these buildings by using digital imagery.

What emerges from the review of data management and visualisation projects is an established interest from the governments and conservation organisations to generate inventories and manage the historical data about these heritage examples. On the other hand, since the projects are run by the government offices or in collaboration with the government offices, there is a chance that heritage examples that might not be seen as belonging to or of interest to the current authority might end up not being the focus of such a study (Legnér, 2018). This also underlines the challenges while dealing with heritage examples that have disappeared. It indicates the criticality of collecting data for lost heritage and obstacles dealing with limited data.

3.6.2. Visualisation

Identifying the challenges that might occur while researching lost architectural and urban heritage in a post or ongoing conflict situation is important. Firstly, the collection of historical data could be limited (di Mascio et al., 2016). Secondly, the reliability or accuracy of the collected data could be problematic (Glancey, 2008). Finally, ongoing or post-conflict situations could create problems in the management of data and heritage ownership (Prizeman et al., 2019; Univermy & Hull, 2003)

Limitations in collecting historical data require innovative solutions for the visualisation process of lost architectural heritage (Bevilacqua et al., 2019). Archival images could be a valuable source of information in addition to cartographic resources (Balletti et al., 2020). Hence, the necessity of gathering visual historical data could enable the virtual reconstruction of lost buildings even though there are limitations in data collection. Furthermore, the virtual reconstruction might require assumptions and interpretations since the photographic or cartographic resources could be limited. At this point, it is essential to assess the data source for accuracy and reliability (Knowles, 2018). A reliable resource such as archival documents or previously done research could enhance the reliability of the outcome (Pietroni & Ferdani, 2021). This way, the historical evidence could be verified by multiple references, and the virtual reconstruction of lost architectural heritage could be more authentic.

The reason behind the loss of architectural heritage could affect the virtual reconstruction efforts if the building were lost due to a conflict or war (Naef & Ploner, 2016). For instance, if the building was built and used by a society or a group not living in the area, discussions around heritage ownership might occur. Consequently, new and improving digital technologies allow advanced virtual reconstructions of lost architectural heritage visualisations. The use of digital technologies in lost heritage visualisation and its link to heritage and identity relations enable new research areas.

3.7. Conclusion

The chapter reviewed the current literature on the use of emerging digital technologies in heritage visualisation. The review also focused on the visualisation of lost architectural heritage examples and the role of data management and data sharing in this process. Three main issues were established with this literature review. First, the lost architectural and urban heritage visualisation examples primarily focus on lost examples with available historical data regarding drawings and maps. Second, the public's interest is increasing in integrating mobile digital technologies in the visualisation process for lost heritage examples. Moreover, third, heritage visualisation and data management have integration challenges that require attention to establishing a monitored and maintained data flow with the possibility of updating or add new historical data for lost architectural and urban heritage.

This chapter responded to the second objective of this thesis, to investigate the potential of digital tools in effectively visualising examples of lost architectural examples. Therefore, the review achieved the identification of the role of digital technologies in heritage visualisation and how the impact of this could be on the management, conservation and interpretation of the sites.

Consequently, GIS provided a valuable setting to integrate various forms of data, including historical maps, historical photos and current urban context. It generated a suitable digital environment allowing geospatial configuration of lost heritage places and buildings. Since the visualisations heavily rely on historical resources such as old photos and maps in the absence of remaining buildings or ruins, this dependence could generate restrictions in some cases. On the other hand, easy access to digital technologies such as VR and AR applications allows realistic ways visualisation of heritage, potentially positively impacting the perception of lost heritage places. These realistic and improved ways of visualisation bring out discussions around ethical considerations of these heritage interpretations, which generates a gap in knowledge.

4. RESEARCH METHODOLOGY

4.1. Introduction

This chapter describes the methodological approach to this research and explains how the research was designed. Firstly, the chapter reviews the research methods considered and evaluates their limitations and suitability for this study. Then, it defines the process of the selection of case studies, methods, and tools to collect data. After explaining the selection of research strategy, the chapter summarises the selected methods and techniques that facilitate the aim and objectives of this research.

The overall aim of the research is to investigate and evaluate the role visualisation of lost heritage in perceptions of identity linked to a place of residence and a place of origin. The research objectives as outlined in Chapter 1, were approached through a combination of methods that includes literature review, construction of fieldwork material, the fieldwork exercises, interviews, focus group discussions and collecting data from observation of the participants while engaging with the digital material. Literature review of heritage and memory relations and heritage visualisations provided some understanding for the first three objectives of the research. These understandings were transformed into key indicators to be used during the data collection procedures. The literature review for the case study cities Izmir and Thessaloniki, the identified lost heritage examples and the interviews and focus group discussions with the participants from these two cities provided various data and accordingly analysis were carried out. The data analysis process was predominantly done by using qualitative methods and accordingly the final three objectives of the research were accomplished.

4.2. Research Strategy

Establishing the parameters for research, in general, requires identification of the research methods which is one of the principal challenges through the process (Groat & Wang, 1965). Differences in methods, data types and measures, and consequently posing different research questions alter the research findings. (Abbott & McKinney, 2013). Qualitative and

quantitative research methods are the two main frameworks that researchers use to govern the data collection and analyse the data (Saunders et al., 2011). Cresswell adds mixed methods research as another main approach to research and defines it as being in the middle of the two that incorporates both qualitative and quantitative approaches (Cresswell, 2014). In their basic description, qualitative research depends on non-numerical evidence, and on the other hand, quantitative research depends on the numerical evidence that can be measured by numbers (Groat & Wang, 2013). Although this research includes quantitative methods in data gathering, the primary methodology is qualitative.

Qualitative research methods emerge from social science, where the studies are related to the complex nature of human behaviour (Taylor & Bogdan, 1984). Qualitative research is a systematic and subjective approach that explains daily life experiences and gives these experiences meaningful explanations (Taylor & Bogdan, 1984). Phenomenology seeks to describe and understand the complex world of lived experience from the point of view of those who live it (Groat & Wang, 2013). This research method gives researchers a chance to explore behaviours to examine various perspectives of the experiences of life and identify complex situations through a holistic framework.

While describing the research methodology, it is important to define the conceptual framework of the research to discuss the suitable research methods and research approaches (Cresswell, 2014). There are various definitions for this general philosophical orientation for the research design. For instance, systems of inquiry, worldview, paradigm, and epistemologies (Abbott & McKinney, 2013; Cresswell, 2014; Groat & Wang, 2013; Saunders et al., 2011) (Figure 4.1) are some of these interpretations. For this research, the qualitative research methods is employed as the principal research methodology.

The study investigates the link between heritage and memory with a focus on population exchange descendants and their perception of their descendants' place of origin. Since the link between heritage and identity is related to the loss of heritage in displaced communities as discussed in Chapter 2, the setting will provide a good understanding of the shared memories and their impact on heritage ownership.

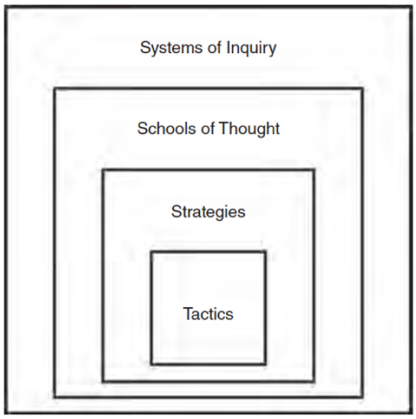


Figure 4. 1 An example of conceptual framework for architectural research design *(Groat & Wang, 2013)*

4.3. Research Methodology Selection

Creswell (2014) defines phenomenological inquiry as part of uncovering meaning in one's lived experiences (Cresswell, 2014). Similarly, Schwandt describes phenomenological inquiry as a search for understanding the lived experience from the point of view of those who live it (Schwandt, 2000). It derives from the social sciences and traditions of German philosophers such as Husserl and Heidegger (Groat & Wang, 2013). Abbot and McKinney (2013) describe the field-work studies for such qualitative research "where researchers go into a field setting to observe people, collecting very detailed information about some smaller group, process, and/or interaction" (Abbott & McKinney, 2013). From an architectural research point of view, it attracts many researchers to include it in their research. Since such a study may combine a physical environment, it gives researchers a chance to observe people's interactions with the physical context (Groat & Wang, 2013).

Phenomenological inquiry is a methodology where the researchers attempt to interpret the meaning attach to people's experiences (Mayan, 2009). The observation attempt focuses on participants' perceptions, and therefore it could include multiple realities (Cresswell, 2014). It allows various interpretations of the systematically investigated experience. Thus, phenomenological inquiry enables a more multi-dimensional comprehensive narrative of the phenomenon (Seamon, 1997).

This research adopts the phenomenological inquiry to achieve its aims and objectives. Firstly, the creation of virtual material by using various digital technologies provided a context that enabled the data collection for the understanding the lived experience of population exchange descendants and conservation specialists from the two case study cities. Secondly, the observations processes during the interaction with the digital contents and the focus group discussions provided detailed information about the migrant societies' and conservation specialists' perspective.

4.3.1. Selection of the Case Studies

Defining a research question has critical importance while designing the research strategy (Cresswell, 2014). Questions that investigate the attitude and the reason towards a phenomenon are likely to favour the consideration of case studies (Yin & Campbell, 2017). Case study research can also be a good way of understanding a particular phenomenon using multiple sources of evidence (Gillham, 2000).

As stated earlier, this study focuses on lost architectural and urban heritage that has disappeared within the last century. It also aims to investigate the link between heritage and memory and place and identity. To examine this, Izmir in Turkey and Thessaloniki in Greece were selected as the two case study cities as places that were previously well known for their multi-cultural populations. (Figure – 4.2) The social and economic importance of these selected case studies can be identified through the existing historic buildings as well as the lost architectural heritage.

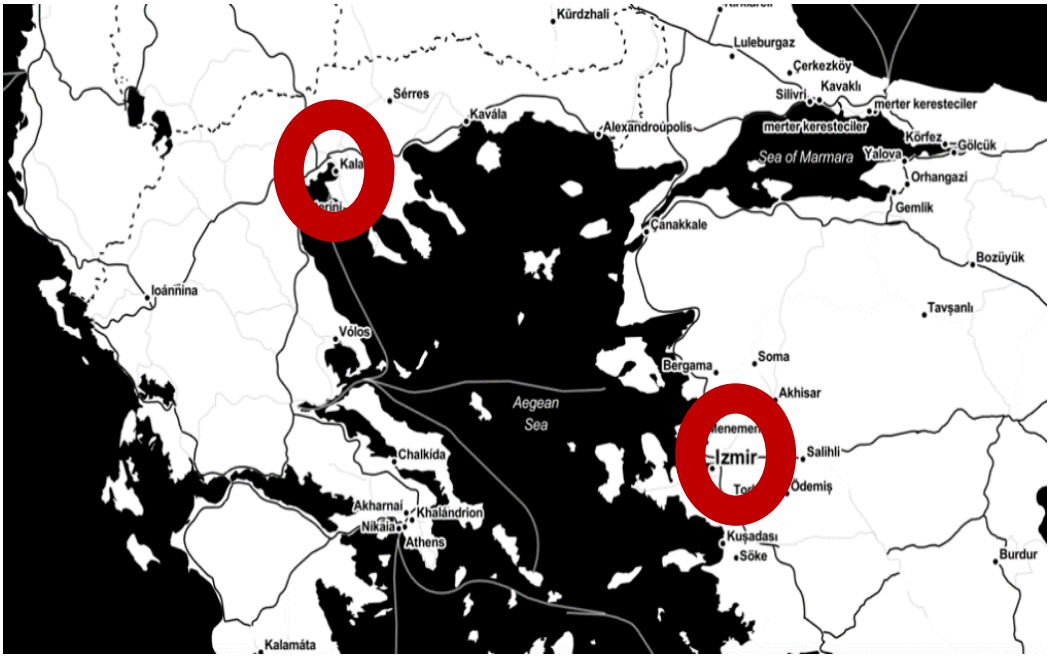


Figure 4. 2 Izmir and Thessaloniki in Aegean Region

In many parts of the Balkans, Anatolia, and the Middle East, populations, borders, and urban settlements significantly changed during the 20th century due to wars, civil conflicts, and economic developments. The population exchange which took place in 1922 and 1923 between Turkish and Greek populations is one of the most significant examples of such shifts. Therefore, the two case studies were selected from these countries to provide an analysis, and where appropriate comparative analysis, of the changes that occurred in the region.

The rationale behind the selection of these case study cities is based on various factors. First, both cities were part of the Ottoman Empire until 1912 and were home to diverse cultural, ethnic and religious communities, yet the cities shared many demographics similarities with one another. At the end of the empire the two cities' population faced with traumatic experiences and the cities demographic characteristics altered dramatically. The population exchange between the two countries and the aftermath impacts of the conflict and war also dramatically changed the urban fabric of the two cities. Second, both Izmir and Thessaloniki went through a devastating fire that altered the urban characteristics of the cities indefinitely. These major fires took place in 1917 in Thessaloniki and 1922 in Izmir. Following the fires, there has been significant urban planning that also resulted in the alteration of the two cities' urban characteristics (Amygdalou, 2014). The fires also led to the loss of many historic buildings and neighbourhoods that belonged to the cultural groups that were forced to or

chose to relocate in light of political events in the early 20th century. Another reason for the selection of the case studies is that both cities were used as a principal port of deportation during the population exchange between the two countries and as a consequence continue to be centres for various legacy institutions and societies. Finally, the two cities are currently home to the descendants of the population exchange communities from the opposite sides of the Aegean Sea.

Izmir is a historic port city on the Aegean coast of Turkey and has been an important trading point since Antiquity attracting different ethnic and religious communities to settle there. Thessaloniki is also an important port city on the Greek side of the Aegean Sea and had many settlers from different ethnic and religious backgrounds. In the early 1900s, communities in both settlements were from Turkish, Greek, Armenian, Jewish, and European backgrounds. Due to war, conflict, and urban development, the majority of both cities' architectural heritage was lost between the 1920s and 1950s. Even though we can see a diversity of different kinds of origin in Izmir and Thessaloniki today, it is no longer easy to capture these earlier communities and their architecture in both cities. In addition to the loss of tangible heritage samples, intangible heritage also disappeared due to the large scale migration of the populations of Izmir and Thessaloniki (Papastathēs & Chekimoglou, 2010).

Izmir and Thessaloniki have various resemblances from a historical and urban development point of view. Additionally, the two cities' role in the population exchange also indicates some similarities. Thessaloniki was one of the primary ports of deportation of the Turkish and Muslim population of the Balkan Peninsula to Asia Minor. Many of the refugees left their hometowns and were put in boats leaving Thessaloniki to their new destinations. One of those destinations was the Izmir peninsula. For instance, Kucukbahce in Karaburun was the new home for the refugees coming from Thessaloniki in 1924, while Buca in Izmir housed new refugees coming from Yaylacik Thessaloniki (Burlingame, 2016).

Greco-Turkish War in 1922 turned Izmir into a major warzone five years after the devastating fire in Thessaloniki. Consequently, Izmir also lost many of its historic structures from the 19th century within this period. With the 1919-1923 Turkish War of Independence led by Mustafa Kemal Ataturk, founder of the new Turkish Republic, both cities found themselves in newly

founded nation-states. Thessaloniki becoming a city of modern-day Greece, and Izmir a city of modern-day the Turkish Republic

4.4. Virtual Reconstruction of Lost Heritage Examples

The third objective of this research is to develop digital material for the selected lost heritage examples to facilitate the fieldwork. As stated in Section 4.2.2, after the identification of lost heritage examples, the task included generating digital materials including 3D digital models, GIS maps, 3D maps, superimposed images, VR visuals, AR visuals, and other types of digital renderings. This material was used in the fieldwork to observe the participants' engagement with the lost tangible and intangible heritage such as architecture and urban fabric and by using other types of media through focus groups.

Before the fieldwork stage, historical information was collected through an investigative literature review from archives as historical documents, traveller's accounts, cartographic and photographic resources, publications, etc. This research was undertaken for the two case studies, Izmir in Turkey and Thessaloniki in Greece. Additional data was obtained from archival records in both case study cities. Additionally, several historical photographs, such as family albums, postcards, archives of government and private organisations also have been referred to further study and investigate those identified lost architectural and urban characteristics of the city before the population exchange.

Research through archival documents about the history of Izmir and Thessaloniki also allowed a comprehensive understanding of the city's past. Cartographic sources such as Copelan (1834), Graves (1836), Storari (1856), Saad (1876), Wernieski (1882), and Charles E. Goad (1905) (APIKAM Archives) demonstrated the urban development of both cities over the years since the early 19th century. For this research, with the available detailed urban and architectural information, 1905 Charles E. Goad fire insurance plans provided information about Izmir's lost architectural heritage, and for Thessaloniki Wernieski's 1882 map has been utilised in the GIS environment. Both maps relate to the time shortly before the population exchange, and therefore the urban memories transported by the exchanged populations. Digital media of lost architectural heritage samples generated for both cities enabled the assessment of the digital technologies and information management systems. The following

sections describes these processes, Section 4.4.1 focuses on the integration of GIS and Section 4.4.2 elaborates on the virtual model creations.

4.4.1. Integration of Geographical Information Systems

Old maps contain key essential information about historical areas that have changed over time. Once the urban characteristics of the site change, the data from cartographic resources become more valuable. Additionally, if the architectural heritage was disappeared in these areas, historic maps may be the only data source about these buildings. The integration of historical maps into GIS enables data collection and information management about the urban characteristics of a historic city (Petrescu, 2007). Thus, in this research, GIS was used to collect, store and manage the data obtained from historical maps of Izmir and Thessaloniki.

In addition to the geographic locations of buildings, information about their functions, dimensions, structural systems, material finishes are some of the data that cartographic resources can provide. In line with the commercial importance of both cities, insurance maps commissioned by insurance companies proved to be highly valuable sources of information for the pre-fire urban structure of Izmir and Thessaloniki. The Charles E. Goad Map of 1905 for Izmir (Figure – 4.3) and the Wernieski Map of 1882 for Thessaloniki (Figure – 4.4) provide information on both cities' commercial and residential neighbourhoods and information about their significant religious and monumental buildings.



Figure 4. 3 Charles E. Goad Map 1905, Izmir. Retrieved June 14, 2018, from http://archnet.org/publications/10377

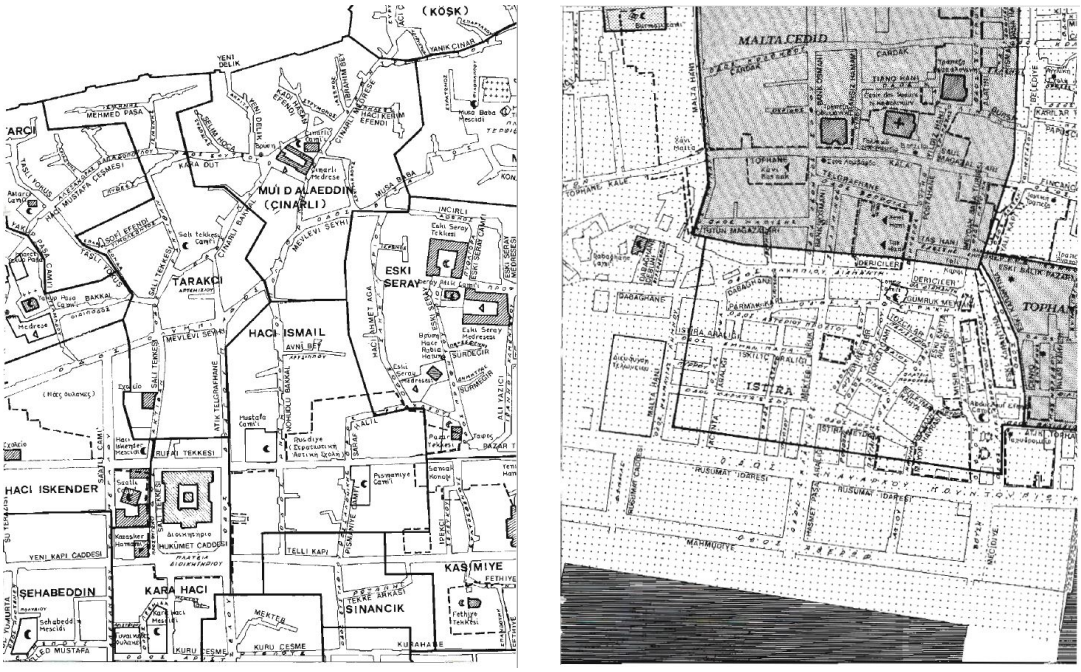


Figure 4. 4 Extracts from the Wernieski Map 1882, Thessaloniki. (Yerolympos, 2000)

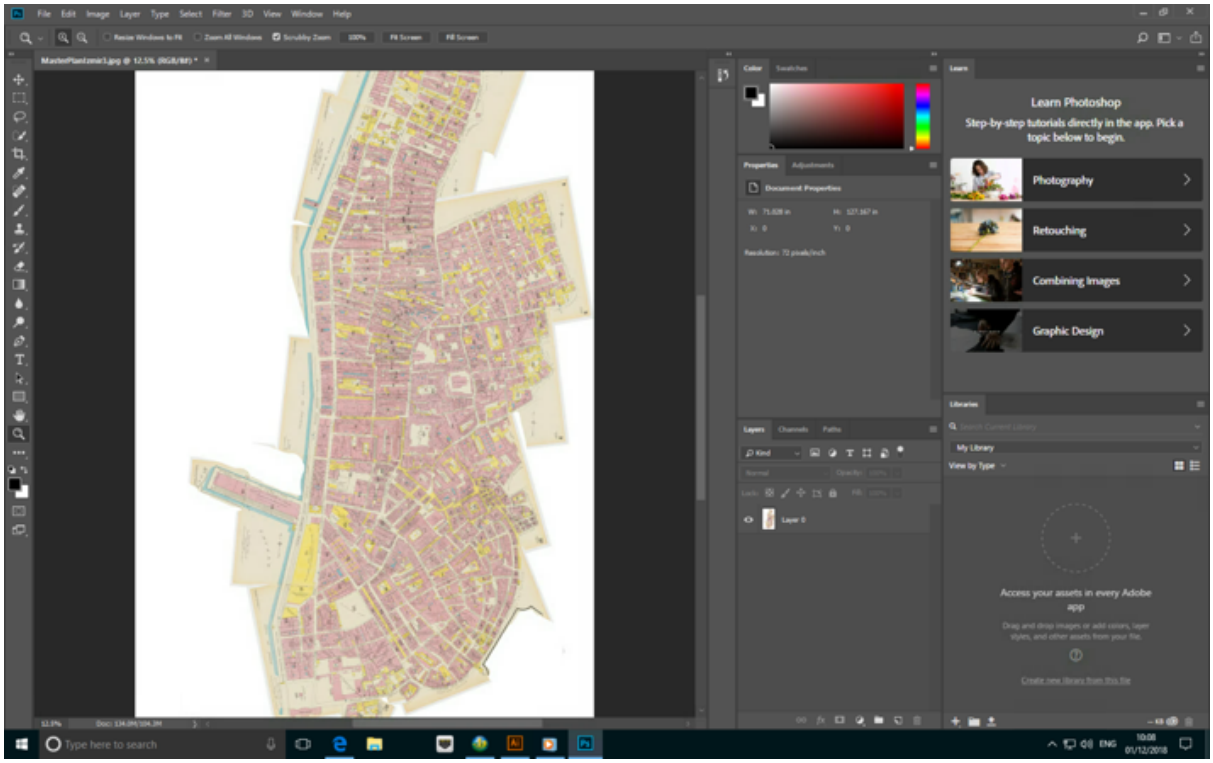


Figure 4. 5 Master map of Izmir using the 1905 Charles E. Goad fire insurance plans

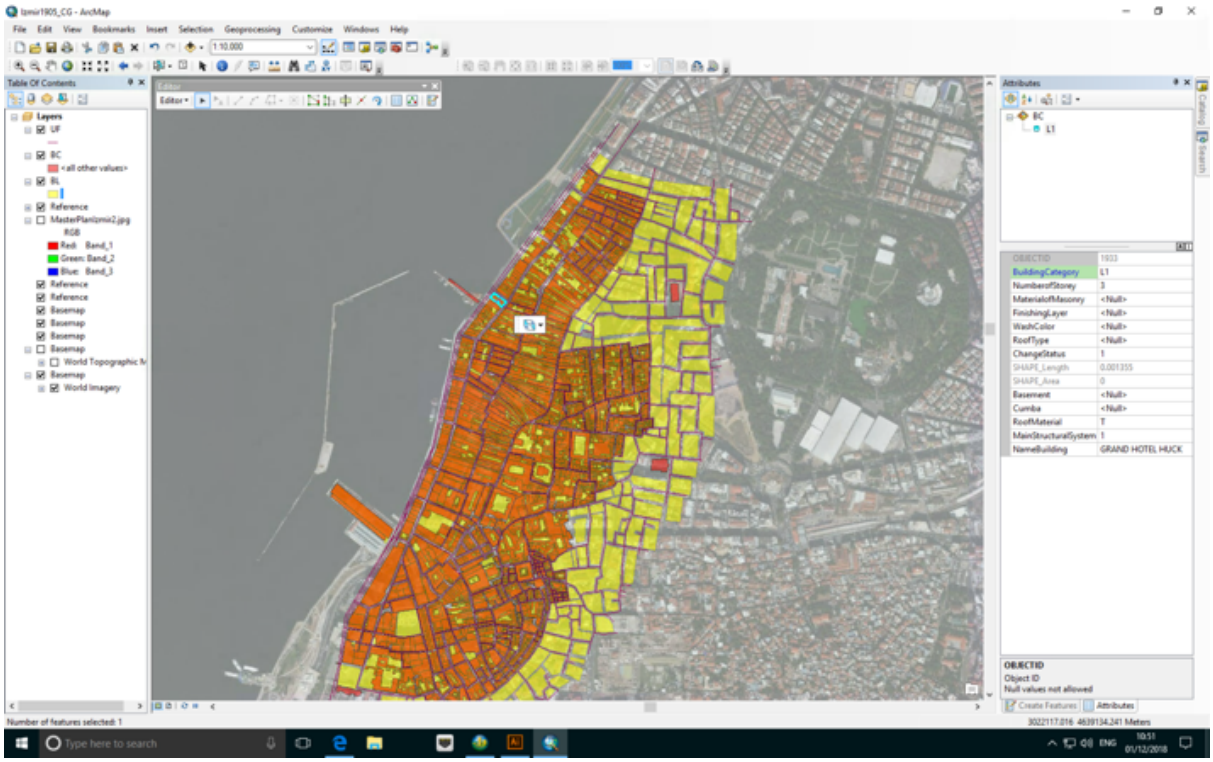


Figure 4. 6 Data input in GIS environment

Charles E. Goad, a London-based civil engineer, prepared fire insurance plans for Izmir in 1905. The document consisted of 11 individual maps that include information about the buildings as recorded in 1905. The map included information about the function, structural systems, structural materials, heights, roof type, information about the basement, and some other architectural characteristics. In some cases, it was possible to identify the name of the building and the detailed description of the commercial or industrial practice. Charles E. Goad's map provides essential information about Izmir's urban and architectural characteristics before the great fire of 1922. Not only did this map provide sufficient detail to be used as a baseline for the Izmir GIS maps, but it also included relevant information about the city of Izmir from the early 20th century and its architectural and urban characteristics of the city of Izmir. This is the period that the ancestors of the population exchange descendants would remember the most. Thus, there is an immense possibility that they may have informed the following generations with stories and descriptions about their city. In addition to the lost buildings, the information gathered from these maps was also about the existing historical buildings.

As the first step, individual maps within the 1905 Charles E. Goad fire insurance plans for the city of Izmir and Wernieski Map's individual plans for the city of Thessaloniki, were merged to generate a master map for each city (Figure – 4.5) by using Adobe Photoshop 2018. This allowed the identification of historic neighbourhoods with their architectural and urban characteristics of the cities before the fires. After this point this master maps became was the base map of the GIS file and additional drawings, editing, and data input was undertaken in the GIS environment. The following sections describes the process of database design and map queries in GIS environment that were subsequently utilised during the focus group meetings. Section 4.4.1.1 explains the design of database for the GIS system and section 4.4.1.2 describes the generated GIS maps used during the field work.

4.4.2. Designing the GIS Database

Utilising the collected historic cartographic documents included the following steps in the GIS environment;

- Designing the database
- Data identification
- Data input
- Map queries and data analysis
- 3D Visualisations

Two study areas were selected in Izmir in line with the information transferred from the Charles E. Goad fire insurance plans of 1905. The first study area included a residential neighbourhood exemplified the architectural and urban characteristics of the city and the second study area contained information on primarily urban components of Izmir. Additionally, two lost architecture example from the second study area were also studied in detail. Accordingly, the design of the database was the first step of the GIS process. Database features were points, lines, and polygons based on the data types. Essentially, data was entered for the line and polygon features.

As the primary data entry subject, polygon and line features included the following main attributes that were obtained from the historical documents; Name of the Building, Building Category, Change Status, Main Structural System, Material of Infill, Height / Number of Storey, Finish Layer, Wash Colour, Roof Type, Roof Material, Street Names. These attributes were also utilised to generate 2D GIS maps, and supported further cross-referencing mapping of the identified subjects. Once the database categories were completed, it was possible to prepare the GIS maps for visualisation of the data identified from the cartographic information and photographic documents logged in the database.

For the Thessaloniki GIS map, the Wernieski map also provided information about building lots, neighbourhood names, street names and important major buildings. However, the historical data on this map was less detailed than the information gathered from Charles E. Goad's map. Accordingly, data types included Name of the Building, Building Category,

Change Status, Street Names. Similar to Izmir GIS data entered based on the information available.

As the first step of the GIS data input process, the combined master map was superimposed on today's Izmir map by georeferencing it to its exact position. The superimposition allowed the identification of the urban and architectural changes in the historic districts of the city. Additionally, it was possible to establish the current locations of the identified lost buildings from Izmir. Drawing the 1905 map on GIS was the following step in the project. Built-up areas, open areas, public open areas, streets were drawn in the GIS environment. The process included drawing polygons, lines and points in the map that provided the basis to input data for the collected information about the area. Following section describes the process of creation of GIS maps for focus group exercises.

4.4.3. Generating GIS Maps for the Focus Groups

During the fieldwork for this research, one of the fieldwork materials shared with the participants was a series of maps generated in the GIS environment. The interaction of the participants with these maps and information they contained enabled an understanding of the participants' engagement with their ancestral cities. In addition to the map of the city of their ancestor's place of origin, a map of their current city was also shared with the participants. This enabled the observation of the participants engagement with the urban and architectural heritage in the context of their home cities and their views of a heritage of 'another', i.e. belonging to communities who lived there before the population exchange. Additionally, the discussions around the maps also generated interesting discussions amongst the participants and generated a topic of discussion where they recollected stories that they had listened from their ancestors. Several GIS maps have been created by using the database categories as the essential identification of the topics of the maps. Following are some of the outcome topics of the generated GIS maps;

- Change Category
- Building Category
- Building Function
- Structural System

- Building Height
- Leisure Buildings
- Commercial and Industrial Buildings
- Finishes

As listed above one of the outcome of the GIS maps was related to the heights of the buildings. In addition to the number of storey information gathered from Charles E. Goad's map of 1905, it was also possible to identify the building heights. The identification of the building heights allowed the 3D visualisation of the 1905 map on ArcMap. For Thessaloniki, it was possible to georeference the GIS map into satellite image of the city. (Figure – 4.7) This enabled the identification of unchanged building lots, unchanged buildings, and also unchanged streets from the 1882 Wernieski Map. However, it was not possible to extract information about the building heights from the map and accordingly a 3D map was not created.

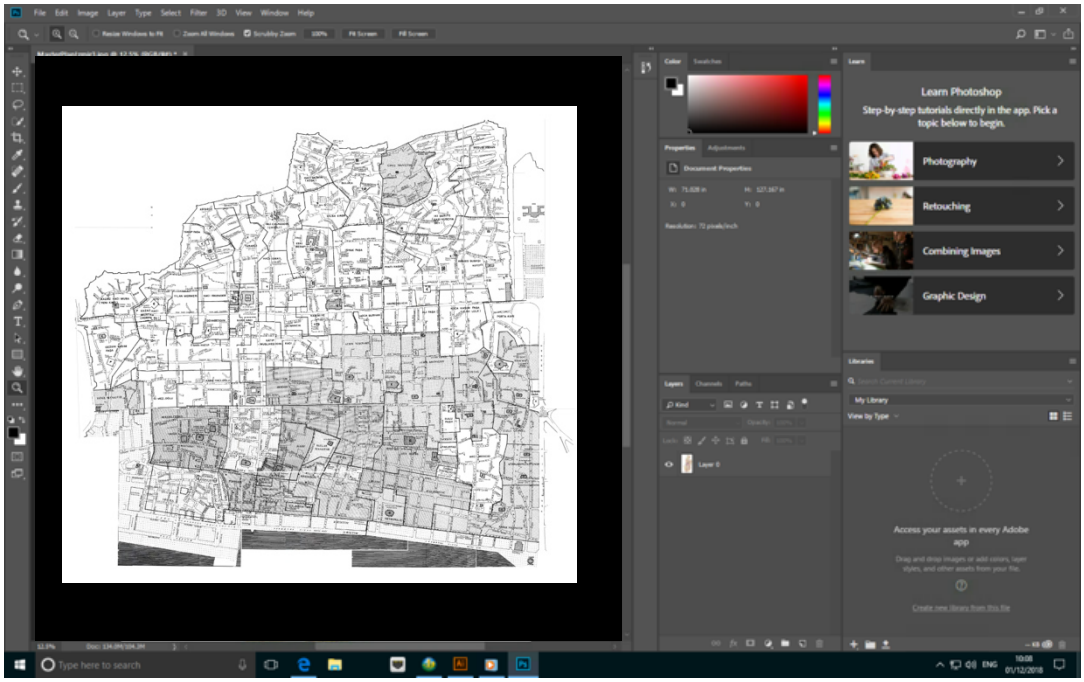


Figure 4. 7 Master map of Thessaloniki

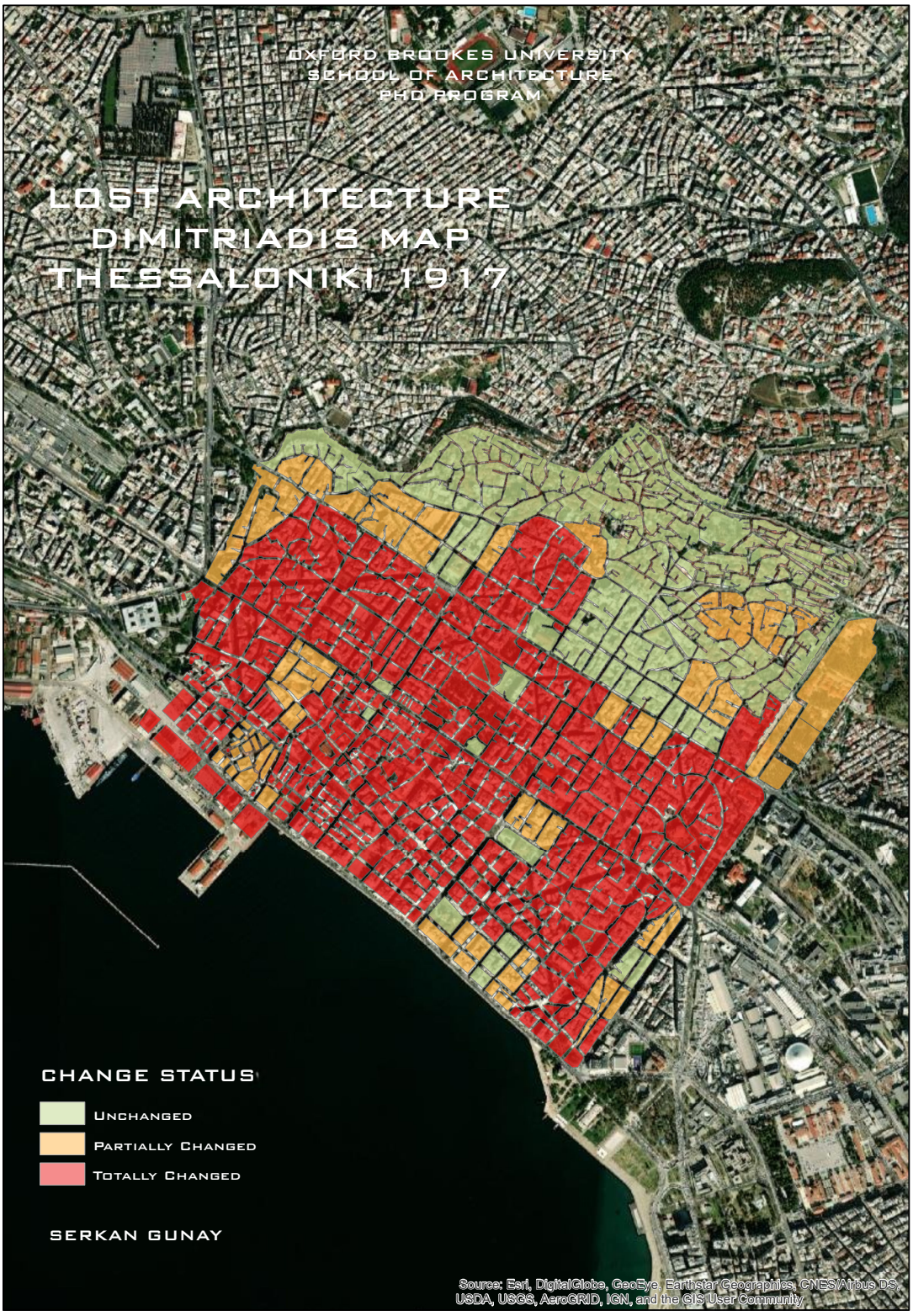


Figure 4. 8 Data query – Thessaloniki GIS map

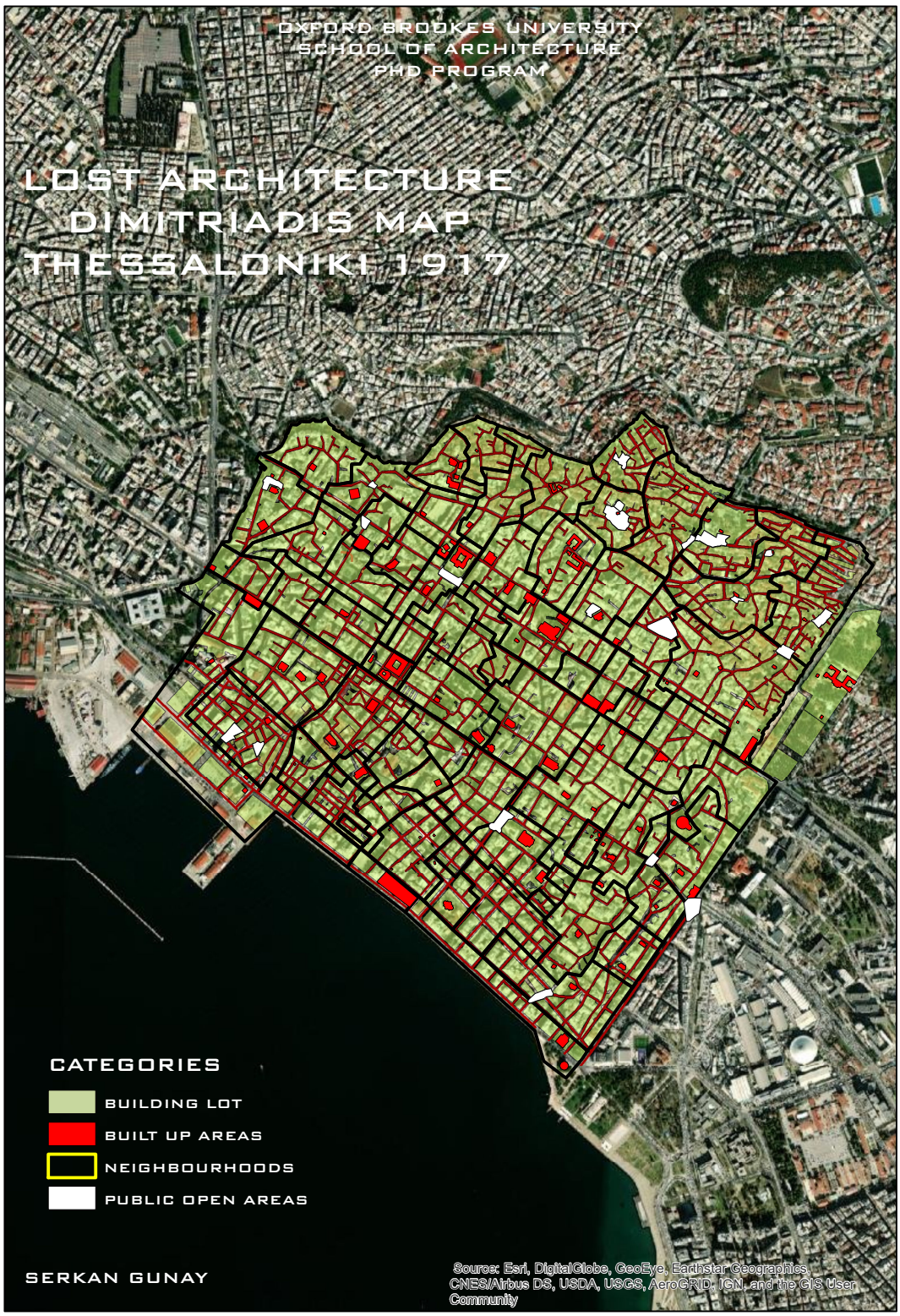


Figure 4. 9 Data query – Thessaloniki GIS map

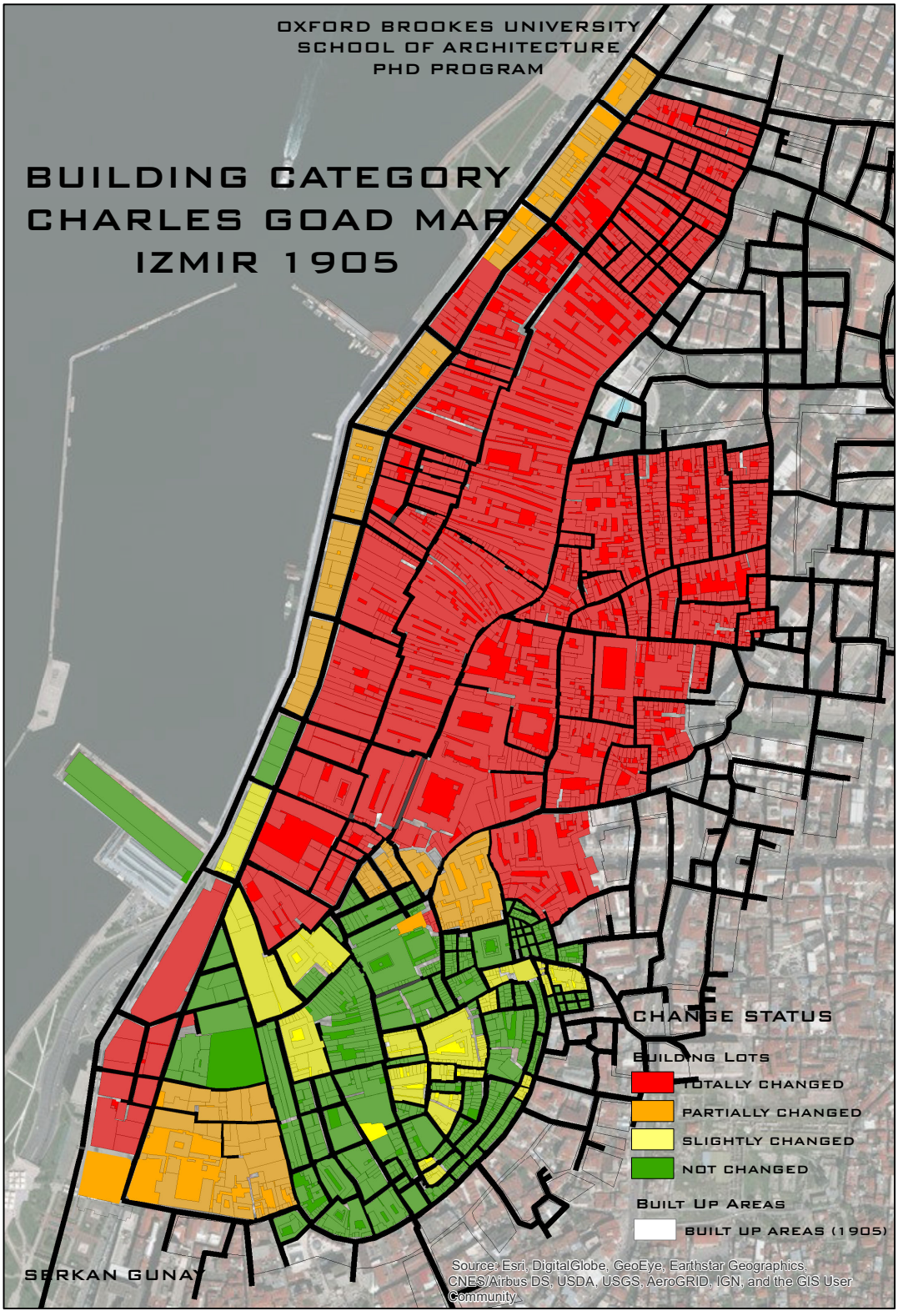


Figure 4. 10 Lot Changes GIS Map Izmir

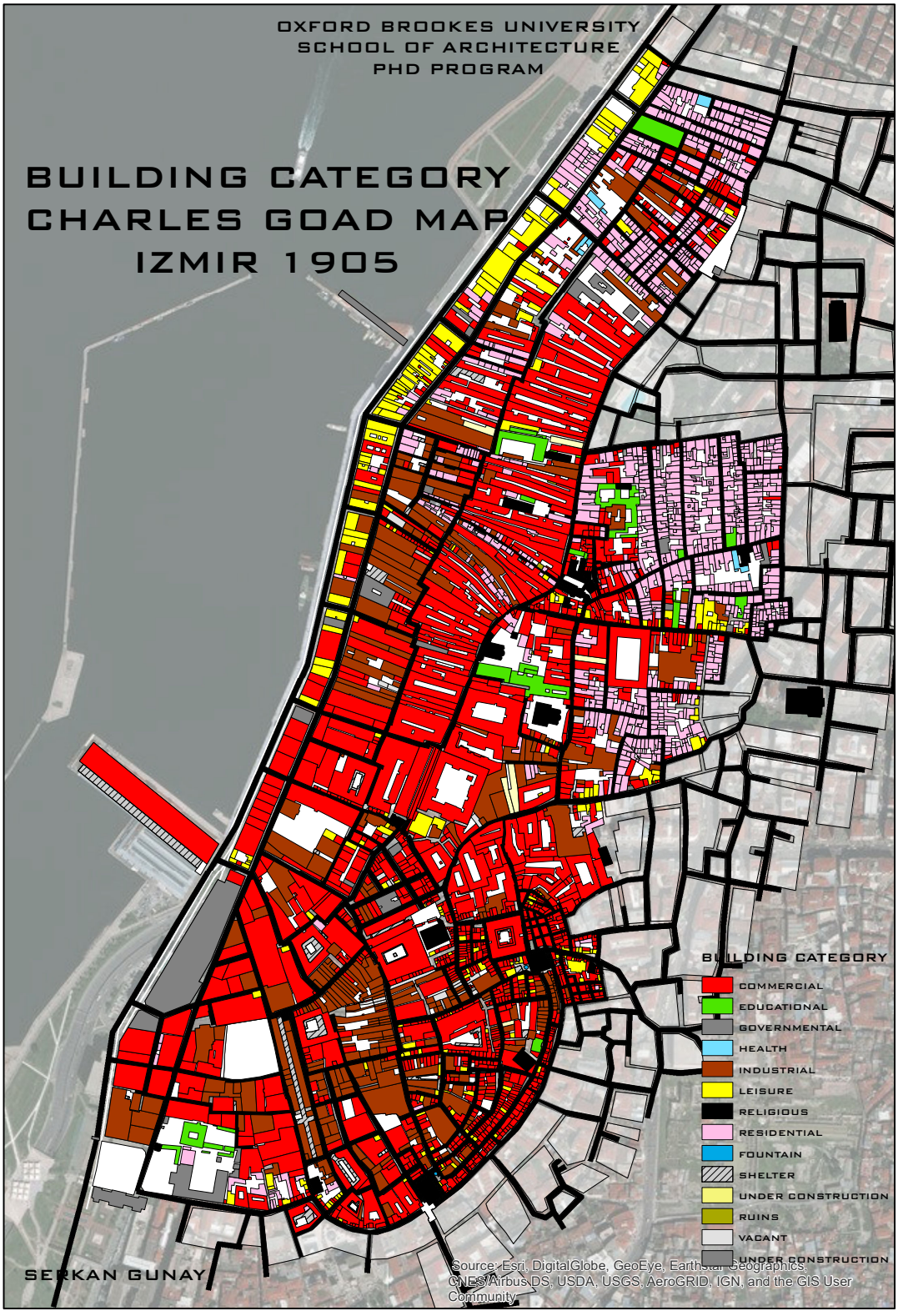


Figure 4. 11 Building Categories GIS Map Izmir

4.4.4. Data Management and Visualisation

GIS technologies enable the data management and visualisation of different data in map formats and 3D. The geospatial data processing opportunities of GIS are valuable in generating visuals and describing various components of the study areas (Vladimirovna Bushmakina et al., 2018). Accordingly, after the data input process, several GIS maps were generated in GIS to visualise the stored data. It would be possible through the interrogation of the data to generate maps that investigate various aspects of Izmir from 1905 and Thessaloniki from 1882.

The challenging issue regarding the 3D visualisation of lost architectural heritage is the reliability of the historic data. Since the buildings do not exist, and in some cases, the amount of information gathered from different resources is limited. It was essential to utilise verified data, in other words, the data that could be collected from more than one historic resource. All the information displayed in the 3D reconstructed models was verified and cross-referenced from different sources.

With the help of GIS, the process for the 3D visualisation of lost architectural heritage explored the use of different digital technologies. 3D visualisation has been achieved by using historic cartographic documents in a GIS environment. GIS as a data storage and management tool provided a valuable visualisation and data management setting for lost architectural heritage research especially on an urban scale. 2D and 3D data visualisation capabilities of GIS by using ArcScene and ArcMap were beneficial to gather various types of fieldwork material and also facilitated the collection of data throughout the focus group discussions.

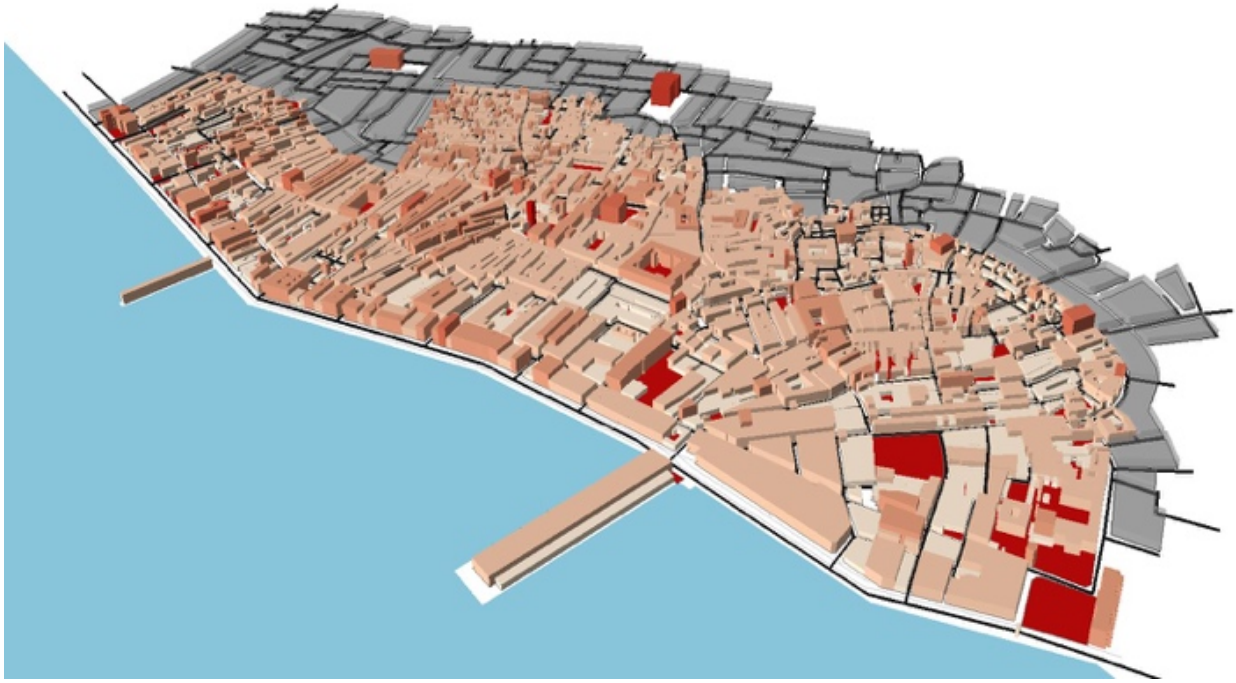


Figure 4. 12 3D visualisation based on building heights based in ArcScene

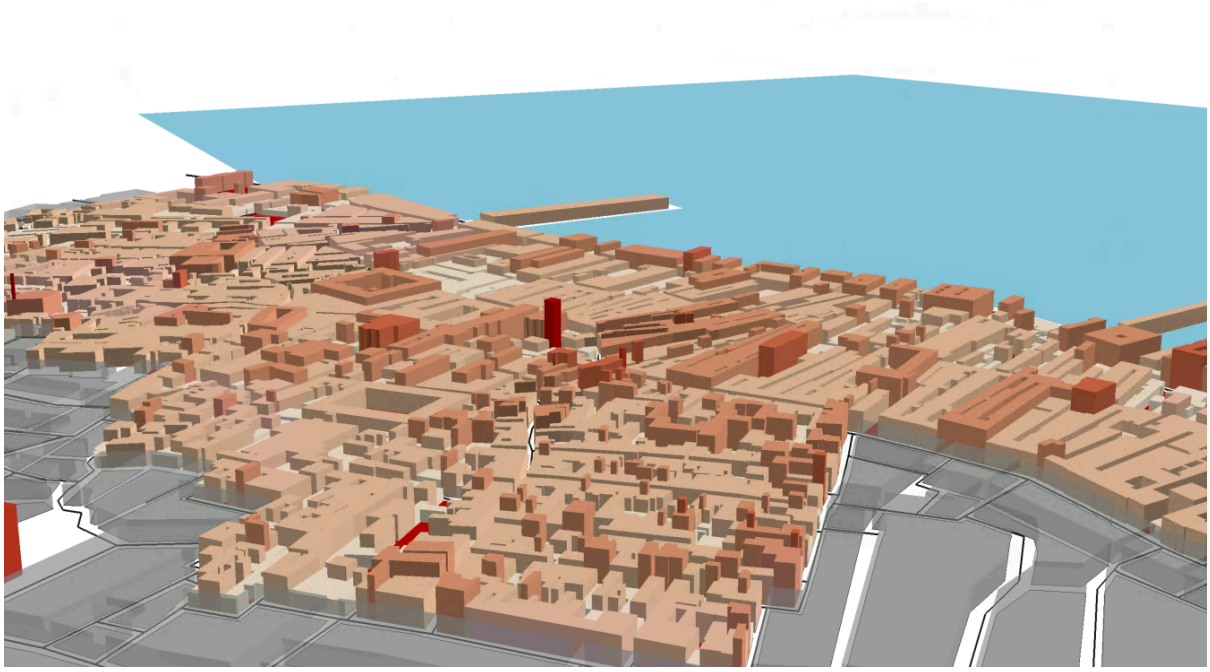


Figure 4. 13 3D visualisation based on building heights based in ArcScene

4.5. Virtual Reconstructions for VR and AR

Virtual reconstructions of lost architectural examples from Izmir and Thessaloniki generated various 3D visuals. During the fieldwork, these visuals were tested with participants to capture the changing perceptions of population exchange descendants from both cities. In addition to GIS maps, which recorded the urban characteristics of Izmir and Thessaloniki, 3D digital models of selected buildings were rendered by using TwinMotion and panoramic images of these buildings enabled the visualisation of the buildings in VR and AR.

Historical photographs from the Beyru (2000), Yetkin (2003), Colonas (2005), Unlu (2006), Copsidas (1992) archives provided information to generate 3D models of these lost buildings. It was possible to create 3D models based on the information captured from the historical photos and an interrogation of the details, finishes, materials, proportions, and dimensions of the buildings. Since most of these photos were black and white, the relevant information regarding the materials and finishes was also limited. The digital models were as detailed as the photographic evidence allowed. Accordingly, various digital models were constructed using the Image-Based Modelling (IBM) technique with Trimble SketchUp 2018 software.

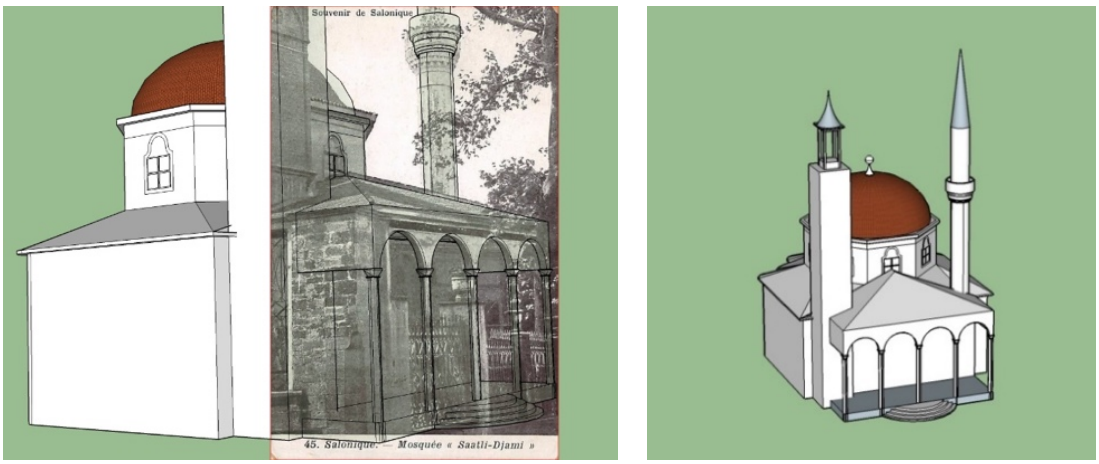


Figure 4. 14 Virtual reconstruction of Saatli Mosque – Thessaloniki

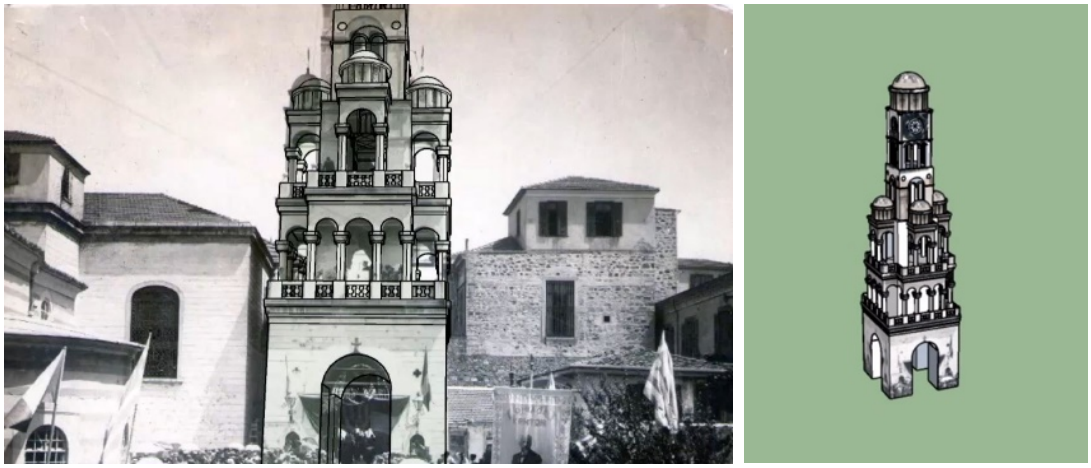


Figure 4. 15 Virtual reconstruction of St Photini Church Tower – Izmir

4.6. Image Based Modelling for Virtual Reconstructions

The technological developments and the dynamic information sharing possibilities allow various ways of improving the knowledge for architectural heritage visualisation. The technologies also have an impact on the creation of knowledge related to the past. Several digital technology solutions were explored while investigating the ways to reintroduce the lost architectural heritage examples. As key data resources, photographic and cartographic material enabled the creation of the digital architectural models for selected buildings in Izmir and Thessaloniki.

Virtual reconstructions were possible with the implementation of the Image-Based Modelling technique using old photos. Trimble Sketch Up enabled the construction of digital models by matching the historical photos into the 3D. It was possible to utilise more than one photo within this process. Additionally, historical maps provided information on a plan format which enabled the measurement of the buildings on these maps. The identification of buildings on the studied historical maps was only possible for some of the digital models. The possibility to include more than one photo allowed verification of data collected from these historical photos. For instance, the heights, dimensions, proportions, and other details were checked by comparing different photos. After completing adjustments, taking into consideration the role of depicting the essence of the finishes, materials, colours, street patterns, etc. the digital

models were improved to achieve a more realistic and dynamic depiction of these lost architectural heritage examples.

The virtual reconstructions allowed utilisation of these visuals in various platforms for different interpretations of the lost heritage examples. As more advanced graphic representations in 3D modelling were developed, advanced 3D interactions became possible to integrate with the created models. Virtual Reality (VR) and Augmented Reality (AR) simulations and mixed media design by superimposing the historical photos with digital model renderings, other types of experimentations were possible. VR experience, as a rapidly developing platform, provided the integration of computer graphics where users can be a part of a computer-generated reality. Additionally, this provided more direct interaction between users and the environment created by using different digital technologies. After evaluating different software options and various alternatives, renderings were generated by using Twin Motion on the digital architectural models created with the help of Sketch Up. The panoramic renderings enabled the creation of VR simulations for a more realistic virtual experience.



Figure 4. 16 3D rendered visualisation of Yilanli Mermer Neighbourhood – Thessaloniki

The following describes the development of one sample digital model for the visualisation of lost heritage from Thessaloniki, Yilanli Mermer Neighbourhood. The process started with the identification of the lost heritage examples from the case study cities. For the city of Thessaloniki, Yilanli Mermer Neighbourhood provided a good source of visual and cartographic resources. Once the images are collected from the archival research, and from the literature, different good quality historic photos were selected from various angles and viewpoints. In this case postcards from A. Papaioannou Collection and images from the book Thessaloniki 1912-2012 Mosaics of Memory were used. Following that 3D models were generated by using Trimble 2018 with Image Based Modelling (IBM). With this method selected historic photos were rectified and put in relevant perspective view and scaled according to the proportions. Further details were applied within the limitations of the historic photos viewpoint and features. The historic resources provided a good understanding of the neighbourhood and archival images allowed a good level of details for the lost architectural heritage examples of this model.

The generated models were then reviewed for any errors, inconsistencies and other found issues. Necessary refinements were performed and after the clean-up and finalization process the model materials were assigned based on the understanding of he finishes from the archival images. This process was based on the coloured images of the area in terms of colour and material selection. The generated 3D model then exported to Twin Motion for texture enhancement, lighting adjustments and adding finer details to the reconstruction. Several viewpoints were tested in terms of better understanding of the neighbourhood and 3D rendered images have been generated with Twin Motion.

For the VR and AR process, Twin Motion was used to generate panoramic viewpoints of Yilanli Mermer neighbourhood. By testing different viewpoints selected panoramic views were exported from Twin Motion. This process followed by the use of mobile digital tools including VR goggles and computer tablets to test the set ups and necessary adjustments have been made. For Thessaloniki examples only, sound was also used with VR experience to enhance the experience of the viewers. Relevant fieldwork material and raw sources were added to Oxford Brookes University RADAR. (See Appendix)



Figure 4. 17 3D rendered visualisation of St. Cathrine Church - Izmir



Figure 4. 18 3D rendered visualisation of Seray Cesme – Thessaloniki

4.6.1. Experiencing Virtual Reconstructions with Digital Mobile Tools

With the development of devices to be integrated into interaction technologies, VR gives the users the feeling of being a part of the digitally generated virtual environment. The users could interact in the virtual environment through 3D interaction input devices and technologies. The concept behind experiencing the past focuses on integrating different digital media as well as various outcomes from numerous software. During the implementation of reconstructing the digital models and generating GIS maps of Izmir and Thessaloniki, many technical issues were encountered. For instance, how to construct digital models by using limited visual reference? How to integrate historical maps of Izmir and Thessaloniki dating back to the era before the devastating fires? How to visualise the digital models concerning the current geographical positions of the lost architectural buildings? As a solution to these problems, further research has enabled some technical improvements. The process of Image-Based Modelling (IMB) and GIS georeferencing of historical maps allowed the virtual reconstruction and visualisation of the models by using mobile digital tools. Consequently, various digital media have been created to capture the impact of the virtual construction of lost heritage buildings on place and identity relationships with focus group exercises.

As stated above, GIS maps provided a main database management system, and virtual reconstructions of lost architecture examples enabled the integration of other types of visualisation techniques. Rendered digital models were exported from TwinMotion as a panoramic view. These photos allowed the use of digital models in mobile VR devices. As an important part of the fieldwork experience, the aim was to utilise a simple and easy to establish VR visualisation. Hence, VR simulations were tested during the fieldwork by using smartphones and head-mounted displays.

Three areas in both cities were selected for the development of the VR simulations. For the city of Izmir, the selected areas were Birinci Kordon Street, Ikinci Kordon Street and Frank Street and for Thessaloniki, the Bay area, Yilan Mermeri neighbourhood and Saatli Camii. These areas were selected so as to enable a comparison between the two cities with similar urban characteristics as well as on the availability of archival materials such as historic photos

and maps that would support the visualisations. Further detailing and adjustments enabled a more realistic experience for the visitors. Additionally, several other virtual models have been built with Trimble SketchUp 2018 by utilising IBM.

The Yilanli Mermer neighbourhood digital model from Thessaloniki (Figure – 4.16) was the first area rendered for the VR simulations. The location had historical photographic resources that allowed the detailing of the buildings and their urban characteristics. It was also a neighbourhood affected by the fire heavily, and many of the buildings seen in historical photos no longer exist apart from the Yilanli Mermer statue. The second location from Thessaloniki was Government Mansion and Saatli Cami area which was on Hukumet Caddesi. Saatli Camii is an example of lost architecture, whereas the Government Mansion has survived the fire and other planning decisions except the addition of one floor on the building. Historical photos enabled the construction of the model of the two buildings and their surroundings. The final area from Thessaloniki was the corniche area (Figure – 4.21). Thessaloniki corniche also changed over the years with additional constructions and urban development. Historical photos allowed the creation of the digital model. The corniche view from the sea was one of the last views the migrants sent to Anatolia with boats will have seen of the city of Thessaloniki. Hence the scene had a historical significance.

4.6.2. Experiencing Virtual Reconstructions with Sound

The VR simulations also enabled the integration of sound into the virtual experience. For Thessaloniki VR experiences, different media were used in the implementation, including the representation of a city sound to enhance the experience. This was achieved using VR sets with headphones, where the participants viewed the VR models with a selected soundscape of a town (Michael, 2018).

After conceptualizing and planning stages of the VR experience, including defining the scenarios, that participants will experience and desired user interactions, further elaborations were added to the VR experience. To achieve an authentic and immersive experience; audio was essential. This made the user experience more realistic and enhanced the sense of presence.



Figure 4. 19. 3D visualisation by using VR mobile applications of Yilanli Square, Thessaloniki



Figure 4. 20 3D visualisation by using VR mobile applications of Turkish Quarter, Thessaloniki



Figure 4. 21 3D visualisation by using VR mobile applications of Thessaloniki

For Izmir similarly, the waterfront area was detailed further for VR simulations. The area was heavily damaged during the 1922 fire that devastated the city. Additionally, the corniche area has historical significance as it was an important location during the end of the Greco Turkish War. Accordingly, with its several buildings, the corniche area has been used as one of the three VR simulation locations from Izmir. The second location from Izmir was the Agia Photini Bell Tower and its neighbourhood, which also included another important religious building St George Church. Both buildings were significant buildings that were lost in the great fire of 1922. Finally, St Catherine church and its neighbourhood were also further detailed with VR simulations.

For VR simulations, the aim was to generate a realistic virtual experience that the participants could engage with. Hence, the VR simulation included an audio component which primarily aims to provide a similar context of an urban port city with sounds of water, seagulls, market place and the like. The audio component enhanced the VR simulations and that allowed the participants to experience their ancestor's cities and their current cities with closer to real-life atmosphere.

4.6.3. Mixed Media Visuals for Lost Architecture

As an additional part of the fieldwork material, the superimposition of digital models generated mixed media digital representations of lost architectural heritage examples from Izmir and Thessaloniki. Since the GIS maps enabled the geographical locations of selected lost buildings, it was also possible to visualise them in their current context of the cities of Izmir and Thessaloniki. The mixed-media representations were created on photoshop by superimposing the various Google street views of both cities with visuals of digital models besides historical images. This enabled the participants to observe the lost heritage buildings in a familiar setting, particularly in their home city. Apart from the maps, this exercise also provided a better understanding of the current context of these lost architectural examples from the two cities.



Figure 4. 22 Superimposition of Saatli Cami on satellite view

In addition to superimposing the virtual reconstructions of lost buildings in their current context, it was also possible to superimpose the models on historical photos. Since these photos enabled the construction of some of the lost architectural heritage examples, it was challenging to view the entire building because of the angles of some of these historical photos. Hence, the mixed-media visuals allowed the viewers to visualise these historic buildings more comprehensively.

4.7. Phenomenological Inquiry

In this research phenomenological inquiry is adopted as the primary research methodology. Therefore, a combined approach that collects primarily qualitative data is adopted to achieve the second, third and fourth objectives of the research. In order to conduct the phenomenological study, the research commenced by building up a dataset and 3D visualisations that would constitute the experience for the research participants.

According to Yin, fieldwork studies are the sources of evidence that may include documents, archival records, interviews, direct observation, participant observation, and physical artefacts(Yin & Campbell, 2017). Within this perspective, fieldwork included focus groups, semi-structured (focused) interviews, and participant-observation with selected participants. The objective was to understand the participants' points of view and avoid making

generalisations about their perceptions. Accordingly, the analysis examined the similarities and differences of the attitude of the population exchange descendants and current residents to 'heritage and identity; and their perception towards the heritage of the disappeared societies or particularly the heritage of 'the other'.

Collection of the data and the analysis of the collected data are two critical aspects while undertaking research (Leavy, 2011). During the data collection phase, data could be gathered by sampling or from primary or secondary data sources (Saunders et al., 2011). The formation of data from these sources enables various kinds of information. Creswell (2014) identifies four basic types of information for the data collection phase; interviews, observations, documents, and audio-visual information (Cresswell, 2014). Groat and Wang's (2013) interpretation of Creswell's typology exemplifies the process of data collection shown in Table - 4.1 (Groat & Wang, 2013).

Tactics	Interactive	Noninteractive
Interviews & Open-Ended Response Formats	face-to-face or phone in-depth interviews focus groups task-oriented formats, e.g.: mapping exercises multiple sorting task projective surveys (games)	online response to open-ended questions prompted journaling activity logs photo logs
Observations	participant observation (research role concealed) participant observation (research role known)	nonparticipant observation
Artifacts and Sites	*in situ* observation & analysis of artifacts/ buildings/urban context/ landscape sites	photos, drawings, or virtual representations of artifacts and sites
Archival Documents		public documents audio visual material artifactual or site documentation personal journals, diaries, letters, sketches

Table 4. 1The variety of data sources for qualitative research.

The preliminary fieldwork was carried out in Izmir as a pilot case study in 2019 in two stages. The city provided an ease of access to the archives and connections in the universities and government organisations allowed the preliminary interview process. During this pilot fieldwork, qualitative data was collected through semi-structured interviews with the 3rd and 4th generation population exchange descendants of Izmir. The initial data was examined to evaluate the fieldwork and revise the necessary methods and other alterations before the primary fieldwork studies in both cities. The research methods provided sufficient information and digital content of the fieldwork material have been updated in terms of their details and additional audio inputs. Additional considerations were developed to use the interview times efficiently and observe the participants while interacting with the digital visualisations.

Within this context, fieldwork data collection such as semi-structured interviews, questionnaires, participant observation, and archival research were the primary data sources for this research. This allowed the collection of data in line with the phenomenological inquiry to understand the lived experience from the point of view of those who experienced it. Literature review from historical archives, historical documents, traveller's notes, books, reports, articles, historical maps and photographs, and other types of historical documents were the secondary type of data sources. Additionally, field notes, visual data, and other types of observation provided supplementary information for the study.

City archives and additional source of information such as the libraries and digital archives provided relevant documents in terms of photos, digital maps and other descriptive written information such as travellers' notes and documents. These archival material incorporated with the digital database as part of the visual materials of the fieldwork such as virtual models or GIS maps. Semi-structured interviews with conservation specialists and population exchange descendants adopted an informal interview approach where open ended questions that allowed elaborations by the participants about the investigated topics. Furthermore, observation during the interaction with the digital material for the fieldwork studies provided additional data about the role of virtual reconstructions of lost architectural heritage. Primarily during the focus group exercises but also following the interviews with the conservation specialists and population exchange descendants, virtual interactions and their

settings provided important data about the created digital models and their impact on the participants. This was achieved by using VR and AR technologies, and utilising the created digital models of the lost architectural examples in virtual setting. The observations were recorded and documented within the guidelines of the university ethics policies.

4.8. Semi-Structured Interviews

Most qualitative research studies employ interviews as part of data collection as an effective way of recording participants' perspectives, opinions, feelings, reactions, attitudes, etc. (Saldana, 2011). In this study interviews were used to generate an understanding of the perspective of the participants towards the lost heritage examples of their cities. The questions of the interview and the type of the questions address the relevant objectives of the research. Both sets of interviews were conducted in a semi structured format to allow the respondents to elaborate on the topics and provide additional responses .Semi-structured interviews allow answering the questions with an open-ended response format (Leavy, 2011). Bryman (2012) identifies semi-structured interviews alongside participant observation, as research methods that enable concepts to emerge from the collected data (Bryman, 2012). Therefore, semi-structured interviews produced qualitative data for the aim and objectives of this research, in the format of participants' responses to the questions.

Participants of the semi-structured interviews of this research were mainly in two categories. The first group of interviewees was conservation decision-makers from both cities, particularly government officials, architectural and urban heritage professionals, university professors, and academics. The second was the 1923 population exchange descendants from the cities of Izmir and Thessaloniki, now residing in Thessaloniki and Izmir respectively.

4.8.1. Heritage Specialists

Semi-structured interviews with heritage professionals allowed an understanding of the heritage professionals' approach towards the use of digital technologies in heritage projects and assessed the impact of developed virtual reconstructions and user experiences. The interview questions for the heritage professionals concerned their involvement in conservation projects in the city, and the focus of the projects in terms of period, type, and civilization. These questions provided an understanding of the general scope of prevalent

conservation projects in Izmir and Thessaloniki and the periods of history that were typically being prioritised.

The participants for the first fieldwork were selected according to their knowledge about the city's prior conservation studies and their current impact on their city's future conservation strategies. Eighteen interviewees took part in the interviews, ten from Thessaloniki and eight from Izmir (See Appendix). Semi-structured interviews were conducted with open-ended questions and lasted around 30 minutes. Some participants provided written responses as a result of not being able to meet face to face.

The interview questions also related to their knowledge and interests about the lost architectural heritage samples of their city highlighted the level of attention by conservation specialists towards these lost heritage examples in both cities. Their idea about the definition of lost heritage (which period they refer to when asked about lost heritage) provided an understanding of the attitude of the conservation specialists' towards lost architectural and urban examples. Additionally, the interview questions about their perception of their city, whether it is well-known with its historic buildings or not, enabled heritage specialists' evaluation of their city's current architectural and urban characteristics.

Another group of questions for the heritage professionals was about their level of interest in the use of digital technologies in heritage projects. These questions enabled the level of integration of new and developing digital technologies in conservation projects in the cities of Izmir and Thessaloniki. The interviews provided insight into the innovative ways to use these digital technologies in their professional works as well as in the projects related to lost architectural and urban heritage. The responses of heritage professionals also enabled an understanding of their evaluation of the ethical aspects of virtual reconstructions in the field of lost heritage visualisation with relation to their area of use and accuracy.

4.8.2. Population Exchange Descendants

The second group of interviews provided information about the population exchange descendants. These semi structured interviews with population exchange descendants provided an understanding of the descendants' interaction with the virtual reconstruction assessed the impact of developed virtual reconstructions and user experiences as part of the

investigation between place and identity relationship as well as memory and heritage ownership. The questions in these interviews were about participants' background, and the origins of their family. They provided data about the age, gender, profession, education level, place of birth, and place of residence information about the interviewees. Questions about their ancestors' lives before the population exchange enabled a comprehensive understanding of their life in their homeland. For instance, ancestors' profession, education level, and information about other family members, brought out an understanding of the changes that have taken place after the population exchange. Additionally, the interview questions related to the population exchange, such as the port of deportation, port of arrival, and related to their journey, provided information about what the narratives transferred from one generation to the next.

Another group of questions was about the participants' perception towards their current city and their ancestors' city before the population exchange. The participants' understanding of homeland, their definition of ancestors' land, and their attitude towards these places provided insight into how they identify themselves in terms of place identity. Furthermore, additional questions explored the participants' self-identification towards a place and heritage ownership. The ownership attitude tested not only their attitude towards heritage from their ancestors' place of origin but also their perception towards the examples of heritage of other societies within their current city of residence.

Additionally, the participants' awareness about the lost urban characteristics of the city from around 100 years ago was explored through additional questions. These discussions typically focused on famous street names, well-known buildings, different building groups, different professions, and other architectural and urban characteristics of their current city and their ancestors' city. These questions were not aimed to test the knowledge of the participants, instead to bring out missing information from the documents and historical archives as part of the carried out information between the generations.

4.8.3. Focus Group with Population Exchange Descendants

Convening focus group is another method of interviewing. It is an enquiry technique where multiple participants explore a specific theme (Bryman, 2012). They provide a relaxed and

interactive platform for the participants to share their opinion and perspectives (Groat & Wang, 2013). Focus group conversations enable collective discussions and provide valuable data (Cresswell, 2014). Focus group interviews with population exchange descendants took place in Izmir and Thessaloniki as the second part of the fieldwork studies for this research. This enabled the verification of the information gathered in the interviews and the understanding of the held perspectives towards the heritage examples from both cities. It also facilitated the testing the impact of the virtual reconstructions of the selected lost architectural examples from Izmir and Thessaloniki with the population exchange descendants from both cities.

As part of the second stage of the fieldwork, focus group discussions were organized with the participants from population exchange descendants' societies of Selanik Rumeli Gocmenleri Dernegi in Kusadasi and Mikrasiates Society in Thessaloniki. The focus group interviews enabled the researcher to gain a better understanding of the participant's perception of their ancestors' lives. Additionally, they enabled a comprehensive exchange of opinions about their journey through the population exchange. These discussions provided a suitable atmosphere for the participants to share their knowledge about a common history of their past. The key themes that emerged from these meetings will be discussed in the chapters five and six in detail.

4.8.4. Observation While Engaging with Digital Technologies

In qualitative research, the researcher acts as a key instrument for collecting the data, and one of these data collection methods is observation (Cresswell, 2014). Bryman defines participant observation together with ethnography and highlights the importance of the researcher within the process. The author also highlights the discussions amongst the researchers related to the role of the researcher while explaining these definitions (Bryman, 2012). Within a similar approach, Saldana (2011) describes participant observation as a technique that primarily focuses on the reactions and interactions of the participants, and he highlights that it finds its roots in ethnographic research traditions (Saldana, 2011). With this research, observation was implemented as one of the data collection methods while the participants interact with the material that was collected and digitised maps and 3D visualisations created based on the lost architectural and urban heritage examples from the

case study cities. This allowed the achievement of the forth objective of this research to assess the use of virtual reconstructions and user experiences.

The researcher observed the participants' reaction to 2D and 3D samples of digital models and maps of the selected lost heritage buildings and areas. The participants of this phase of the fieldwork was population exchange descendants. This followed by the discussions with the participants about the virtual experiences by using mobile digital tools. Accordingly, data was collected by documenting the interactions and reactions of the participants. Photographs, videos, and researcher notes were the documentation methods of this observation.

Participant observation while engaging with fieldwork material enabled a understanding of responses to the virtual reconstruction of the lost heritage examples of their city. Their reaction provided an understanding of the impact of the use of virtual reconstructions in visualisation of lost architectural heritage. The observation also enabled the documentation of the changing perception of the participants towards the heritage places from their current city and their ancestor's city. Section 4.5 describes the process of construction of the 3D virtual models that was used during the fieldwork exercises.

4.9. Ethical Aspects

The idea of capturing the past through digital reconstructions of the lost historical buildings or experiencing a disappeared neighbourhood through mobile digital devices such as VR or AR tools also brings about a number of challenges. The first concerns the authenticity of the visualisations and thus the complications that could be related to the reliability of these digital models. It could be challenging to check the historical reference of these digital models since the only information is fragmentary information from historical resources that could be contested or be open to varying interpretations and even manipulation. And secondly, the issues related to the unethical usage of these models after they were digitally reconstructed. Because these models could represent the buildings' past at any time in history, they can

visualise a historical era that remains conflicted. Hence, they can be used for political or economic agendas, particularly if the building was in a contested area.

Concerning the authenticity and reliability of the information generated through the information management process, it is also critical to discuss the different parties' involvement in data management to have a more democratic platform. Since the historic data will allow the understanding of the past with multiple viewpoints, it is also critical to include various perspectives for the management of the data that is visualised and shared with the public. Further discussions about the ethical aspects of digital reconstruction of lost architectural heritage will be discussed in Chapter 7.

4.10. Conclusion

This chapter has provided information about the research methodology and methods that were applied in this research. The research uniquely combines 3D digital modelling of lost historic environments with participant engagement and a phenomenological inquiry including semi-structured interviews, participant observation, and focus group exercises were adopted as suitable tools for data collection.

The research is a qualitative research and employs a case study strategy which focuses on lost architectural heritage examples from Izmir and Thessaloniki. The two case study city were selected to explore the use of virtual reconstructions and user experiences, with each city's heritage professionals and population exchange descendants, and evaluate the use of digital technologies and its effects on place-identity relationships and their link to memory and heritage ownership. The evaluation and analysis of the research is discussed in the following chapters. In Chapter 6, the outcome of the semi-structured interviews with the population exchange descendants and conservation specialists will be discussed. Subsequently, Chapter 7 will discuss the results of the participant observation and reflect on relevant ethical issues.

5. VIRTUAL PAST AND CURRENT TRENDS IN HERITAGE VISUALISATION

5.1. Introduction

In Chapter 2, the literature review demonstrated the role of digital technologies could play in visualising lost architectural heritage. Particularly advancements in mobile visualisation devices and their impact on the perception of historical buildings allow life-like virtual experiences. These developments demonstrated a need for investigation capturing the role of digital technologies in altering the notion of heritage ownership in post conflict societies. Additionally, Chapter 3 literature review highlighted the importance of collective and individual memory as part of one's identity development and definition of sense of belonging to a place. Especially the role of architectural heritage in post-conflict scenarios and its links to place identity places memory as a key element in understanding the connection between the two.

The lost architectural heritage and its recognition in the two case study cities are investigated with the outcome of the fieldwork. The first part of the fieldwork took place in 2019. And included semi-structured interviews with conservation decision-makers from both cities. The purpose of the interviews was to build an understanding of how conservation specialists define the lost architecture in their city and whether this urban and architectural heritage finds a place in their research interest. The research also investigated if and how the lost buildings belonging to former inhabitant communities were incorporated into future conservation strategies of the city. The semi-structured interviews took place with participants working for the government offices, universities, and in the private sector as conservation specialists. All the interviewees have been anonymised and will be referred to by a code, those from Izmir starting with the letter 'I' and those from Thessaloniki with the letter 'T'.

Considering the fourth objective of the study, the aim of this chapter is to contribute to the knowledge in the assessment of the use of virtual reconstruction in lost heritage visualisation and its effects on place and identity relations. Therefore, this chapter consists of two main

parts. In the first part, the inquiry is about the position of lost architecture in current and future debates about the conservation approach by the professionals in post-conflict societies. The second section discusses the link between heritage and identity by analysing the role of memory in heritage ownership.

5.2. Understanding Lost Architecture

Historic research coupled with visualisation could also have implications for present day heritage preservation and management practices. The study therefore sought to establish how heritage professionals would respond to the visualisation of lost architectural heritage in terms of the recognition of lost examples and their potential use in research and professional works.

Through the interviews, the aim of the researcher was to identify the consideration of disappeared buildings in current conservation decisions in Izmir and Thessaloniki. Apart from the urban plans, policy documents and publications, the intention was to capture the impact of the visualisation of lost heritage examples by sharing the digital material with the professionals and observing and discussing the impact on them. The definition of lost heritage by these professionals is examined including whether they know about these buildings and whether they consider them as part of the city's urban memory and might use this knowledge to inform future conservation decisions. The evaluation of lost architectural and urban heritage from heritage professionals perspective are discussed and their value definitions towards the historical urban and architectural projects in their cities are analysed. Whether they consider their city as historical and what is the definition of successful conservation projects, the scope of these identified projects and their place in the cities conservation decisions are also examined.

The attitude towards the integration of digital technologies in conservation projects and their impact on the visualisation and other stages of conservation projects are also analysed with the responses from the conservation decision-makers. Additionally, the interest and projects by these professionals towards the use of digital technologies in lost heritage visualisation and other potential usages of current technologies and their applications are examined.

The following chart summarises the common themes that have emerged from the content analysis of the interviews with the conservation professionals

	Category	Emerging Themes	
		Izmir	Thessaloniki
1	Identification of Lost Heritage	Archaeological, ancient structures	Byzantine examples
2	Izmir and Thessaloniki Fires	General knowledge	Comprehensive knowledge
3	Attitude towards the Urban Changes	Negative opinions	Some Positive opinions
4	Consideration of Historic Values of the City	Some consideration as a historic city	Highly considered as a historic city
5	Integration of Digital Technologies	Focus on Visualisation, Lack of interest in information management systems	All phases, Lack of interest in information management systems
6	Future of Lost Heritage	Considered as Important, Urban Approach, Political Decisions	Considered as Important, Highlight of Archives

Table 5. 1 Emerging Themes / Conservation Specialists

5.2.1. Recognising the Lost and Debated Theories

As part of the interview, the understanding of 'Lost Heritage' from the interviewee's point of view was explored. Interviewees were asked about what they consider to be 'Lost Heritage' for their city, and where relevant to expand on their knowledge with examples of lost heritage from their city and their involvement of the projects related to lost heritage. Accordingly, this section considers the interest and the knowledge of the participants as well as their opinion towards the disappeared architecture from their city. This also allowed the understanding of the background information how the past identities of the cities are perceived today by academics and heritage decision makers.

As one of the main reasons for the loss of architectural heritage in both cities, the interviewees were asked about their knowledge of the great fires that has happened in both

cities at the beginning of the 20th century. All 18 participants had knowledge about the great fire and the areas that the fire had affected.

Additionally, when asked to name a building that was lost due to the fire, 16 out of 18 interviewees identified an area, a building name, or a society that built the lost architecture. The responses to this question included detailed descriptions of the impact of the fire on the city by interviewees T5 and I5. As a related question, the interviewees were asked if they had participated in a project or a study concerning lost architectural heritage in their city. Half of Izmir participants and the majority of Thessaloniki participants, 7 out of 10 participants, had been involved in a project or a study. The results show that amongst heritage professionals there is an interest in studies related to the lost architectural heritage in both cities.

However, one interviewee stated the possibility of gathering information about lost buildings if the building is located in an area where the urban fabric changed:

> *'Even if the project is not directly related to a lost architectural heritage, the conservation council in Izmir asks for a study for the surrounding area of the city and accordingly the submitted projects include a restitution study based on old photos, maps, or any other document as a street façade or location map.'(I8)*

This demonstrates that even if the projects are not directly related to lost architectural heritage, in the case of Izmir, the studies concerning the surrounding areas of existing historic buildings allow the researchers to explore the lost architectural heritage of their cities. The responses also indicates some references to the multi-layered and complex past of Izmir and Thessaloniki.

Complex historical events shaped the two case study cities of this research. Additionally, the diverse background of the interviewees and their multidimensional perception of historical events add to the complexity of the research analysis. For instance, Thessaloniki is known to Turkish people as Selanik. A city lost to Greeks at the end of an empire (Edhem, 2014) and the homeland of the founding father of the Turkish Republic, Mustafa Kemal Ataturk. Izmir, on the other hand, is known to Greek people as Smyrna. A paradise lost to Turks and a predominantly Christian city in an Islamic world (Milton, 2008). Although it is not challenging

to evaluate the result of this research, observation of multiple viewpoints towards the historical events from the interviewees was observed and this necessitates a comprehensive approach to these events.

Tekeli (Tekeli, 1998, p.37) describes the existence of multiple viewpoints in understanding historical events as follows;

> After we have seen the way of establishing a causal connection in history, we can focus on the problems establishing a single causal connection… However, the existence of a single general rule in social sciences is not in question, in many cases there is more than one rule. Therefore, there may be more than one reason explaining an observed result. (translation by the author)

As stated earlier, the question 'Do you know any buildings that were affected by the fire?', was asked to understand what the interviewees considered as lost architectural heritage in their cities and to focus on the period immediately preceding the population exchanges. Even though the majority of the participants could provide information about the affected areas in terms of street names, areas, or neighbourhoods, only six out of 18 participants could name some buildings that were lost from their city, not more than a hundred years ago. Moreover, three participants from Izmir and four participants from Thessaloniki provided information about the societies that the buildings had belonged to, which currently do not exist.

More significantly, the participants actively linked the various districts of the respective cities to their now lost diverse communities. T2 stated that there is a significant amount of studies in the literature about the fire of Thessaloniki and the primarily affected area was predominantly the Jewish quarter. T5 agreed with this conclusion that most of the homeless residents were from the Jewish community as follows; '*This section of the historic centre, now called Fire Zone, included the largest commercial part of the city centre and several homes … Public buildings, libraries, mosques, synagogues, churches, and urban areas.'* T1 stated some factual information about the dominance of the Jewish population in the city of Thessaloniki as follows; *'Before the fire, Thessaloniki had 50% Jewish, 25% Ottomans and 25% Greeks and some Bulgarians.'*

T2 compared the two cities, Izmir and Thessaloniki, and identified the affected areas in the Izmir fire as Greek and Christian quarters. I5 also mentioned Greek and Levantine territories and buildings as the most affected areas from the fire in Izmir and added the Armenian quarter as another affected area. I6 named Sporting Club, Aya Photini, Café De Paris, 'Kordon' hotels, Ottoman khans, and commercial buildings as some of the disappeared buildings as a result of the fire.

It can therefore be concluded that the interviewees' knowledge about the fire and affected areas is evident with some extensive information about examples of lost architectural heritage. Additionally, the lost buildings that were mentioned during the interviews not only belong to the current communities of the city but also to the former communities of Izmir and Thessaloniki. The responses demonstrate that urban planning and conservation professionals are well aware of their city's diverse and multi-cultural past and have a good understanding of the vibrant urban and architectural characteristics that once shaped their respective cities but have since disappeared.

5.2.2. Priorities in Conservation Strategies

Demonstrating an awareness of this recent past within the context of current conservation strategies was another topic that has been explored with the interviews with the interviewees. Within this section, the focus of future conservation strategies with relation to what they prioritize was investigated. Additionally, the willingness of heritage specialists to engage with digital tools and resources pertaining the lost heritage was reviewed.

All the interviewees for this stage of the study were selected amongst the conservation specialists from the city of Izmir and Thessaloniki, as mentioned earlier. Except for one from Izmir, all the interviewees also had a research and teaching background in academia, which demonstrates the intellectual profiles of the interviewees. Moreover, eight interviewees out of 18 had 20+ years of professional experience in the field, and five of them have 30+ years of experience in teaching, research, and professional practice. Thus, the responses from the conservation specialists should be considered as an intellectual point of view with respect to the attitude towards the heritage of the 'other'.

Interviewees were asked about the main characteristics of current approaches and future ambitions of conservation trends in Izmir and Thessaloniki. These questions also identified the role of digital technologies in conservation projects as well as the potential use of digital technologies for lost architectural examples and existing historic buildings. The interviewees were asked to elaborate on the conservation projects that they were involved in. Particularly the specific areas in the city or the period or a distinct timeline and specialised project types.

All of the interviewees have extensive amount of expertise in their areas of research and practice ranging from archaeological studies to urban conservation project and from industrial heritage projects to working as a member for the committee of conservation of cultural assets. The majority of project types that the interviewees take part in are residential and monument conservation projects. For Thessaloniki interviewees residential projects are the major project type and for Izmir interviewees monumental heritage projects are the major project type that the respondents were involved with in a professional capacity. Only one out of 18 interviewees mentioned that they took part in projects outside the city that they work and live in. Notably one of the Thessaloniki interviewees, T2, had worked on a project in Ankara (Turkey) on the topic of the architectural contribution of the Rums (the Greek Christian community) in Anatolia.

With Izmir participants, there was further focus on the ancient heritage of the city when the interviewees were asked about the historical areas of the city that attracts tourists. With the question 'Could you give examples of historic buildings that are mostly visited by tourists due to their historical importance?' seven out of eight participants named an archaeological area such as Agora, Bayrakli, and Ephesus. One reason might be that the city of Izmir has lost the majority of its historic structures throughout the 19th and 20th centuries due to wars, fires, and economic developments. Accordingly, when the conservation specialists were asked to name historically important buildings from their city, they refer to the archaeological areas from the Hellenistic and Roman periods that are being preserved as monuments, and visited as ruins due to their historical importance. Similarly, in Thessaloniki, the same question was answered by the interviewees referring to the Byzantine heritage examples of the city which belongs to the period between the 4th to 14th centuries. Nine out of 10 participants named examples of Byzantine heritage as tourist attractions. Thessaloniki also lost the majority of

18th and 19th-century heritage because of fire, conflicts, and economic developments, and this urban characteristic is another similarity between the two cities.

With the question ‘What is your opinion about the future of lost architectural heritage in your city?’, all participants agreed that they have an important place in the city’s future and the public should know more about them. Although what is considered as lost architectural heritage was not specified, it was evident that regardless of the ownership status of lost architectural heritage, there is a consensus about the importance of the lost architectural heritage examples for their city.

These questions enabled the understanding of the interviewees' approach towards the lost heritage examples as a potential material in the city's future conservation strategies. It can therefore be concluded that the academic and specialist participants have a good understanding and appreciation of the lost architectural heritage in Izmir and Thessaloniki. Furthermore, there is a positive approach among the participants for raising the awareness of the lost architectural heritage examples to the general public. Izmir interviewees mostly refer to the importance of the preservation of urban memory, and they highlight the importance of more comprehensive and sustainable conservation decisions made by the authorities. Thessaloniki interviewees refer to the importance of urban memory too. Half of the participants mentioned that the transformation after the fire had a negative impact on the urban memory of the city. Additionally, they refer to the archives as an important research tool, and particularly they highlight the research centres specialised in migrant studies as a valuable source of historical documents. Similar to what has been pointed out in the literature (Giblin, 2014; Lucija et al., 2020; Meskell & Scheermeyer, 2008; Milosevic, 2018) one of the findings of this study indicates that there is a similar approach in the perception of heritage as part of the healing process following a post-conflict situation and this could be identified by the answers related to the importance of the lost heritage examples for the city’s future development.

Along with prioritizing certain periods for funding conservation projects, to assess the current conservation strategies, when asked about the predominant age of the historic buildings they worked in their official capacity, both groups referred to the post-fire period. Although the majority of the Izmir interviewees answered as there is not a specific time period for

conservation projects that they were involved, three out of eight participants defined the project period as after the 19th century and the buildings that were built after the 1922 Izmir fire. On the other hand, the majority of Thessaloniki interviewees mentioned that their projects were related to the buildings built after the 1917 Thessaloniki fire. This could indicate that the projects funded or prioritized in Thessaloniki might be for the buildings that were built after the fire and Thessaloniki might have lost more historic buildings that date back from before 1917. Furthermore, in line with the literature that identifies the role of architecture in nation building in post conflict societies (Bozdogan, 1986; Hastaoglou-Martinidis, 1997; Iversity, 2003; Ozkirimli & Sofos, 2008; Yerolympos, 1996) this finding indicates the importance of an official narrative, favouring buildings constructed in periods of nation building and the formation of new official identities.

5.3. The use of Digital Technologies in Heritage Visualisation

The use of digital technologies benefit projects throughout the different phases of the conservation decision-making process of historic buildings and sites, especially in terms of time efficiency and accuracy, and has become common practice. The essential processes of documentation, information management, data collection, and architectural visualisation in architectural heritage conservation projects have now significantly shifted to the use of digital technologies.

In the interviews with the specialists, it was important not only to understand and evaluate the integration of digital technologies in different phases of architectural conservation projects but to explore how the conservation specialists see the potential use of digital technologies in the visualisation of lost architectural heritage in Izmir and Thessaloniki.

The interviewees were asked if they can highlight the different phases of the conservation projects that they were involved in where they made use of various digital technologies. The majority of Izmir participants (five out of eight) responded in the visualisation phase to this question. Thessaloniki participants also highlighted these two phases. However, five out of ten participants referred to the integration of digital technologies as a tool that they integrate into all phases. Another outcome from this question was the utilisation of digital technologies in the information management phase. Although 8 out of 18 Izmir interviewees responded

that they integrate digital technologies in all phases, none of the participants answered as information management phase. Similarly, none of the Thessaloniki interviewees selected the information management phase as part of their integration of digital technologies in conservation projects. This also highlights the relatively limited integration of information management systems as a tool for the conservation process. And it also provides an area that could further be investigated while dealing with lost architectural heritage projects due to the complexity of data that could be dealt with in various formats.

The implementation of BIM, GIS, or any other information management system could be seen as potentially useful for different stages of conservation projects (Bruno & Roncella, 2019; Jouan & Hallot, 2019; Petrescu, 2007). Nevertheless, it is often perceived as being time-consuming (Al-Sakkaf & Ahmed, 2020), complex (Osello et al., 2018) Such systems and processes are relatively recent and have been gaining popularity over the last two decades (Mutis & Hartmann, 2018). Therefore, they may not have been sufficiently adopted yet in both cities.

5.3.1. Ethical Implications of Digital Technologies

The existing literature related to use of digital technologies has been assessed in Chapter 3. This review provided a better understanding of the tools, techniques and methods used in heritage visualisation. Particularly in interpretation of lost architectural heritage and by using mobile digital technologies. One of the implications related to the discussions around the use of technology in visualising architectural heritage is related to the ethical aspects of the process. Current discussions regarding the ethical implications of heritage visualisation have been the subject of ongoing discussions with relation to the cultural heritage studies. London Charter (2009) for the computer-based visualisation of cultural heritage has been developed to ensure the methodological rigour of digital reconstructions (Denard, 2012).

The charter aims to define principles for computer generated visualisations and establish methods and outcomes for various purposes including research and heritage communications. For this purpose charter provide several objectives. With relation to the ethical implications of heritage visualisations the charter establish principles to promote technical rigour and enable these digitally crafted media to contribute to the study, and

interpretation of heritage examples. Charter also highlights the importance of relevant research resources for heritage visualisation and mentions the importance of documentation and accessibility of these digital materials (Denard, 2012).

Further elaborations on the ethical aspects of heritage visualisation in relation to the research findings are discussed in Chapter 7.

5.3.2. Transformation of Historic City

As stated earlier, both Izmir and Thessaloniki have lost the majority of their historic buildings, particularly during the first half of the 20th century due to conflicts, fire, and subsequent urban developments. In both cities, the fires were followed by successive urban plans, often prepared by invited western urban planners (Bilsel, 1996; Hastaoglou-Martinidis, 1997). These planned transformations resulted in the remodelling of the historical centres, and over time urban development included higher building density and larger building plots. Consequently, the objective of this section is to understand the opinion of the interviewees concerning the transformation of their city over the last century.

The interviewees were asked if they consider their city as a historical city. Although the majority of the participants agreed with the statement, when asked 'Do you think that the reason for tourists visiting your city is to see historical buildings?' three out of five of Izmir participants and five out of ten of Thessaloniki participants did not agree with the statement. It can therefore be concluded that there might be a potential of historically important buildings still existing in the city, however, they are not being used up to their capacity to make the city known as a historical city to visitors. This also underlines the value of the lost historical buildings and generates a discussion point of how to re-introduce lost heritage as part of both city's future conservation strategies.

To understand what the participants consider as successful conservation projects in their city, the interviewees were asked, 'Can you give examples of conservation projects that you find acknowledged in the city, which may help to recognise your city as a historical city?'. All of the interviewees mentioned buildings that have been recently popularised by visitors in the tourist areas in the city. Levantine mansions and the ancient Agora were cited by six out of

eight Izmir interviewees, and Byzantine era buildings and Roman sites by nine out ten Thessaloniki interviewees.

T5 explained the importance of Byzantine-era buildings in Thessaloniki as follows;

> *'Thessaloniki is best known for its Byzantine architectural heritage. In almost all of its churches, conservation work has been undertaken, although their continuous operation often contradicts the rules of heritage protection. St. Dimitrios, although it has been almost rebuilt after significant damage from the fire of 1917, I consider it being a fairly successful attempt to restore the monument.'*

T5 also criticized the transformation of the city over the years by giving examples from the lost architecture and how this had an impact on the city's urban development as follows;

> *'During the reconstruction period and on the occasion of the earthquake of 1978, a very large percentage of newer historic buildings were lost, with the result that the discontinuities in the urban fabric could not give a complete picture of a historic centre, as is the case in many cities in our neighbourhood.'*

Additionally, T1 highlighted the importance of restoration projects by using traditional techniques referring to the timber frame residential buildings on the hillside of the city. T8 also mentioned the hillside area has having good conservation examples and also added that the city walls and the city hall are good examples from the same neighbourhood. T2 stated the two major tourist groups started to visit more regularly, also influencing conservation decisions: *'Since 2010 our prior mayor tried to open the city to historic buildings, a lot of visitors from Turkey and Israel. Thessaloniki used to be a predominantly Jewish city and a dominant group although less than the Jewish one was the Muslims. We have a lot of tourists coming from Turkey mostly to visit Mustafa Kemal's family house.'*

The Izmir interviewees mentioned the grand mansions of the Levantine merchants in Buca and Bornova as good examples even though they are located on the outskirts of the metropolitan Izmir. One participant mentioned the commercial district in Kemeralti area having a potential for good examples of conservation projects (I3), but criticised the district as no longer being as authentic as it was before; *'The areas that can help to recognise Izmir*

as a historical city could be Izmir Agora, Smyrna ancient city in Bayrakli and although there has been a lot of interventions, Kemeralti commercial district, mansions in Karatas and historic Asansor neighbourhood.' (I3)

In addition to residential commercial and archaeological heritage examples, interviewees in both cities (I2 and T10) mentioned their city's industrial heritage as an example that helps to recognise the city as a historical city. Considering industrial heritage as an important part of the cities' historical developments could generate a potential interest amongst the conservation specialists as well as visitors. Given the fact that both Izmir and Thessaloniki were important port cities during the 19th century, the industrial buildings could generate more comprehensive attention from the two cities' conservation specialists.

To understand the role of tourism in Izmir and Thessaloniki's urban transformation, the interviewees were asked if they think the reason for the tourists visiting their city is to see the historical buildings. The majority of Izmir interviewees did not agree with this statement. This also demonstrated with the answers to the question 'Could you give examples of historic buildings that are mostly visited by tourists due to their historic importance?'. The majority of Izmir participants' answers were related to ancient ruins or the historic commercial district Kemeralti. Three out of eight interviewees answered this as Ephesus ancient city which is some 60 km away from the city of Izmir. In the case of Thessaloniki, half of the interviewees agreed with the statement 'Do you think that the reason for tourists visiting Thessaloniki is to see the historical buildings?' I5 did not agree with this statement and answered the follow-up question 'Could you give examples of historic buildings that are mostly visited by tourists due to their historic importance?' as follows; *'I do not consider the city as a very historic city. Only the old town which is an important part of the town that has to be preserved. With the 1930s and 1950s plan, they kept them as an important part of the history of the city but over the years it was destroyed from 2000 houses they have restored 40 of them … This tragic catastrophe wiped out the memory of the city. We rebuild old Turkish houses in an ugly way.'*

Answers to the aforementioned questions indicate that the transformation of Izmir and Thessaloniki over the last century has resulted in both cities losing the majority of their historical areas that had survived the fires. Thus, conservation specialists see this transformation as an unfavourable transformation that does not promote the city to be

recognised for its historically important buildings. Furthermore, the urban transformation also has been recognised as the loss of some cultural groups referring to their buildings or cultural or religious areas such as Levantine and Greek communities in Izmir and Jewish and Turkish communities in Thessaloniki. Hence some interviewees highlighted the negative impacts of these transformations not only from an urban or architectural perspective but also cultural and social phenomena. It was also emphasised by some of the interviewees that both cities had lost not only cultural communities and the buildings associated with them, but also the intangible cultural values that belonged to these migrated populations.

5.3.3. Continuity of Urban Memory

The continuity of the urban memory and the conservation specialists' vision about the future conservation strategies of their city were examined with further questions. The interviewees were asked if the changes that occurred in the historic city centre were beneficial for the urban memory of the city and the majority of the interviewees in both cities stated that the transformation has a negative impact on the urban memory. One out of eight responses from Izmir and three out of ten responses from Thessaloniki only stated that this transformation over the years has had a positive impact on urban memory. This highlights a discussion point where the majority of the interviewees consider their city's transformation as something that erased the urban memory of their city.

Building upon this discussion, the follow-up questions were related to their vision for generating this continuity of the urban memory. Understanding the evaluation of conservation specialists' point of view for the future vision of conservation strategies of the city also assessed with investigating whether continuity of urban memory is a part of this strategy. In order to evaluate this, the interviewees were asked 'How do you think your city's future conservation vision should be with relation to the continuity of the urban memory?' With this question, it was critical to investigate if the lost heritage of their city that belongs to a society that no longer resides in the place could be considered as part of this future vision.

All of the interviewees from Izmir and Thessaloniki gave their opinion highlighting the critical aspects of different ways of generating continuity of the urban memory as one of the future visions of the city's conservation decision-making discussions.

In the case of Izmir, the focus of the interviewees was related to the current difficulties based on ongoing issues rather than depicting a visionary approach for possible future decisions related to the continuity of the urban memory. Nevertheless, the importance of inventories and the critical aspects of the conservation of existing heritage areas were recognised by one respondent (I6) who considered the city archives and city museums to be part of the institutionalized approach. Another respondent (I1) mentioned that continuity in urban memory could be achieved by the articulation of forgotten or displaced societies and their buildings. I2, I4, and I8 mentioned the importance of masterplan scale decisions made by the conservation specialists and with a focus on conservation strategies as a priority. I5 also highlighted the importance of undertaking these conservation works by the specialists and adds the importance of financial difficulties. I3 discussed the topic as follows

> *'It is important to maintain the continuity of memory spaces as it nourishes the city memory and keeps the city identity strong. A flexible, improved policy should be created in such a way that physical protection efforts and socio-cultural values are protected from a holistic perspective.'*

I3 also stated the importance of memory places and highlighted that these areas should be protected. Seventeen interviewees mentioned digital technologies as a useful tool to be utilised for lost architectural heritage and the continuity of urban memory. I7 mentioned one project that was developed for Bergama in Turkey that integrated QR codes and the use of mobile devices for the visualisation of these lost heritages but also noted that there were maintenance problems and challenges related to such a project. Additionally, I7 also mentioned the importance of integrating intangible heritage as part of this memory continuity vision and added that this could be an additional focus for the future of lost architectural heritage.

The importance of the archives and their role to keep society informed about their city's past was mentioned by some respondents (T2, T10). T10 stated the crucial role of research and studies about the lost heritage of the city and mentioned that the relevant studies will provide a continuity of the city's historical memory. T2 critically discussed the lack of taking initiatives by public institutions when it comes to digitising the archives. They argued digitising the archives and having trained researchers working on these archives as a key element of

building unity between the past and the present for their city. In addition to tangible heritage they also highlighted the importance of intangible heritage that could be studied in those archives. Additionally, T1 also mentioned the past societies that were living in Thessaloniki in multi-cultural co-existence and underlined the importance of understanding these harmonious living of these past societies as an important factor in order to build successful future conservation strategies.

Thessaloniki interviewees also highlighted the important aspects of generating continuity in the urban memory as part of the future conservation strategies of the city. Although some participants did not provide an elaborated answer, most of the interviewees mentioned the important points. One of the critical issue highlighted by several interviewees were related to the lost architectural heritage and as well as the lost societies. One respondent (T1) underlined the importance of the comprehensive understanding of what has been lost as a starting point for the conservation of the remaining heritage buildings and also stated the implication of legislation and political difficulties as some of the hurdles of this approach. Another respondent (T5) stated the lack of reaching a consensus regarding the impact on the transformation of the historic city centre even amongst professionals as follows; *'Despite the tragedy, it was seen as a means of modernizing and westernizing the city's image away from Eastern standards, which symbolized Ottoman rule. My personal view is that urban memory must be continuous and without large gaps'.* They also touched the social aspects of these changes over the years as a major shock for people to be cut off from their roots, from what has shaped their culture and way of life.

As a result, both Thessaloniki and Izmir interviewees highlighted the importance of city archives and their digitisation as an important starting point for understanding the recent past of their cities. Additionally, they provided certain visions for the future of their city's conservation strategies that could be summarised in two major topics; the protection of the surviving heritage examples by conservation specialists and understanding and learning about what has been lost in order to appreciate the value and celebrate the city's past with all its aspects.

They also highlighted the negative impact of the urban developments in the city over the years. Several professionals emphasised the importance of urban memory. Hence, they

primarily considered the current urban transformation of Izmir and Thessaloniki as not sufficiently prioritizing the historical buildings or neighbourhoods. Although they considered their city a historic city, the link between historical areas and interest by the visitors for these historical values was not established by the responses. A general lack of importance placed on the use of information management systems was also captured. Even though several participants mentioned that they integrate digital technologies for all the phases of the conservation decision-making process, none of the interviewees highlighted that as part of current plans for the use of digital technologies in conservation projects.

5.4. Conclusion

This chapter focused on investigating and analysing the outcome of the fieldwork of this research that took place in 2019 and 2020. The understanding of lost architecture from conservation specialists point of view and its place in conservation strategies of the cities of Izmir and Thessaloniki was evaluated. It is evident from the responses that when referring to lost heritage examples of the two cities, conservation specialists exemplify ancient structures and ruins that belong to the civilizations that disappeared long time ago. Emphasis on Roman and Greek periods in Izmir and the Byzantine era in Thessaloniki indicates the general focus of the two cities' conservation specialists with regards to the definition of disappeared buildings of their cities. Discussions around the fire that destroyed more recent historical examples of the two cities enabled the understanding of the approach of the conservation specialists towards urban continuity and urban memory. Considering the majority of both cities' historical city centres that were redesigned during 1950s, the need for more emphasis on the responses on historically significant buildings on the urban characteristics of the two cities indicates a discontinuity in the urban transformation. Since there are historical records of Izmir and Thessaloniki before this major shift in urban transformation in terms of historical maps and photographs, and due to the fact that both devastating fires took place around 100 years ago, professionals are clearly aware of these recently lost buildings. The emphasis on the need to consider continuity in the urban memory as part of future conservation strategies showcases a common ground from both cities' conservation specialists. The responses also indicate that lost communities and the loss of intangible heritage also affected the continuity of urban memory. Nevertheless, there was no strong indication amongst the participants that

knowledge of the lost heritage could play a discernible role in future conservation strategies in the two cities.

The results also highlight a willingness and a need to learn about what has been lost from both cities in order to appreciate the values in current and future conservation strategies. This is in line with the collective memory of the cities as the professionals express themselves without personal involvement in past events. This represents a broader form of identity that the lost heritage is representing.

The analysis of the use of digital technologies and their role in lost architecture visualisation was another point of discussion during these interviews. It is evident that conservation professionals are aware of various digital technologies and use them during different phases of their conservation practices. Particular emphasis on the use of digital technologies has been identified for the documentation and visualisation phases of projects. However, no strong emphasis was captured towards the use of information management systems on an urban or architectural scale. The following chapter discusses the digital technologies adopted for this research and evaluates the impact of these emerging digital technologies on the perception of heritage.

6. IDENTITY, MEMORY AND LOST HERITAGE; TURKISH SMYRNA, GREEK SELANIK

6.1. Introduction

The heritage visualisation literature discussed in Chapter 2, emphasised the use of developing technologies in digital reconstruction of architectural heritage. This chapter presents the analysis of the practical implementation of this research in terms of 2D and 3D examples of virtual reconstructions and the various ways of sharing these visuals with the study participants. The chapter starts by demonstrating the heritage visuals and the analysis of the use of digital technologies in heritage visualisation. Following that, it illustrates the process of testing the visual material with the participants during focus groups and their perceptions obtained through semi-structured interviews. Considering the fifth objective of this study, the aim of this chapter is to contribute to the knowledge and understanding of the impact of the developed virtual reconstructions and user experiences and their link to memory and heritage ownership.

The two case study cities are analysed with regard to the participants' perception about their ancestor's place of origin. What they have heard about the area, about the lives of their ancestors before the population exchange and their impressions according to the narratives that they have listened to from their parents or grandparents. Their descriptions of their ancestors lives in terms of day to day practices, houses that they were living in or the village or town that they used to work or study were examined. Another topic of interest was related to the narratives of the population exchange. Their ancestors' journey to the new settlement, their changing lives and their new life in their new town or city was discussed in the focus group discussions. Additionally, a comparative investigation enabled the understanding of the population exchange descendants differed perceptions of their current city and their ancestor's place of origin with the help of sharing the visuals with the participants. This enabled an understanding of the role of digital reconstructions in shifting perception and value assessments.

6.2. Sense of Belonging

One of the major objectives of this research is to evaluate the current digital technologies, in terms of user experiences, concerning their impact on heritage and identity relations. To assess this research question the second group of participants was selected as the population exchange descendants of 1923 that took place between Turkey and Greece. Having identified that the urban identity of both cities was considered by conservation professionals to be linked to their former multi-ethnic populations and social character, the next stage of the research aimed to establish how this was viewed from the more personal perspective of population exchange descendants. As one of the primary ports of deportation and as major cultural and economic centres of the early 1920s, population exchange descendants from Izmir and Thessaloniki were interviewed. Participants for the study were recruited with the help of two community societies; 'Selanik ve Rumeli Mubadilleri Dernegi (Society of Thessaloniki and Rumeli Emigrants) in Kusadasi and 'Association of Smyraneans of Asia Minor, Eleftherios – Kordelios' in Thessaloniki. All participants were anonymised and coded, with PEDT referring to participants currently living in Thessaloniki whose ancestors originally came from Izmir, and PEDI referring to participants currently living in Izmir, whose ancestors originally came from Thessaloniki.

Data was collected through semi-structured interviews with participants recruited from members of these societies and followed up with focus groups where the 3D Visuals, GIS maps, and Virtual Reality experience of the lost architectural heritage from Izmir and Thessaloniki, were shared with the participants. The participants for the focus group study were approached after they had been interviewed. The participants who were interviewed also took part in the focus group studies for the Izmir participants and two out of five focus group participants were interviewed for the Thessaloniki participants. In Izmir, the focus group study was finalized without any issues and as planned and accordingly it was recorded and documented with the consent of the participants. The Thessaloniki focus group had to be brought forward due to the complications related to 2020 COVID 19 pandemic that restricted travel for fieldwork studies. Nonetheless, a focus group meeting was conducted in Thessaloniki, albeit with a smaller group and was only documented with notes and photographs instead of recordings. The recordings were not possible due to the fact that the participants chose not to provide consent for the discussions to be recorded (Appendix).

The fieldwork outcomes lead to an understanding of the notion of memory and its link to heritage ownership and sense of belonging as experienced by these groups. It also enabled the analysis of the impact of digital technologies in the perception of lost architecture. The findings of this research shed light on understanding the current relations of descendants of both communities that was a part of the population exchange. Additionally, it provided an understanding of each communities' engagement with the tangible and intangible heritage of their ancestors' homeland and their perception of these places.

The interviews were analysed to identify the definition of the homeland by the population exchange descendants from Izmir and Thessaloniki. The idea of a sense of belonging to a place and, in relation to that, heritage ownership is examined. Furthermore, their attachment to identity and its link to architectural and urban heritage and their attitude towards heritage that belongs to other cultures is interrogated.

The participants' perception of the past, including the events associated with the population exchange between Turkey and Greece, is analysed in line with the told stories, memories shared between the generations, and other related narratives that have shaped their lives over the years. Additionally, their perception of the places where their ancestors used to live and their knowledge about these places is investigated. In the context of urban identity, the population exchange descendant groups in both cities were asked to consider the identity of the city they occupied and the one their ancestors came from. The attitude towards their place of residence and their perception regarding their current city's heritage places are also examined. The results allowed a comparative analysis of the population exchange descendants' approach to the heritage of their own city as well as the city that their ancestors came from. Furthermore, a comparative analysis enabled the understanding of the population exchange descendants' attitudes to a lost past and present day place and a comparison between the current occupants and population exchange descendants view of sense of place, sense of belonging and collective memory.

The following chart demonstrates the common themes that emerged from the content analysis of the interviews with the population exchange descendants from Izmir and Thessaloniki.

	Category	Emerging Themes	
		Izmir participants with ancestral links to Thessaloniki	Thessaloniki participants with ancestral links to Izmir
1	Definition of Homeland	Some consideration of ancestor's place of origin as homeland	Few consideration of ancestor's place of origin as homeland
2	Perception of the Past	Mainly through societies and internet knowledge	Mainly through stories from parents, grandparents
3	Memories and Link to Place Identity	Memories are an important decisive factor	Memories are an important decisive factor
4	Heritage Ownership	Very limited knowledge about the heritage left behind	Some knowledge about the heritage left behind
5	Attitude towards Displacement	Negative attitude, financial hardship emphasised, not to be named as refugee	Negative attitude, traumatic stories, want to be named as refugee
6	Aspiration towards Ancestor's Place of Origin	Nostalgia with positive memories, want to visit	Nostalgia with positive memories, mostly want to visit

Table 5. 2 Emerging Themes / Population Exchange Descendants

6.2.1. Multiple Homelands

The transformation of the Ottoman state during the 19th century brought some changes in the social life of the diverse Ottoman social and political order(Shaw, 2000). Quataert defines the outcome of these changes by the end of the century as part of the rise of nationalism in the Balkans and Anatolia (Quataert, 2005). Despite age old differences amongst different Ottoman subjects, the major incidents of violence, population movements, and conflicts mainly occurred during the late 19th and early 20th centuries

Similar to many other Ottoman settlements, the 19th-century social structure of Izmir and Thessaloniki was multi-cultural and multi-religious (Inalcik, 1973). Islam, Christianity, and

Judaism were amongst the major religious groups resident in both cities (Shaw, 2000). The Language was another distinctive element that generates association with different ethnic groups in two cities as Turkish, Greek, Armenian, and Hebrew being the major languages of the local populations (Mazower, 2005; Milton, 2008). With the growing commercial activities in the 18th and 19th centuries, European settlers were also amongst one of the major societies that were resident in both cities as an additional ethnic and cultural group (Milton, 2008). Consequently, over the centuries, a mixture of ethnic and religious groups defined the demographic profiles of Izmir and Thessaloniki until the 1920s.

Doumanis (2013) refers to Late Ottoman period when the Christian and Muslim communities lived together for centuries as a state of 'intercommunality'. It is the term the author defines social norms that is "a mode of living designed to negate conflict built on routine practices, social bonds, and shared values" (Doumanis, 2013 p2). Although societies on both sides of the Aegean Sea continued to live without a major conflict until the early 20th century, current narratives by Greek and Turkish nationalist projects show some similarities. Ozkirimli and Sofos (2008) defines these nationalist projects as 'parallel monologues' and describes each countries similarities as follows;

> In many way, Greek and Turkish nationalist projects are 'parallel monologues', like choral odes in Greek tragedy, relentlessly emphasizing their differences yet painfully aware of their similarities. Both countries have been historically positioned as the 'other' in their respective nationalist imaginaries, each being seen, from the outset, as being the antipodes of the survival of the other. (Ozkirimli & Sofos, 2008 p.2)

The role of such narratives passed from generation to generation is evident with the population exchange descendants' knowledge about the life, journey, and struggle that their ancestors had to go through. The majority of the descendants interviewed knew where their ancestors were living in terms of a village, city, or neighbourhood name. All could name the city that they were living in as well as the area that they settled in after the population exchange over the years including subsequent relocations and struggles. For example, PEDT10 described the journey during the population exchange as follows;

> ‘Vourla (Izmir) is the place that they came from. From my ancestor’s narrations, they were kicked out suddenly. They left from Izmir, as it happened that was something that they did not prepare for, therefore it happened very suddenly, they weren’t organized to leave as a family altogether so they left separately.’

Seven out of the 28 interviewees referred to their ancestor’s birthplace, the place that they were living before the population exchange when they were asked ‘How do you answer the question: Where is your homeland?’. Although the most of Izmir interviewees responded to this question as to their place of birth, 40% of the participants answered as ‘Selanikliyim (I am from Selanik)’, despite being born in Izmir. Thessaloniki participants mostly referred to their own birthplace except for one participant. PEDT9 answered this question as ‘I say I am from Izmir, Kordelio. Here in Thessaloniki I also live in Nea Kordelio.’ Referring to their ancestor’s area of settlement in Thessaloniki, after the population exchange, which is named after the historic Kordelio district of Izmir as the area that their descendants were living in before the population exchange. PEDT10 on the other hand pointed out the stigma attached to the Greek population arriving from Anatolia having Turkish roots. PEDT10 mentioned their mother does not take pride in her Turkish origin or Greek Turkish origin, which also gave some clue about their personal opinion towards the people coming from Anatolia after the population exchange. In relation to this, one participant (PEDT10) also identified themselves as proud Athenians with roots to Crete from their father’s side, which they take greater pride in than from their father’s birthplace.

As mentioned above, reference to Thessaloniki as the homeland within the Izmir population exchange descendants was 40% of all the participants. Three participants highlighted the Aegean as their shared environment, and they referred to the region as their homeland instead of a city or village. PEDI6 mentioned the Aegean as a region made up of people with a shared lifestyle living in and in addition to that PEDI16 has mentioned the centuries old historic seaside towns on both sides of the Aegean Sea sharing a common culture which they identified as Mediterranean culture. Moreover, PEDI14 answered this question as ‘Egeliyim’ (I am from the Aegean) and highlighted the similar culture between the different settlements of Greece and Turkey around the Aegean Sea.

The findings of this research is also in same line with the literature (Doumanis, 2012; Edhem, 2014; Hirschon, 2003; Ozkirimli & Sofos, 2008) that the population movements, displacements, forced migration has an impact on people's perception of sense of belonging to a place. Furthermore, if the events and narratives in relation to the population exchange includes traumatic experiences such as war or a conflict situation, the feelings attached to a place of origin is impacted.

The interviews with the descendant communities has demonstrated evidence of a strongly interconnected past and similar perspective in analysing historical events. It has also demonstrated how past lives of their ancestors continue to have an impact on identifying what is considered to be a homeland, based on their attitude towards ownership that can be traced back to lived memories and told stories between the generations.

6.2.2. Memory and Identity

To understand what the participants know about the city, town, or village that their ancestors were living, the interviewees were asked what they knew about the places, the buildings in the city as well as the house that they used to live in. The majority of the participants from Thessaloniki could name a city, village, or neighbourhood that their ancestors came from. The list included town names like; Papaskalas, Alacata, Heraclion, Vourla, and as well as neighbourhood names like; Kordelio, Koukloutzas, and Bostanli. The majority of the participants identified the positive sides of their ancestors' lives in Izmir. PEDT3 mentioned that their ancestors were living peacefully in Kouklutzas as fig and vine farm owners and often travelled to Smyrna (Izmir) for leisure and PEDT4 identified that her grandma's family owned a patisserie in Kordelio.

The response from PEDT10 also highlights knowledge of a place name, and additionally, it indicates that there is a vivid image of the past home, places where their ancestors worked and lived. PEDT10 gave a detailed description of the house that their ancestors were living in as follows;

> 'And my mother used to say we have golden spoons to eat with. She was talking about the wealth, she was coming primarily from wealth, I understood that my great grandfather probably owned land. Most probably they were farmers of some sort,

> cultivating grapes, tobaccos. They used to use camels to carry goods. Laborers, workers working for the farm. ... Their house had two story with 'oda' (room), my mother kept talking about it. They had the sleeping areas on the top floor. She described a courtyard with plants and a pergola. They had a nice view, across the farms that they owned over the hill.

The narrative shows a clear idea amongst the descendants about how their ancestors lived and the physical characteristics of the house that they used to live in. Moreover, it also demonstrates that stories were told through generations and became a collective memory.

Interviewees from Izmir also had a primarily positive image of their ancestors' lives in Thessaloniki. Izmir participants also had detailed knowledge about the town or village that their ancestors came from. The area names included; Kavala, Avrethisar, Kristoni, Florina, Elasonia, Drama, Langaza, and Mora. Additionally, many participants mentioned Thessaloniki together with the village or town name, although the distance between Thessaloniki and their ancestor's village is sometimes around 150 km. Some of the settlements that they mentioned like Ohrid, Skopje, and Pristine, are situated in the Macedonian peninsula. But since Thessaloniki was the cultural and industrial capital of the region, many of them had ties to Thessaloniki with their trade or as their final departure point as part of the population exchange.

The majority of the Izmir participants also mentioned their ancestors' lives before the population exchange as positive and prosperous. PEDI3 mentioned that their grandmother had been educated in their house by private tutors, and the house was located in Thessaloniki city centre near the current Turkish consulate and Ataturk's family house. PEDI14 mentioned their father attended the French school in Thessaloniki. PEDI18 mentioned their ancestors as landowners and travelling to Thessaloniki from Florina with private cars even though many people did not own cars. They also mentioned that the amount of land that their ancestors owned was similar to many other Turkish families in the region.

Based on the aforementioned answers, the majority of the interviewees had extensive knowledge about their ancestors' lives, the places that they had lived in, and the houses that they were living in before the population exchange. It is also possible to conclude that their

lives were described with positive attitudes as part of the information shared between the generations of the population exchange descendants about their ancestors' village, town, or the city.

Another topic of investigation was about participant's knowledge concerning their ancestor's lives before and after the population exchange. Their familiarity with the city that they came from and settled in after the population exchange and the changes in their lives were also investigated. The questions were about the city that they were living in, the struggles that they had during the population exchange, information about their family members, occupations and life that they had, etc. The questions allowed an understanding of shared stories, experiences, and memories.

The interviewees were asked to describe their ancestor's journey during the population exchange and give information about their life after they settle in their new city. The majority of the Thessaloniki interviewees described the journey and the process of population exchange as forced migration and catastrophe. PEDT1 and PEDT4 described the period of population exchange as a catastrophe in Asia Minor and PEDT6 and PEDT7 used the term 'uprooted by force'. PEDT9 mentioned the events before the population exchange as a reason for their ancestors to leave Izmir as the Turkish army's deportation of Greeks to work camps in Eskisehir and other areas. The journey was also described as being kicked out of Anatolia by PEDT10 as they mentioned the disorganized departure of the family properties while trying to reach Izmir from Vourla. The difficulties during the war time resulted in the loss of some family members. The family lost track of some of the family members and never heard what had happened to them. They mentioned the disappearance of the mother, the father, and the youngest child of the family while they were trying to move from Vourla to Izmir. Izmir participants did not describe the journey as negatively as the Thessaloniki participants did, and they provided more brief information about their ancestor's place of origin and their journeys.

The majority of Thessaloniki participants referred to their ancestors as refugees. However, Izmir participants did not use the term refugees and described them primarily as 'mubadil' (migrant). This could also be related to the fact that many of the Greek population in Izmir had already left the city before the population exchange and they were displaced by the end

of the Greco-Turkish War that ended in 1922. On the other hand, population exchange of the Muslim community from Greece took place primarily after 1923, so the process was relatively longer. Additionally, it is understood that Turkish participants also wanted to distance themselves from being called refugees since the attached stigma to the term in the community. On the contrary, Thessaloniki participants' mostly referred to their ancestors as refugees.

Seventeen out of the 28 interviewees described their ancestor's education as elementary or no education and specified their profession as a farmer, fisherman, or peasant. The majority of Izmir participants' ancestors from Thessaloniki were dealing with farming or animal breeding. However, Thessaloniki participants' ancestors from Izmir were involved in professions like barber, patisserie owner, bakery owner, trader, or shoemaker. This demonstrates the relatively higher educational background of Thessaloniki participants' ancestors with a variety of professions. The interviewees were also asked about the life of their ancestors in the new settlement after the population exchange. Five out of 10 Thessaloniki participants mentioned the struggles or difficulties that their ancestors had after the population exchange. PEDT2 described the life that they lived as not easy and with a lot of work in difficult times. PEDT3 mentioned the difficulties related to finding a place to live as they mentioned the house that they first lived in as simply a 'roof' near the church in a small village near Thessaloniki. PEDT5 mentioned the jobs that they worked in as labourers and workers with limited education. They mentioned their maternal great-grandmother as a widow as she had lost her husband during the population exchange. And since she couldn't take care of four kids as a single parent, their grandmother grew up in an orphanage. PEDT9 described Thessaloniki during that time as a small town with so many people where their ancestor's had to work in road construction under the French Army. PEDT10 mentioned the struggles of their grandmother during her first settlement in Athens. She was working as a housemaid in rich family houses, and her siblings were in another city. They also mentioned the perception towards the refugees from Anatolia. They were considered refugees and penniless even by their own family members. Additionally, three out of 10 participants highlighted the Nazi occupation of Greece as being another time of hardship for their ancestors during the 2nd World War. They mentioned their troubles during the war times, on top of the difficulties that they had during the population exchange.

The majority of Izmir participants' ancestors continued to work as farmers and involved with the land and animal breeding near Izmir in towns like Sirince, Odemis, Menemen, and Kusadasi. Three out of 18 participants highlighted the difficulties while they were describing their ancestors' lives after the population exchange. PEDI8 mentioned the malaria epidemic as one of the reasons for them to resettle in Izmir from Mersin. PEDI17 mentioned their ancestors' departure from Thessaloniki as they had to wait in the harbour for days for the ships to take them to Anatolia. They also mentioned the land and the animals that they had to leave behind and the troubles of carrying their household items without carriages. PEDI18 highlighted the attitude of the resident Turkish community as not welcoming and calling their ancestors 'gavur' (stranger) where they were not even welcomed in the mosques.

The interviewees were clear in articulating the difficulties and struggle that their ancestors had during and after the population exchange, especially in comparison to relatively prosperous lives they led before the life changing events. The impact of these events is understood based on the stories that they have listened to over the years or with their first-hand experiences. As part of the nation-building strategies of both countries following the Lausanne Treaty of 1923, population exchange brought irreversible changes to people's lives as well as the diverse communities of cities and towns of Anatolia and Greece (Hirschon, 2003).

6.2.3. Imagining the Past

As part of the objectives of this research it is important to understand the current knowledge transfer between the previous generations of the population exchange descendants and the participants of this research. It was also important to evaluate the perception of the consideration of these participants towards heritage ownership and sense of belonging. Consequently during the interviews, the participants were asked about their opinion with regards to the current implications of the cities of Izmir and Thessaloniki and their opinion about the changes that have happened in both cities over the course of the last century.

From the literature review and research through the old photos and maps, it was possible to determine a list of buildings, street names, neighbourhoods that has been lost over the years from both cities of Izmir and Thessaloniki. Accordingly, the interviewees were asked to name

any buildings, neighbourhoods, street names from their ancestors' cities in order to capture the information transfer between the generations in terms of major landmarks, square names, or streets. However, only four out of 28 participants were able to name some of these lost buildings and urban places from Izmir and Thessaloniki. Nine fountains in Koukloutza and Paralleli at the waterfront were mentioned by PEDT3 and St George, St Photini, Aigha Katerini churches were mentioned by PEDT9 for the city of Izmir. Only Saatli Camii, Vardar Street, and White Tower neighbourhood were mentioned by PEDI10 and PEDI15 for the city of Thessaloniki. Although many of the participants knew their ancestor's village or town outside the city, they had limited or no knowledge about the major landmarks or urban characteristics of the city of Thessaloniki.

The interviewees were then asked if they would like to know more about their ancestors' city and if they wished to visit the area. All participants mentioned they would like to learn more about how these cities were when their ancestors used to live there. PEDT3 described the tragic and traumatic conditions of that time and highlighted that their ancestors did not have a chance to return to their land. Hence, they would like to know more about their ancestor's place of origin. PEDT5 and PEDT7 also mentioned that they would like to know more about their past. They highlighted that as part of their personal history and as the homeland of their ancestors where their grandparents were born, it is important to know more about these places. PEDI2 mentioned the reason for wanting to learn more about their ancestor's city as follows;

> I want this with all my heart. They are very few people left from our past. I want to see the places that my grandfather talked about when I was a kid, the places he played around, the trees that he climbed on. They are my past and they are the stories of my life today.

It is clear that based on the narratives that they have heard from their grandparents and parents, and because of their personal interest in their past, there is a great interest in the area or the places that their ancestors used to live and all of the participants mentioned that they would like to visit the cities of their ancestors. Accordingly, 14 out of 28 participants had already visited the city, town, or village that their ancestors came from. Four out of 10 Thessaloniki interviewees had visited Izmir, and 10 out of 18 Izmir participants had already

visited Thessaloniki. These visits have been described in a positive way by the participants, particularly by PEDT9, PEDI10, and PEDI17. PEDT9 has visited the city of Izmir 16 times since the 1980s and became friends with the local community of the neighbourhood that their grandfather used to live in. They have attended weddings, ceremonies and participated in different cultural activities in Izmir. PEDI10 mentioned that they like to visit the village of their ancestors every year that they became friends with the villagers. They described the visits as emotional and mentioned that whenever they go and visit there, they feel like they are breathing the same air as their ancestors. PEDI17 also mentioned the emotional aspects of these visits, and they mentioned after they saw the village, they thought they would prefer to live there instead of staying in Izmir.

To understand their perception of the cities of Izmir and Thessaloniki before the population exchange, the interviewees were asked 'Before the population exchange and the fire, how do you think the cities of Izmir and Thessaloniki were?'. The majority of the interviewees positively described the cities, using terms like multicultural, 'Paris of Asia Minor', rich Metropolis, European influenced city, a vibrant and beautiful city. Thessaloniki participants mentioned the Greek identity of the community with its Greek, Armenian and Levantine populations. Izmir participants also highlighted the multi-cultural cosmopolitan structure of the place with its Greek and Levantine populations. PEDT10 gave a detailed description of the city of Izmir that they imagined as follows;

> Mostly in terms of the materials I would expect probably stone and then mixture of eclecticism like a little bit of neoclassicism, architectural orders, inclined roofs with French tiles, and features on the balustrades definitely wooden fenestration, colours very earth colours, and a very little touches of colour but again its very soft. It is definitely not white of the Mediterranean and it is not the cubical, much warmer and much earthy, beige, light brown, terracotta, that kind of thing like a popularized Italian style, hints of Late Roman maybe Venetian style. A lot of earth and a lot of stone. A lot of wooden facades, or extensions, 'oda', that wooden box overhanging the facade of the building.

In conclusion, interviewees described the city of Izmir focusing on prosperity, economic developments, aesthetics, and multi-cultural demographics. It was also highlighted that it was

a city with European influences that was composed of different ethnic and religious groups. Although Thessaloniki was also described in a similar manner to Izmir as a multicultural, port city, a city with vibrant life, and a developed city, some participants described Izmir and Thessaloniki of these times as being different. PEDT7 mentioned Thessaloniki having relatively few wealthy inhabitants, and PEDT8 and PEDT19 described as the city as a smaller town. PEDT3 highlighted the changes that have happened to the city's multi-cultural inhabitants as a city where everyone used to live together in an economically vibrant city with different professions. Izmir interviewees mentioned the Turkish and Muslim communities that were living in the city of Thessaloniki before the population exchange and the fire of 1917. PEDI10 highlighted the existence of Turkish identity in the city with mosques and minarets before the population exchange. Many interviewees also mentioned the similarities between the two port cities with their multi-cultural inhabitants. PEDI18 described the city that they listened to from their grandfather as follows;

> My grandfather was talking about Thessaloniki. He was describing the streets with cobblestone and houses with shutters. There was a Greek market where they were doing their shopping. Houses were generally with 'cumba' where many Turkish people used to live. Not many Greek people. They had great neighbours and they were going to Friday prayers in Thessaloniki when they were staying during winter times. Even in winter times, ladies of the house stay in Thessaloniki full time and men sometimes travel back and forth between Florina and Thessaloniki. My grandfather's sister recently passed away at the age of 111 and she was talking about being neighbours with Mustafa Kemal's family.

The changes that have happened in both cities have been identified negatively by the participants of this research. Referring to their prior multicultural and cosmopolitan diverse communities, the majority of the interviewees considered these changes to have a destructive impact on the cities. Understandably, most of the Thessaloniki interviewees referred to the lost Greek communities of Izmir and many Izmir interviewees referred to the lost Turkish and Muslim communities of Thessaloniki. Consequently, they mentioned the changes over the years as loss of identity in both cities. PEDT6 highlighted the destruction and reconstruction of both cities after the wars as an irreversible circle of national

homogenisation. PEDI3 mentioned their desire for both cities to keep their authentic identity and PEDT5 added the major loss of both cities' identity after losing their multicultural populations.

The interviewees were then asked about the fire in the early 20th century of their ancestor's place of origin as one of the primary causes of the loss of architectural heritage. With Thessaloniki interviewees, all had knowledge about the fire. They mainly described the affected areas as 'the centre of the city', referring to the area along the waterfront. Although the primary impact area of the fire was the Jewish quarter of 1917 Thessaloniki, only two interviewees named the area as the Jewish quarter. Another majorly affected area was alongside the hillside of the old town of Thessaloniki. This area was primarily Turkish and Muslim quarter, but none of the interviewees referred to the area as being the Turkish or Muslim quarter. Almost 80% of the participants from Izmir mentioned that they had some knowledge about the Izmir fire of 1922. Seven out of 18 participants named Alsancak as the burnt area, which was the neighbourhood that was developed after the fire. None of them referred to the fire affecting any ethnic or religious groups or districts of the city affiliated with these communities.

It can be therefore concluded that there is awareness amongst the interviewees about the fire that happened almost 100 years ago in their city. However, the interviewees were not aware of the areas that the fire has affected, let alone the buildings that were lost as a result of the fire. Moreover, it was not identified that the knowledge of the participants was through their current knowledge, with the help of societies or sharing information through social media or the internet. It was evident that the interviewees did not mention the fires referencing their ancestor's journey during the population exchange.

As a result, it is concluded that the changes that have happened over the years have been perceived negatively by the interviewees. Their longing for more multicultural cities and more authentic historic architectural examples in their cities were also evident with their answers. Additionally, their desire to know more about their ancestors' cities also generates interest in lost architectural heritage. Therefore, there is an interest amongst the interviewees towards the lost architecture of their ancestor's cities as well as their current place of residence. Another finding of this research indicates that the perception of the past lives of their

ancestors prior to population exchange indicates a sense of nostalgia filled with positive memories and idealization. This is in line with the literature (Doumanis, 2012; Ehrkamp, 2005; Hirschon, 2003) where the depictions of former communities before the traumatic events were described as positive. The majority of Izmir and Thessaloniki participants described their ancestors' lives prior to the population exchange with positive stories that they have listened from their parents or grandparents. The idealization of the past similarly can be found in the description of 'nostalgia' as the 'good times' (Doumanis, 2012). These idyllic pasts without conflict define a memory of the displaced person suggesting that before the events their life quality was better. Additionally, this research has identified the longing for the past in the descriptions of third and fourth generation population exchange descendants as a contribution to knowledge.

6.3. Re-introducing the Past

The concept behind experiencing the past focuses on integrating different digital media as well as various outcomes from different software. During the implementation of reconstructing the digital models and generating GIS maps of Izmir and Thessaloniki, many technical challenged had to be overcome. For instance, how to generate digital models by using limited visual reference? How to integrate historic maps of Izmir and Thessaloniki dating back to the era before the devastating fires? How to visualise the digital models with relation to the current geographical positions of the lost architectural buildings?

To resolve these problems, further research was undertaken on the technical solutions. In Chapter 4 the process of Image Based Modelling (IMB) and GIS georeferencing of historic maps have been discussed and the outcomes have been displayed. Consequently, various digital media have been created in order to capture the impact of the virtual construction of lost heritage buildings on place identity and heritage ownership relations during focus group discussions.

During the interview stage, participants were made aware of the planned focus group discussions. The focus group in Izmir took place with 15 participants and Thessaloniki focus group took place with five participants. After welcoming the participants and introducing the instructions of the focus group exercise, the discussions were started. The two focus group

meetings included guiding questions with open-ended / think back questions that generated discussion points and sequencing from general to specific. Digital representations of lost architectural heritage examples from Izmir and Thessaloniki were shared with the participants as part of the focus group discussions.



Figure 6. 1 Superimposition digital model of Residential Buildings in Izmir with historic image

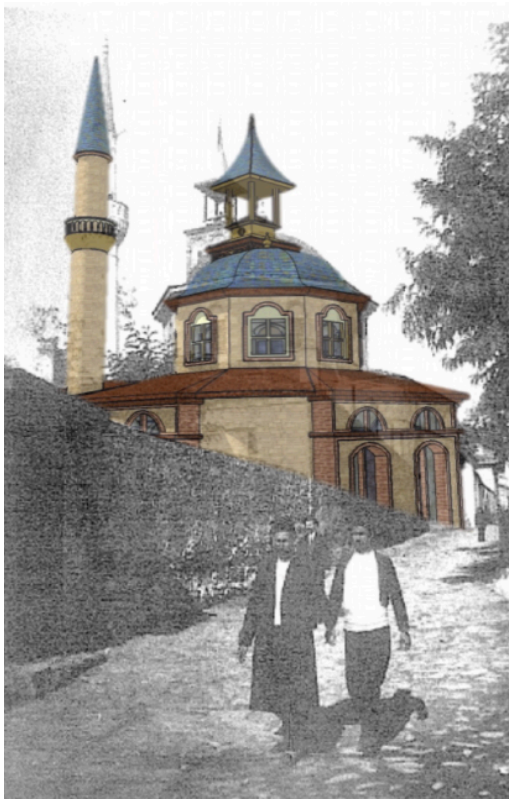


Figure 6. 2 Superimposition digital model with historic image of Saatli Cami – Thessaloniki

Observing participants and assessing their attitude as they view the digital media was one of the main data collection methods employed during the focus group discussions. The digital material that was shared with the participants during the focus group exercises included a range of formats including 3D digital renderings of the selected lost architecture examples, GIS maps of the two cities depicting various data visualisation, superimposition of the digital models on present day satellite maps, digital representations of the lost heritage buildings superimposed on current context and street views and Virtual Reality (VR) models that were visualised by using visual and audio VR devices. The visual material was shared following the focus group discussions. The sharing of the fieldwork material developed from more simple forms of digital reconstructions to more advanced VR experiences through the course of the focus group meeting. Participants were also made aware of the development stages of the digital models by sharing with them the reference photos of the virtual reconstructions to make them aware of the setting and certain examples of lost heritage buildings from Izmir and Thessaloniki.

6.3.1. Digital Representations

The technological developments, in addition to the dynamic information sharing possibilities in today's world, allow various ways to construct knowledge about historical buildings (Quattrini et al., 2016). This knowledge enable the understanding of the historical building and the societies that built them (Glancey, 2008). A better understanding of these past times also has an impact on the perception of the past in terms of understanding the different cultures. This research focused on the reactions of users towards the lost architectural heritage examples from Izmir and Thessaloniki as they experienced the virtual reconstructions. Digital representations of these historical buildings provide a useful starting point to observe the participants while they are interacting with the virtual reconstructions in various formats.

The process of creating the digital models by implementing Image Based Modelling using old photos has been described in previous chapters. After completing adjustments, taking into consideration the role of depicting the essence of the finishes, materials, colours, street patterns etc. the digital models were improved in order to achieve a more realistic and dynamic depiction of the lost architectural heritage. After evaluating different software

options and evaluating various alternatives, renderings were generated by using Twin Motion on the digital architectural models generated with the help of Sketch Up. The virtual reconstructions allowed utilisation of these visuals in various platforms for different interpretations of lost heritage examples.



Figure 6. 3 Virtual Reconstruction of the seashore - Thessaloniki

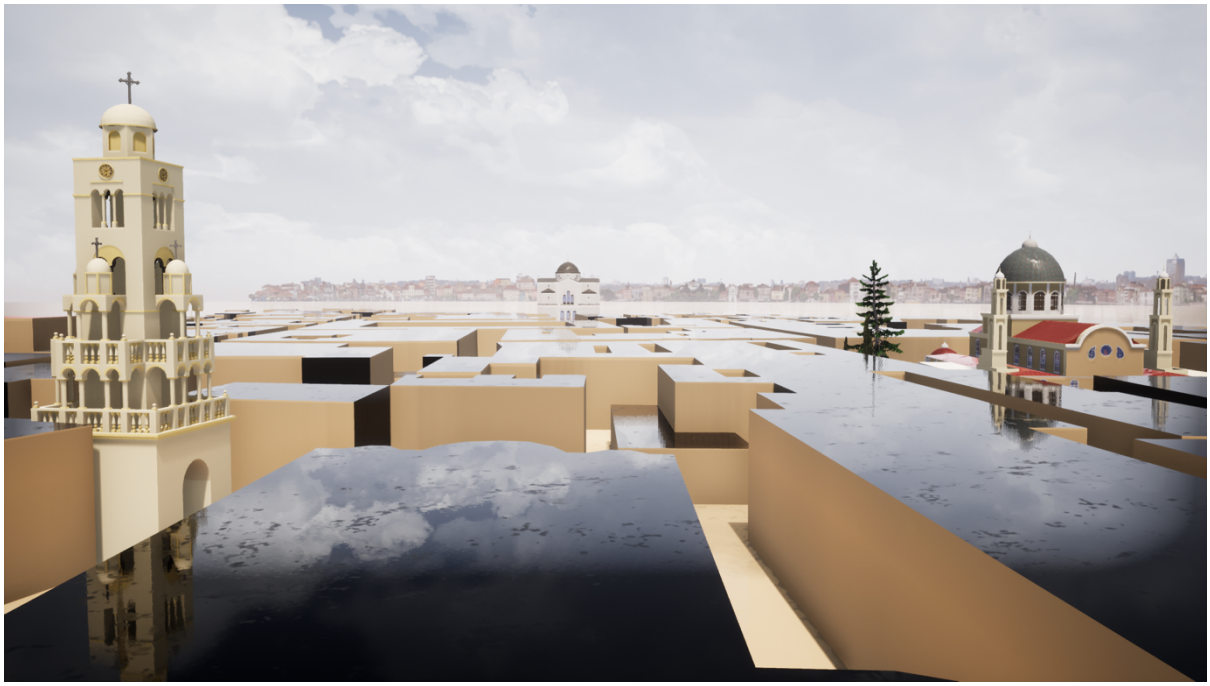


Figure 6. 4 Virtual Reconstruction of Izmir

Several digital technology solutions were explored while investigating the ways to reintroduce the lost architectural heritage examples. As key data resources, photographic and cartographic material have been identified as main source of information in order to create the models and maps of the lost historic buildings in digital environment for selected buildings in Izmir and Thessaloniki.

The main objective with these heritage visualisations was to generate a realistic and life-like experience for the participants and allow them to experience the disappeared places where their ancestors lived. Additionally, the participants also had a chance to engage with the maps and other visuals of their current city. This allowed them a more comprehensive understanding about the past lives of their ancestors and of the place that they currently lived in. As part of the fieldwork material, superimposition of digital models with current photography was achieved by generating digital representations of lost architectural heritage examples from Izmir and Thessaloniki. Since the geographical locations of selected lost architectural examples were identified by using GIS maps, it was also possible to visualise the lost historic buildings in their current context of the cities of Izmir and Thessaloniki. This was achieved by superimposing the various Google street view images of both cities with visuals of digital models by using photoshop. This allowed participants to be able to observe the lost heritage buildings within the setting that they are familiar with. Different than the maps this exercise also provided a better understanding of the current context of these lost architectural examples from the two cities.

In addition to superimposing the digital models on their current context it was also possible to superimpose the digital models on historic photos. Since multiple historic photos were integrated in order to reconstruct some lost architectural heritage examples, it was not possible to view the entire building from some angles of historic photos, this allowed the viewers to visualise these historic buildings in a more comprehensive way. Furthermore, maps of Izmir and Thessaloniki provided another valuable discussion point while discussing the lost architectural and urban examples from Izmir and Thessaloniki. For instance, some well-known street and avenues, public squares, landmark buildings locations, current urban characteristics of the cities compared to how it was before enabled valuable input to the discussions.



Figure 6. 5 Panoramic view of Yilanli Mermer – Thessaloniki

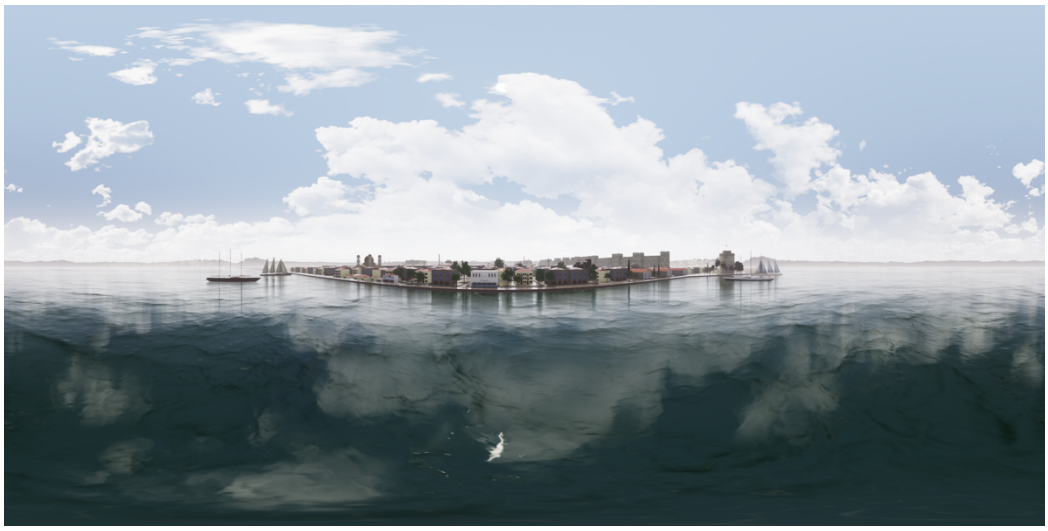


Figure 6. 6 Panoramic view of Seashore – Thessaloniki

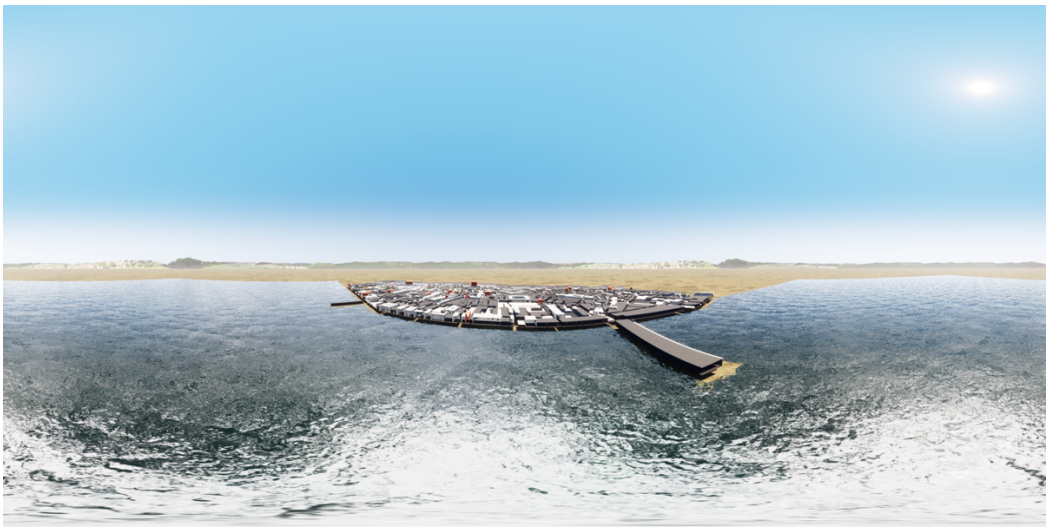


Figure 6. 7 Panoramic view of Seashore – Izmir

6.3.2. Engagement with Historical Maps

The historic 1905 Charles E. Goad insurance map of Izmir and 1872 Wernieski map of Thessaloniki were the major data source for GIS maps that have been created for this research. This exercise allowed the integration of various digital maps that have been generated in GIS environment and shared during the focus group discussions with the participants.

GIS maps provided discussion points about the current city of the participants as well as the city of their ancestors. The different street names, names of public open areas, the neighbourhood of the society that their ancestors belong to were the main discussion points concerning the maps of the two cities. Superimposition of GIS maps by using georeferencing option allowed the maps to be geographically referenced with the current maps and satellite images of both cities. Accordingly, superimposition of GIS maps with these up to date satellite images of the cities allowed the viewers to locate these buildings in the city that they are currently living in.

Major interest by the participants have been formed for the current locations of the selected lost historic buildings from Izmir and Thessaloniki. The participants could link their knowledge about the current urban characteristics of the city and identify the original locations of these lost architecture examples in the city that they live in or visited recently. It could therefore be concluded that the superimposed models on current city maps provided an easy to navigate base map where the viewers are more familiar with based on their personal experiences in these cities.

6.3.3. Participant Observation During Virtual Reality Experiences

As more advanced graphic representations in 3D modelling were developed, advanced 3D interactions became possible to integrate with heritage projects (Pietroni & Ferdani, 2021). Virtual Reality (VR) is a rapidly developing platform in the digital environment that aims to integrate computer graphics where users can be a part of a computer generated reality, additionally this provides more direct interaction between users and the environment created by using different digital technologies (Quattrini et al., 2016).

With the development of devices to be integrated in interaction technologies, VR gives the users the feeling of being a part of the digitally generated virtual environment, and enables users to interact in the virtual environment through 3D interaction input devices and technologies.



Figure 6. 8 Testing VR experiences at January 2020 Izmir Fieldwork



Figure 6. 9 Testing VR experiences at January 2020 Izmir Fieldwork



Figure 6. 10 Testing VR experiences at March 2020 Thessaloniki Fieldwork



Figure 6. 11 Testing VR experiences at March 2020 Thessaloniki Fieldwork

The innovative work described in this chapter also includes the use of Virtual Reality as part of focus group studies. The generated 3D digital models of lost architectural heritage examples from Izmir and Thessaloniki were rendered in Twin Motion for more realistic appearance and as an outcome of these renderings panoramic images were created in order to enable the visualisations to be viewed using VR glasses. The experience was further enhanced through the use of sounds incorporated into the VR experience that the focus group participants engaged with.

The VR experience was conducted individually for each participant by using the researcher's mobile device and VR tool with audio, which allowed the participants to experience the digital models from Izmir and Thessaloniki. Each participant observed the reactions of the previous participants which gave them an understanding of how to interact with the device.

6.4. Perceptions of the Past

Historical images and other type of representations of buildings and cities improve the understanding of the past lives and the places where these lives took place. In the case of population exchange descendants, the past lives of their ancestors are mostly known from the stories that they have listened to from their childhood. The focus group discussions and observation of participants during these interviews provided information on how the participants of this research visualise their ancestors' past based on the descriptions that they have heard within their family. Although their knowledge is referenced with the narratives from their parents or grandparents, it can also be associated through their participation in cultural societies or through their research on the internet and social media.

Two main themes emerged based on the analysis of the interview and focus group data, in terms of the perception of the population exchange descendants towards the lives of their ancestors. Firstly, positive memories emerged through the discussions and interactions of the digital materials about their ancestor's place of origin. Their remembrance prior to the population exchange mostly depicted an ideal world about which mainly positive stories have been shared. These stories were also supported by the discussions between the participants during the focus group exercises. Secondly, the discussions related to the population exchange and the newly settled area, where the participants' focus were more about the

struggles and troubles that their ancestors had experienced during the journey or after they settled to a new place. Similarly, in both groups the participants' interest towards the digital material that depicted their ancestors place of origin garnered more attention than the virtual reconstructions that displayed the views of their current city of residence.

From this analysis it can be concluded that the participants' interest towards the digital reconstructions of their own city was of less interest than the digital reconstructions of their ancestor's place of origin. The digital material having very specific familial connection was seen as more relevant and meaningful to the participants. It also indicates a strong sense of attachment to an ancestral place of origin amongst the participants.

6.4.1. Pleasant Remembrance of the Past

A major source of information that the participants mentioned were memories and stories that they had listened to from their parents and their grandparents. These memories and stories were also accompanied by personal anecdotes which brought back memories from their past during the focus group discussions. The participants were able to visualise their stories by referencing the images that they were shown and relate the recent past of their ancestors' city with their own personal history.

Place names in terms of towns, villages were very well known to the participants. In some cases, they were able to describe the general characteristics of their ancestor's house depicting the surrounding landscape or nearby major landmarks around their former house. Many participants could participate in the discussions by describing the house their ancestors left behind. Their depiction included the connections between their ancestor's profession and their place of residence. Additionally, while they were experiencing the VR and other digital materials they highlighted the similarities between the image in their head about their ancestors' place of origin and the places experienced during the VR experiences.

The interaction amongst the different cultures before the population exchange was also another topic of discussion that was also related as a favourable aspect of the ancestral homeland. Some of the participant mentioned the lives of their ancestors before the population exchange as being away from the troubles between different communities. This

could be related to the fact that majority of Izmir participants' ancestors were from rural locations where the extent of cultural interaction was likely to be less.

6.4.2. Uncovering Difficult Memories

In addition to the cheerful stories that resurfaced during the discussions, some memories that the participants shared during the focus group discussions were related to the tragedies that their ancestors had gone through. One participant mentioned that the difficulty of talking with their parents or grandparents about the actual events that happened during and after the population exchange. They mentioned it was seen as taboo to talk about the events for years. Even though they have successfully resettled to a new place, they mentioned that the trauma that they have gone through over the years was unsettling.

Thessaloniki participants highlighted the difficulties that their ancestors had to go through during the war times. Since the population exchange was a couple of years later than some of the participants' ancestor's deportation from their towns or villages, they described the events during the times of the conflict as being catastrophic.

Izmir participants also mentioned the difficulties of the war times and the population exchange. Their focus was more on describing the difficulties that their ancestors had faced while they were trying to settle into their new places. The different climate, difficulty adopting the new settlement in terms of farming and animal breeding was some of the difficulties that were mentioned.

Another topic of interest was about their interest of visiting the places that their ancestors came from. Since some of the population exchange descendants had already visited their ancestors' hometown, this also gave an opportunity to talk about the experiences that they had. The participants were asked if they had visited their ancestors' city, town or village. They were also asked what their expectations towards these places, if they hadn't visited the city/town or village yet. Participants mentioned the importance of visiting the place as part of their personal past and curiosity towards the stories that they had listened to from their grandparents while growing up. They have also mentioned the importance of finding the house or the location of the house as part of such a visit.

Several participants described their visit to their ancestor's village or town as sentimental. They mentioned that they had become very emotional the moment that they first saw the tree or the well that they had heard about from the stories of their grandparents. They also highlighted the welcoming interactions that they had with the new owners of the houses or government officials that they have met during their visits. Some participants mentioned the ease of communicating with the people that they met, thanks to social media and the internet. One Thessaloniki participant mentioned that they had become very good friends with the people that are living in their ancestor's town that they are attending weddings in each other's families.

Another discussion point about the visits was related to the graveyards that belong to the former communities of Izmir and Thessaloniki. One Izmir participant mentioned that even though they couldn't find the grave of their ancestor during their visit to their village, they have collected earth from the graveyard nearby a church. This enables the understanding of the importance of religious buildings while discussing the emotional events during their visits.

One participant from Izmir mentioned the importance of knowing more about the past by reading through literature depicting the difficulties of the war times. Especially the literature about the Balkan Wars, forced deportations demonstrated some interests from the participants. They mentioned that it is important to learn from other resources as well not necessarily only from the stories from their ancestors because of the similarities that many people faced during the war times but maybe did not want to talk about.

The digital materials and the participants interaction with them generated a greater interest towards the possibility of a visit to their ancestor's place of origin. The participants mentioned that this new knowledge about their ancestor's city had intensified their desire to visit. In particular, the VR experiences gave them a better perspective of their ancestor's city and generated a positive interest.

6.5. Interactions with Digital Fieldwork Material

The observation of participants following the focus group discussions with the digital technologies provided valuable data for this research. Firstly, the participants interaction was with the shared of historic photos and maps. Following that the GIS maps that were built

based on the historical resources was shared with them including several areas of extracted information from these maps, such as building types, change status, building height etc. This provided an understanding of Izmir and Thessaloniki before they had gone through the urban transformation that the participants were more familiar with. The 3D virtual reconstructions and renderings were also shared referencing the historic photos that they were built from. This provided a better understanding of the buildings and neighbourhoods that were lost. Finally, the VR experiences enabled a more comprehensive understanding of these lost buildings as the participants interacting with the virtual environments through mobile devices.

During the interactions with the maps, urban characteristics of the cities were discussed. With the Charles E. Goad Insurance map of Izmir, as a base it was also possible to store and visualise tangible elements of the city of Izmir in 1905 as well as the intangible elements. Participants particularly showed an interest in the professions, activities that took place in the city of Izmir as part of the data extracted from the historic map. They also showed an interest in different building types such as commercial 'Verhane' buildings as well as health buildings that are located in the city prior to the population exchange. With Thessaloniki maps, the major discussion was about the not so well known Jewish communities and their former neighbourhoods in the city.

Another key point that the participants mentioned while interacting with the maps were related to the major landmarks of both cities. Major interest points in Izmir was related to the non-existing streets and squares as well as well-known landmarks that they had seen the photos of. Locating these lost heritage buildings in today's city that they know, generated an interest amongst the participants. In particular, Mustafa Kemal Ataturk's family house, Saatli Cami, religious buildings were discussed further in Thessaloniki maps and Fasulye meydani, Frank Street, Sarikisla and religious buildings were investigated further in Izmir maps.

The devastating fires and the places that were affected by the fires in Izmir and Thessaloniki was another point of interest while interacting with the maps. Participants tried to associate their current knowledge with the knowledge that was shared with them through the maps. In the case of Izmir for instance, the participants were curious about the buildings that they remember from their childhood, that were lost due to more recent urban developments in

the city. This was mentioned for their current city of residence and they recognised the importance of conserving historic buildings as part of the city's urban memory.

Participants also mentioned the importance of seeing the lost buildings and their representation with colour and texture as well as more details. They mentioned that through social media platforms they were able to view more historic photos of their ancestors' cities without knowing a lot about these buildings. They also highlighted the importance of knowing more accurate and detailed information about these lost architecture, neighbourhoods and the cities.

The VR experience also brought up a discussion related to the visits that some participants had had a chance to make previously to their ancestors' place of departure. They mentioned the visit as emotional but also as important for their personal past as narrated by their grandparents. They recognised that changes had happened in the cities, towns or villages after the population exchange, which resulted in a lot of abandoned settlements and buildings which do not receive much attention by the current residents of these places. They have mentioned the impact of using VR devices as something very close to being there and experiencing. They highlighted their interest and willingness to visit their ancestors' city, town or village is exceeded after experiencing the VR and this made them more curious about the places that they possibly can visit in the future.

Participants also highlighted the importance of the possibility of viewing the cities of their ancestors as they were in their shoes. This brought back the emotional memories of their previous visits to their ancestor's place of birth, as some of the participants have already visited the areas that their ancestors came from.

One participant with extensive knowledge on the lost buildings of their ancestors' city highlighted the memories that the visuals brought up while experiencing the VR. They mentioned the importance of these devices as means of developing interest amongst the younger generation that are not as much interested as they are, towards their ancestors' life and the city. They pointed out the relevance of digital tools and devices to create a real-like environment which can teach the young generations about their own past. The audio option

impressed the participants which they mentioned it gave them a better feeling of being in the place in addition to the visual interaction.

In addition to the city that their ancestors came from the participants also were given a chance to experience their current city of residence. Although their interest was significantly concentrated towards the city that their ancestors came from, some participants mentioned the similarities between the two cities. One participant mentioned the term 'Gavur Izmir' (Infidel Izmir) referring to the significant non-Muslim character of the city before the loss of its diverse architectural examples. Another participant expressed their surprise towards the number of minarets seen in the city of Thessaloniki. The images from seashore of Izmir reminded the participants the deportation of their ancestors from the port. On the other hand, visuals of Saatli Cami reminded one participant of the mosque that their ancestors used to pray in for the Friday prayers as one of the sacred places that used to take place in Thessaloniki and the fact that they do not exist anymore brought emotional memories. There was also a notably higher level of interest from the participants towards the public and shared spaces and landmark buildings from their ancestor's place of origin compared to their individual houses or residential uses. Consequently, the decision of selecting religious buildings and the seashore of both Izmir and Thessaloniki as part of one of the three major visualisation locations was validated by the interest from the participants and the places they held connections to.

6.6. Conclusion

In conclusion, this chapter demonstrated various alternative ways of utilising digital technologies in visualising lost architectural heritage examples from Izmir and Thessaloniki. The possibilities that digital technologies enable users to experience an environment that does not exist are manifested in outputs such as 3D digital models, VR devices, and GIS-based maps. As stated above, the use of VR enables the creation of virtual environments where the population exchange descendants were able to connect to descriptions they had listened to from their ancestors or help them contextualize various stories that have been passed down. This also allows the users to be able to interact with the digitally generated spaces in a successful way and enables users to access computer-generated digital content.

Additionally, digital maps that have been generated by using a GIS environment allowed users to locate well-known buildings of the past from their cities in today's context. This also provided a better understanding of the cities of Izmir and Thessaloniki and their historical changes over the course of 100 years by the population exchange descendants. Furthermore, some participants expressed their astonishment at the similarity of their ancestor's city to their current city or other traditional areas that they have visited previously. They highlighted similar architectural settings that reminded them of a sense of belonging.

The analysis of the responses of the interviews with population exchange descendants enabled the understanding of the link between place identity and heritage ownership. It was the aim of this chapter to establish the background of the fourth objective of this thesis which is to assess the use of virtual reconstructions and user experiences with each city's heritage professionals and population exchange descendants and evaluate the use of digital technologies and its effects on place-identity relationships and their link to memory and heritage ownership. Therefore, the review achieved the understanding of the influence of the memory and remembrance in heritage ownership and also the role of emerging digital technologies in place-identity relations.

It is evident from the responses that the population exchange descendants are aware of the past events that have shaped the two nations during the last 100 years. This knowledge could be associated with the stories passed down from generation to generation with some participants. However, it is not clearly determined whether the majority of the responses are associated with their recent knowledge in line with their interest in their ancestors' lives. Nevertheless, their knowledge also generates an interest towards the lost heritage buildings and their ancestor's place of origin.

It is significant that the perception of the past and their ancestors' lives prior to the population exchange has been identified in general with a positive outlook. The answers also indicate a clear longing amongst the participants for the past places in terms of villages, neighbourhoods or buildings, even though their only association with these places is through the narratives from their parents or grandparents or through their knowledge from the cultural societies. An important and positive attitude was also captured during the analysis of these interviews that there is an interest in intercultural dialogues and understandings between different

communities. Similarities in their life stories and their struggles and troubles also indicate an empathy between different societies during their visits to their ancestor's places. The following chapter discusses in more detail the implications of the results of the research objectives.

7. EVALUATION AND DISCUSSION OF THE FINDINGS

7.1. Introduction

This chapter discusses the findings of this research and evaluates these findings in relation to the research objectives and overall aim of the thesis. The idea of visualising a lost architectural heritage and integrating digital technologies and tools to experience these non-existing historic buildings establishes a rich research field that not only considers the different software that could be adopted during the creation and visualisation process of these digital models but also questions the ethical implications of such recreations. With the developing technologies and tools, the virtual setting brings fore questions on whether these digital experiences could alter the relation between the viewer and the heritage building, and eventually whether they might have an impact on the perception of these no longer existing historic buildings. With the condition that there is a prior association between the viewer and the visualised lost architectural heritage, the impact introduces even more valuable research findings in terms of people's association with historic buildings and their changing perceptions. The conclusions are presented in relation to each objective, and the limitations of the research are discussed. Therefore, this chapter is composed of two main sections. In the first section, the research findings linked to each of the research objectives are discussed. In the following section, research outcomes are discussed thematically, referencing the results of the research. Additionally, the contribution to knowledge is discussed in the last section of this chapter.

7.2. Discussions of the Findings

This research aims to investigate and evaluate the role of visualisation of lost heritage in perceptions of identity linked to a place of residence and a place of origin. With this framework, a body of lost heritage was visualised in order to assess the perceptions of a group of participants, towards the heritage of their ancestor's place of origin and also towards their current city's lost heritage. Thus, the research provided a practical use of digital technologies to visualise the lost architectural heritage examples from Izmir and Thessaloniki, which

generated a suitable testing environment for the visualisations of lost architectural heritage. The virtual models allowed the possibility of integration of mobile visualisation devices such as Virtual Reality (VR) Glasses, tablet computers and audio tools. An innovative mobile visualisation test using VR and AR and integrating Image Based Modelling (IBM) and Geographical Information Systems (GIS) as part of the primary visualisation tool provided the use of historical images and cartographic resources as the main source of historical data. The approach taken is similar to the examined examples of digitisation of lost heritage, where various digital technologies are utilised for different lost architectural examples, as reported by Agullo et al (2013), DiMascio et al (2016), Canciani et al (2013), Di Li (2016), Godard(2018), Jensen (2018), Legner (2018), Bevilacqua et al (2019), Aydin (2012) Wahbeh and Nebiker (2017).

In order to assess these tools and their impact on the perception of heritage and the link and relationship between heritage and identity, the tools were tested amongst the participants of this research, who are population exchange descendants and conservation specialists from Izmir and Thessaloniki. The key findings of the research are discussed in the following sections in relation to the original objectives of this research.

7.2.1. Identity and Heritage Relationships and Links to Memory

The first objective of this research set out to establish a framework to examine the relationship between memory, place, identity and heritage. It was essential to illustrate a better understanding of heritage and identity relations and its link to the individual and collective memory of the people. The links between people's inherited identity and memory and their attachment to a place of origin and how these links are evaluated when discussing heritage ownership were examined in Chapter 2.

'Diversity' in value identification allows the definition of heritage to become multi-faceted in relation to heritage examples' past and current positions (de la Torre et al. 2005). It is important to describe all the relevant events and matters with reference to the heritage's history. Therefore multi-scoped historical research is beneficial to understand opposing arguments and their background, even if they are critical heritage studies.

Collective memory and the stories told from generation to generation affect one's identity (Gillis, 1994). Memories, whether collective or individual, plays a major role while defining an attachment to a place or architectural heritage. Furthermore, if these memories are linked to traumatic events that significantly alter people's lives majorly, the impact of the attachment could intensify (Morel, 2013).

What people remember in a collective manner or individually also plays a significant role in claiming a place or a territory (Legner, 2018). In diverse settlements, because of the fact that there are various associations between a particular society and architectural or urban heritage discussions around the ownership could result in political debates (Bevan, 2016). These critical arguments provide a suitable setting for the contestation of architectural heritage or a place (Silverman, 2011). Particularly, situations where heritage is contested can lead to neglect and potentially to the loss of certain types of buildings (Giblin, 2014).

Both the cities of Izmir and Thessaloniki contained buildings and monuments that belonged to or were part of the cultural heritage of the communities that had relocated. While much of this heritage would have been contested in the period following the population exchanges, the primary reason for the loss of architectural heritage in Izmir and Thessaloniki is the fires in both cities during the early decades of the 20th century following WW1. Urban transformation of both cities accelerated after the fires. It provided a suitable setting to focus on creating a new national architectural identity, and consequently, architectural heritage continued to be lost as a result of urban development. There are studies in both cities regarding the heritage of the lost communities in these cities, however, the majority of these studies focus on the surviving historic buildings rather than lost architectural heritage examples (Naar, 2016; Berkant, 2007). This research fills a gap in research by enriching the understanding of both cities' past through the study of some of their lost architectural heritage.

Similar to what has been mentioned in the literature (Assmann, 2008; Christian, 2016; Halbwachs & Coser, 1992; Kansteiner, 2002), whether collective or personal, memory of a place is essential for one's expression of identity where the link between memory and identity is described as crucial. In forced migration scenarios, like the population exchange of 1923 between Turkey and Greece, people's lives are affected irreversibly. The impact of these

forced migrations continues to be captured through the narrated memories of first-generation migrants. In the case of the link between heritage and identity, it is evident that descendants of the population exchange migrant experiences and demonstrate multiple attachments. Individuals often identify with more than one social group and have multiple attachments to places, including a place of origin and a place of residence (Marie Marmion, 2012). Many of the participants of this study also demonstrated patterns of multiple attachments.

Another finding from this research indicates that memory of a place could be found through narrated stories between the generations. The participant's responses to the stories related to their ancestor's place of origin describe a collective memory that shapes their current personal memories. However, it should be mentioned that some of these memories could be associated with participants' visits to the ancestral place or knowledge through their own research that also proliferated over the last decades with the help of the popularization of social media and internet research.

7.2.2. The Role of Digital Technologies in Lost Heritage Visualisation

The second objective of this research was to establish the potential of digital tools in effectively visualising examples of lost architectural heritage from Izmir and Thessaloniki based on the limitations of the available data. The literature review enabled the identification of the lost heritage examples from Izmir and Thessaloniki and their main characteristics and the discussions around them as the main subject of this research. Literature also showed a developing trend for diverse visualisation tools and software options available for heritage studies (Aydin, 2012; di Mascio et al., 2016; Glancey, 2008; Guidi & Russo, 2012). 3D visualisation methodologies and their analytical discussions, as well as their categorisation, have been discussed by di Mascio et al. (2016) as virtual reconstructions through architectural drawings and historical maps by Guidi & Rosso (2012) and Denker (2017). Particularly the use of mobile visualisation devices such as VR technologies by Ramsey (2017) and AR technologies similarly in the study of Quattrini et al (2016). Even though the majority of the reviewed literature examples were for the visualisation of heritage buildings where substantial documentation existed, either through existing building remains or prior architectural drawings, there were examples of visualisation of heritage buildings with limited historic

resources. Regardless, this also demonstrated the necessity for the research of lost architectural heritage with limited archival references.

One of the key findings of this research regarding the role of digital technologies in the visualisation of lost heritage in the urban context with limited data is related to the data that can be extracted from cartographic documents and historical images. Even with a single image from a historical document, it is possible to generate the virtual reconstruction of the building to a level that can be visualised through digital mobile tools such as VR goggles or tablet computers. Additionally, traveller's notes and archival documents such as survey drawings or written or visual records have been identified as valuable sources of data for lost architectural heritage. For this research, the main characteristics of the lost architectural heritage examples from both cities were obtained and collated through two primary resources; data gathered through cartographic resources and data gathered through historical images. Firstly, locations of lost historic buildings and their exact positions could be identified from cartographic resources. Geolocation in a GIS environment allows the exact location of this lost architectural heritage, even if the entire urban characteristics have been lost over the decades. Additionally, data could be collected about the buildings' height, functionality, construction type, architectural features etc. In some cases, historical maps are also a valuable data source in terms of the functionality of the lost architectural heritage with additional details. Secondly, data extracted from historic images are mainly three-dimensional. Buildings' construction type, construction period, architectural style, building details, materials and finishes, functionality etc. could be understood from these historical images. In relation to this, changes, and alterations in the buildings' past could be documented through these images dating from different periods of time. This supports an understanding of the transformation of these buildings and, the categorisation of these changes could be documented and visualised. On the other hand, historic images tend primarily to be of monumental buildings; hence data related to buildings where everyday life takes place can be limited. Furthermore, historic images could be beneficial to understand the intangible values of heritage examples. This is an area of research that could be investigated further in future studies.

As a critical conclusion from the literature regarding the suitable software alternatives for the documentation of lost architectural heritage buildings, it was decided to test two different types of software as a potentially useful tools. GIS maps were created where the integration of cartographic historical resources with geo-spatial reference points was possible. GIS also allowed the integration of historic cartographic resources and provided a base map for the integration of different historic resources and materials. The discovery of new historic documents or other types of archival material could enhance this in the future. In parallel to this, Trimble Sketchup models were constructed through IBM with historical images to visualise the lost heritage in more detail and from an architectural viewpoint. IBM allowed the visualisation of lost architectural examples with limited historic aldocuments, such as a single historic image. The digital reconstructions also visualised the neighbourhoods that these buildings used to stand in.

7.2.3. Virtual Reconstruction of Lost Heritage

The third objective of this research was to digitally reconstruct virtual models of selected buildings and urban neighbourhoods dating from the late 19th and early 20th century in Izmir and Thessaloniki using digital technologies. This also allowed a better understanding of the historical values of both cities and their past communities and the lives of their previous residents.

Both Izmir's and Thessaloniki's urban transformations over the last century resulted in an urban fabric that does not include many architectural heritage examples from their recent past. This research is crucial from the perspective of documenting lost architectural and urban characteristics of both cities that belong to the communities that no longer exist or occupy them. Without documentation in terms of digital maps or virtual reconstructions, the lost examples from the disappeared societies could be forgotten altogether since they are not prioritized in conservation efforts. It is necessary to collect information about these lost heritage examples and generate common knowledge in the public domain to aid the cross cultural understanding between the populations of the different communities.

The geospatial software was selected as Geographical Information Systems (GIS), and historic cartographic resources from both cities were utilised in the software in order to document

and visualise Izmir and Thessaloniki's urban settings prior to the fires of 1917 and 1921. The geospatial tools used in this research have helped combine current datasets with previous data sources from historic maps which allowed the identification of the locations of several lost historic buildings in Izmir and Thessaloniki. It also showed that creating the results of analysis through various thematic maps provided a rich dataset that facilitated the extraction of information in relation to the tangible and intangible heritage values of both cities in different scales. For instance, the type of buildings were defined in terms of their construction techniques which enabled the understanding of different construction materials and building types. Additionally, the information management systems that were utilised allowed for cross-referencing across the investigated topics. From this perspective, it is possible to generate specific queries relating to different attributes that are stored in the GIS environment. This also allowed the generation of integrated analysis of these non-geospatial datasets and their comparison.

The documentation and visualisation process of historic cartographic resources showcased valuable information regarding both cities' less-known past as well as generated a platform to integrate different datasets that could be a possible future research area. For instance, this database could be integrated with future developments in archival research and additional documents such as newly found historic photos, traveller's notes or personal stories from the population exchange descendants' families.

Historic images from Izmir and Thessaloniki were utilised in Trimble Sketchup 2018 in order to generate 3D models of the lost buildings in a virtual environment. Image Based Modelling (IBM) allowed showcasing of various datasets and integrating multiple historic images in the visualisation process. This allowed visualising various added values of historic buildings in terms of their usage, ornamentations, material, finishes, colour and other architectural elements. The issues associated with identifying various architectural characteristics of lost historic building examples are revealed by these computer-generated architectural models. Advanced digital renderings have been produced in order to visualise the examples in a more realistic way. Rendered visuals allowed real-like depictions of these buildings, which enhanced the virtual experiences that were delivered. Additionally, the integration of the

sound allowed the users to experience the lost buildings and neighbourhoods close to what they were before the destructions.

In this sense, the research successfully identified and documented lost architectural heritage examples from Izmir and Thessaloniki and utilised both cartographic resources and historic images into selected software in order to begin testing computer generated models and maps with the participants of this research.

In order to fulfil the objective that aims to assess the contribution of recapturing lost architectural heritage for cross-cultural understanding, place - identity and heritage and memory relationship, the final version of the digital media was shared with the participants through the focus group studies. The research evaluated the digital tools tested as a valuable contribution, where the discussions highlighted the common points of reference regarding the role of lost architectural heritage as an essential asset for the future of both cities.

The urban characteristics of the cities of Izmir and Thessaloniki at the beginning of the 20th century and their urban transformation during the following decades showcase an interesting research area where similarities and common discussion points are identified and discussed in the previous chapters. Information management systems are a beneficial tool to collect, store and analyse these gathered data and visualise relevant forms of analytical outcomes such as thematic maps where data comparison and other relevant data analysis is possible. It also showed that visualising the results of analysis through thematic mapping provides correlation amongst the different datasets. The digital tools tested with this research also demonstrated advantageous data management where data with different sources of reference is stored. In the case of lost architectural heritage, this data source generates a suitable digital environment for future research.

The interaction of the participants with the generated digital material illustrated the importance of using digital technologies for the visualisation of lost architectural heritage. Since the visualisation was achieved by using historical documents as a reference point, it is also important to highlight the accuracy and correctness of these digital materials. In relation to this, the discussions around the ethical aspects of heritage visualisation are also evaluated as one of the objectives of this research.

The relevant discussions around the ethical principles identified as the primary source of information for the digital material and their interpretations and the future usage of the digital material as part of the data management system integration. The issues related to ethical aspects of heritage visualisation were presented in Chapter 6 and structured as the following categories;

- with reference to the resources as primary source of information,
- with reference to the interpretations,
- with reference to the future usage of digital material,
- with reference to the purpose of the visualisation

Accordingly, the research not only provided a valuable source of reference regarding the virtual reconstruction of the lost architectural heritage examples from Izmir and Thessaloniki but also identified the integrated relations between the ethical aspects of heritage visualisation and their future usage.

As stated in previous chapters, one of the objectives of this research is to research and document the lost architectural heritage of Izmir and Thessaloniki and to digitally reconstruct virtual models using selected digital technologies. While doing this, it is also important to investigate the link between the digitisation of lost architecture and the ethical aspects of this process.

7.2.4. The Link Between the Use of Digital Technologies and Heritage Perception

Once the digital models had been constructed, it was possible to test the virtual reconstructions of lost heritage examples with the participants. It is fundamental to understand the possible link and relationship between heritage and identity and the possible alteration of the perception of heritage with various visualisation techniques of current digital technologies as part of one of the objectives of this research.

In light of the contested nature of the heritage, two participant groups were identified. A group of conservation specialists from both cities working in universities or government offices as part of the conservation decision-making process were engaged in providing the approach towards future conservation decisions and the ongoing works. This allowed the

identification of the conservation process of the conservation specialists as primarily focusing on the era following the devastating fires that occurred soon after the population exchange. Furthermore, a highlight of ancient structures as part of the cities' lost heritage examples rather than the historic buildings and neighbourhoods that were lost closer to our time was identified. In Izmir's case, the perception of lost heritage was primarily linked to the ancient Roman and Greek structures of the ancient ruins of the city, and for Thessaloniki, the focus was on heritage from the Byzantine period. Concerning the social and cultural aspects of this research, one of the two main participant groups identified was the population exchange descendants of 1924 between Turkey and Greece living in Izmir and Thessaloniki. These two participant groups contributed to the research through semi-structured interviews and focus group meetings where the digital material was used in terms of maps and 3D digital models of lost architectural examples from both cities.

The study areas selected for Izmir and Thessaloniki also shared similarities that allowed comparison between the participant's experience with the digital material of this research. Both groups of participants recognised the urban fabric and its transformation. They demonstrated similar standpoints on how the cities could consider lost architectural heritage examples as part of their future urban and architectural conservation plans.

A number of improvements were adopted to the research material during the process in order to further investigate the link between heritage and identity relations and to investigate the possible altering impact of digital models through this interaction. Firstly, an integration of mobile visualisation devices such as VR and AR tools was established as part of the focus group exercises. Secondly, further advancement was investigated in terms of the possible inclusion of audio tools into the VR and AR experience. Thirdly, the visual data that was generated with the help of cartographic resources and historical images were combined. Collectively, these improvements enriched the user engagement with the research material. Consequently, these improvements were also considered in the ethical evaluation heritage visualisation with limited historical data.

In this research, comprehensive field work was undertaken in order to test the digital technologies with each city's current residents and descendants of former residents to assess the use of virtual reconstruction and its effects on the place and identity relationship.

Participants' responses to the semi-structured interviews and their interaction with the various material collected for the purpose of the study and digitally constructed models of lost architectural examples provided significant insight into the level of understanding of the participants' knowledge, interest as well as their altering perception of the sense of belonging. These aspects are summarised with respect to the original research objective as follows:

- Participants' interest, knowledge and remembering are particularly linked to the stories that they have listened from their first generation ancestors.
- With the help of cultural societies, social media channels and other means of resources, this interest is growing and information within these and other interest groups is improving.
- There is a greater level of interest to the history of the cities that their ancestors came from rather than the current city that they are living in, this is also evident in relation to the participants' extensive knowledge of their ancestors' cities rather than the city that they are currently living in.
- Majority of the participants are concerned with the limited amount of historic buildings in their cities and the city that their ancestors came from and this could be considered as an obstacle to their attachment to their cities and their sense of belonging.

All these critical points mentioned have an integrated relationship with the way that the participants see the past events and their ancestors' city of origin and their way of glorifying the past from their own perspective. It was evident that the majority of the participants were looking into past events through the traumatic experience that their ancestors had gone through. This evidently had an impact on their perception of the heritage buildings from their current city as well as the heritage buildings from the city that their ancestors came from.

Amongst the participants, there was a significant level of interest towards the information, historic images and documents about their ancestors' city of origin, which also helped generate interest in the digital material shared with the participants through the fieldwork. Consequently, the participants also showed demonstrable interest in VR and AR tools and other mobile visualisation devices. These responses were observed by the researcher,

including the participants' reactions to the various digital media and especially while they were experiencing the VR devices.

One particular aspect of the impact of the virtual reconstructions and interactions with the digital models was related to the participants' interest in visiting of their ancestor's place of origin. The experience allowed them to get more familiar with the city they had listened to from their ancestors. This provided a desire to visit the place and have an additional personal experience. Furthermore, the experiences and interactions also triggered some difficult memories in relation to the stories that they have listened to from their ancestors. For instance, the religious buildings reminded them the similar buildings that they had heard from their ancestors, and the port or sea view of the two cities generated an interest in their ancestor's journey towards their new settlements. Interest was also shown towards their current city in terms of their personal memories from the past and the city's prior rich and diverse communities. Especially they highlight the importance of a diverse community considered a loss in today's cities in terms of their tangible and intangible heritage loss. They highlighted the similarities between the two cities' past and identified the common vital aspects such as previously diverse communities and similar types of lifestyle. This shows the importance of virtual reconstructions in terms of their benefits of experiencing life as it was and giving an opportunity to participants to be in the shoes of their ancestors to reflect on urban pasts more broadly.

7.3. Discussion points arising from the research

Additional research outcomes from the discussions with the participants also emerged, even though these were not primarily anticipated with the design of the conceptual framework of this research. Mainly these points will be discussed in the following section grouping the notable outcomes, followed by the discussions around authenticity and accuracy concerning the ethical implications of lost heritage visualisation.

7.3.1. Additional points arising from the participant discussions

Although the population exchange descendants, as one of the two participant groups of this research, were not the first or the second generation descendants, the participants' responses mainly refer to their intimate conversations with the first-generation migrants. From this emerges the discussions around the differences between narrated memories and personal memories. For instance, how much of these responses refer to their narrated stories and how much of it refers to personal experience is a point that was not anticipated as part of the findings of this research. In some cases, this could be distinguished with the narrated stories between the generations, especially with the fourth-generation population exchange descendants, since they did not personally hear these stories from the first-generation population exchange descendants. The modes of memory are referred to as "history and memory" by Halbwachs (1992), referring to history as something abstract and memory as lived and meaningful.

Another notable research outcome was the emphasis by all participants on the importance of intangible heritage. Critically, this research focused only on a small body of research focusing on reconstructing the domestic architecture of the lost neighbourhoods. Compared to the large-scale projects focusing on monuments and larger urban patterns this research provides findings on smaller architectural examples linking it to intangible heritage. This included the population exchange descendants as well as the conservation decision-makers from both cities. The participants referred to the multicultural past as a lost value. They referred to the professions, language, cultural activities, and religious events as part of these intangible heritage practices that do not exist in their city besides the lost cultural heritage. Even though this could also be a part of the inclusion of the elements of nostalgia, the participants highlighted the multicultural setting of their city a century ago as a valuable attribute.

On the other hand, from the population exchange descendants' point of view, the research established that the interest towards lost heritage examples focuses on the lost heritage from the city that their ancestors came from rather than the city that they are currently living in. This demonstrates the identification of a link between these recently disappeared architectural examples and their own identity. The sense of ownership also has been

identified between the population exchange descendants and the heritage examples from their ancestor's cities. Their demonstrable enthusiasm and curiosity towards the lost heritage examples from their ancestor's cities also exhibit their perception of heritage ownership.

The experience of the virtual reconstructions in a digital environment also pointed out another notable research outcome concerning the participants; raised interest towards each other's heritage. This could be seen as a positive impact of virtual experience that could generate a more substantial intercultural dialogue that future studies might focus on. This outcome also points out the non-existent contestation arguments, which were anticipated at the beginning of the research. The virtual reconstructions did not generate contestation arguments or debates around disputed places; on the contrary, the participants saw the virtual experiences as an opportunity to improve intercultural dialogues.

7.4. Ethical Implications of Lost Heritage Visualisations

Chapters 5 and 6 investigated the heritage and identity relations from the perspectives of conservation specialists and population exchange descendants from the cities of Izmir and Thessaloniki. It has also brought light on the understanding of participants' definition of lost architectural heritage as well as their attitude towards the heritage of the 'other'. Additionally, the role of digital technologies in relation to the responses and the interactions of the participants with virtual reconstructions in various formats of Izmir and Thessaloniki were investigated. To assess the use of virtual reconstruction and its effects on the place and identity relationship was examined in relation to the ethical aspects of heritage visualisation of lost architectural heritage in post-conflict societies as part of the reinterpretation of lost buildings and settlements.

Digital recording of lost architectural heritage is one of the tools that can be utilised during the process of heritage visualisation. Various data are produced, gathered, analysed and interpreted during the recording phase, and it is critical to generate accurate documentation. Moreover, in the case of lost architectural heritage digitisation, the necessity of reaching reliable data and deriving dependable conclusions by means of ethical conduct is critically essential.

Regarding the ethical implications of heritage visualisation, the research findings also confirm the objectives and principles defined by London Charter (2009). The charter emphasises the importance of generating digital models when appropriate and by referencing relevant research sources. This is parallel to the findings of this research. Additionally, the charter highlights the importance of the accessibility of digital material for heritage visualisation. With this research, it is evident that future research topics and documentation purposes, accessibility of the developed digital materials by the public is also recognised.

It is also essential to mention the relevance of the procedure's challenges and the ethical considerations while generating these digital materials. Based on the evaluation of the outcome of this research following are the issues relevant to the ethical discussions that could have an impact on the ethical principles while digitising the lost architectural heritage examples.

First and foremost, the fact that the lost architectural examples that are the subject of this research do not exist. This, by itself, opens up the discussions related to the reliability of the generated digital models. Since there is no existing evidence that the accuracy of the generated digital models can be verified, it is important to identify the reference sources from which the models have been created.

Secondly, the resources, whether they are old cartographic resources or historical photos, they are limited in terms of the data that can be extracted from them. Black and white historic photos, images that do not provide holistic views of the historic structures or low-quality photographs could miss out on some important information about these historic buildings, and consequently, much is left to the interpretation of the visualiser.

Third, the relevant historical source of information could be misleading. For instance, the developments in the production of cartographic resources over the centuries allow us to illustrate digital maps with high accuracy. However, historic cartographic resources lack this level of accuracy, which could lead to misinterpretation of data in terms of place locations or surroundings.

As mentioned above, these three main factors demonstrate a need for an ethical framework while digitising lost architectural heritage. The discussion around accuracy, ethical implications of conservation projects and authenticity has also been a part of international charters and documents that guides conservation practice. For instance, the International Charter for the Conservation of Monuments and Sites (The Venice Charter, 1964) highlights the importance of respect for the original materials and documents under article nine. Similarly, The Australia ICOMOS Charter for Places of Cultural Significance (Burra Charter, 2013) refers to the importance of sufficient evidence of an earlier state of the fabric under Article 19, where different conservation processes were discussed. The importance of authenticity and its implications on cultural heritage has also been discussed as part of the Interpretation and Presentation of Cultural Heritage Sites (ICOMOS Ename Charter, 2008). Under principle four, the charter underlines the importance of authenticity while discussing the processes of interpretation and presentation of heritage sites.

In line with these discussions, in addition to the importance of ethical implications and accuracy of historical documents throughout the conventional conservation processes, new technologies like the use of VR and AR also generate concerns regarding the possible negative impacts of these technologies. Spiegel (2018) refers to VR technologies as a distinction between what is real and what is an illusion and recognises the importance of being cautious while using these technologies. Furthermore, if the cultural heritage is contested, the moral obligation of ethical implications of the virtual reconstructions and the use of these new technologies in heritage visualisations becomes vitally important.

As part of the discussions with this research, following four topics are categorised describing the structure of ethical principles for the digitisation of lost architectural heritage;

- with reference to the resources as primary source of information,
- with reference to the interpretations,
- with reference to the future usage of digital material,
- with reference to the purpose of the visualisation.

While dealing with the resources of lost architectural heritage, it is important to utilise relevant information from reliable resources. Since there might be limits to the data derived

from a historical document, such as a historical photograph or an old map, it is critically important to extract the most amount of accurate information. This information should be sufficient enough to generate a better understanding of the lost architectural heritage in a digital environment by using digital technologies. It should ideally be generated from more than one source material so it can be cross-referenced.

The objectivity of data is another critical aspect while digitising the lost architectural heritage. In some cases, the subject of lost architectural heritage could be contested, and the outcome as a digital model could be claimed or manipulated by different parties to justify a claim to a place, a type of heritage or social history. In this case, it is beneficial to reference an objective data source in order to support the outcome of such a digitisation exercise.

It is essential to mention the importance of the data collection and management process as part of better understanding the audience. Since the outcome as a digital model will directly be related to the relevant source of information used to generate the model, the understanding of the audience will be linked to the resources used in the project. The data also needs to be open to interpretation and it should be transparent, and relevant.

Not engaging in digital appropriation is another critical point while dealing with the resources of lost architectural heritage. Although, due to the limitations of the source of information possible interpretations could be achieved while digitising the lost architectural heritage, digital appropriation should be avoided as part of the ethical approach.

In order to protect accurate information, it is also important to highlight or record any interpretations. As stated above, some resources might be limited to specific types of information. As a result the digital model could be interpreted in terms of colour, finishes, details etc. The importance of giving access to the public about the interpretation activities is also advocated in the Ename Charter, principle 1.4 (ICOMOS Ename Charter, 2008). As a result, highlighting where information has been interpreted providing interpreted while generating the digital model would be necessary.

In the field of heritage recording, technological developments during recent years allowed more detailed and more accurate heritage visualisation. This also raises issues like methods

of storing this large amount of data, the possibility of using the data in the future with reference to possible further developments in digital technologies and the management of data by different professionals by using different software options.

It is an ethical liability to ensure the possibility of transforming the recorded information in different platforms that is available at the time of the research. The outcome during the digitisation of historic resources should be done so that data can be utilised in future projects and the data is suitable for long-term use in different formats. Another major point of interest that derive from these conclusion is how to incorporate these digital recordings as part of future projects. Given that the technology we have today might not be available in the future, it is important to seek the possibilities of transferability of digital documents between different software solutions.

Academics, architectural heritage professionals, government officials and non-profit organisations could be the relevant parties involved with lost architectural heritage visualisation as primary actors. It is important to mention ethical principles during the recording of lost architectural heritage, all these parties hold responsibilities and are beneficiaries.

It is relevant to provide information about the purpose and the background of the heritage recording professional of the research for the digitisation of lost architecture. Different professionals could be focusing on different aspects of heritage recording, so this will directly have an impact on the outcome of the digital model. The study's purpose will also require relevant focus on the project, which will also impact the outcome of the lost architectural heritage visualisation.

Digital twin, a term first introduced by Dr Michael Grieves in the early 2000s, is primarily used in the aerospace industry for optimizing the design in the digital environment (Grieves and Vickers, 2016). It consists of three parts; the physical object, its digital equivalent and the data connections between the two. It is primarily used to guide engineers, designers and production specialists on ways in which to improve the products that they are developing. It is a cybernetic system where the feedback gathered from the twins is used to contribute to the evolution of the systems.

The digital twin is dynamic and alive with its updates itself almost simultaneously and generates feedback with a cybernetic loop. Up until now, this technology has been applied to products and small-scale objects. However, with the help of technological developments and interests in data management for historic buildings, the scale has been growing, and now we see the applications in architecture and building information models. For and foremost, it is a very complex system which requires further research.

Such a digital twin model for a lost architectural heritage example could be a solution to minimize the ethical issues listed above in terms of having a continuation, generating relevant research information and building on the research that has been done previously, and it should be inclusive of all the subject matter from relevant specialists such as urban planners, archaeologists and historians that can contribute towards a better understanding of these lost architectural heritage examples.

It is also important to maintain accessibility to the public by using open-platform software as part of the relevant source of information. This way, the information could also be gathered from different platforms in relation to the feedback from the public that could provide further reference points.

With the help of this, it could be possible to simultaneously update the digital twin of lost architectural heritage example with the help of newly discovered historical resources that may not have been available at the time of the research. This way, the data management could be dynamic and open for future improvements.

7.5. Conclusion

This chapter aimed to discuss the findings of this research in relation to the research objectives and the overall aim of the thesis. The research findings show that the digital material created in the virtual environment and visualisations experienced with digital mobile tools are valuable in raising awareness about the lost architectural examples in previously diverse communities. The virtual experiences generated interest towards these lost heritage places in a positive way not only for the participants' ancestor's place of origin but also towards their current place of residence. The engagements with the virtual reconstructions

also demonstrated that this framework could be suitable to enhance cultural communications and generate a social dialogue between the communities of the two countries.

In addition to the findings that appeared from the research objectives, additional points were also captured as part of the evaluation of the findings. Ethical implications of the digital models, especially for the lost heritage examples with limited historical data, indicate some challenging settings. Virtual reconstructions of lost heritage and their accuracy and authenticity discussions in a virtual environment demonstrate the importance of the interpretations when it comes to the unknown parts of these lost buildings and places. At this point, digital twin could be a suitable research area to overcome the challenges related to the ethical implications of these virtual reconstructions. The following final chapter presents the conclusions of this study.

8. CONCLUSIONS AND RECOMMENDATIONS

8.1. Introduction

This chapter concludes the research, which has aimed to contribute to the existing knowledge of the digitisation of heritage and its impacts on heritage and identity relations through virtual models, digital maps and digital media of lost heritage examples from the cities of Izmir and Thessaloniki. This chapter summarises and concludes the findings from these studies in two main topics as a contribution to knowledge;

- Lost heritage and its links to identity and memory
- The role of digital technologies in heritage visualisation

Moreover, ethical discussions related to heritage visualisation and its impacts on understanding and experiencing heritage concluded with a set of guidelines derived from the findings of this research. Finally, future research opportunities discuss how digital technologies can be further utilised in digitising the lost heritage examples for other similar post-conflict societies as well as in ongoing conflict situations.

8.2. Contribution to Knowledge

It was important for this research to establish the potential of digital tools in effective ways of visualising the lost heritage examples from the cities of Izmir and Thessaloniki to reconstruct the selected buildings and urban neighbourhoods digitally. In addition, the research also aimed to assess the user experience of virtual reconstructions to evaluate the use of digital technologies and their effects on place-identity relationships and their link to memory and heritage ownership. Furthermore, the use of digital tools and technologies that could transform the perception of a place and its link to one's identity was evaluated. Accordingly, the critical contributions of this research are grouped into three categories; contribution to knowledge concerning the position of lost heritage examples in both cities as part of heritage and identity relations, the link between memory, identity and sense of belonging to a place and the contribution to knowledge with reference to the use of digital technologies and the impact of digital reconstructions in the perception of the heritage of the 'other'.

8.2.1. Lost Heritage and Identity

The previous chapters have outlined the perception of the heritage of the 'other' by the current and former residents of the two cities who are population exchange descendants and also the conservation decision-making professionals from both cities' government offices and universities. The research demonstrated a significant level of interest towards these lost heritage examples and the previously diverse communities of these cities by the majority of the participants in this research.

However, the term 'lost heritage' is considered differently by the descendant communities and conservation specialists who participated in the research. The research revealed that from conservation specialists point of view in both cities, there was a greater interest towards the lost heritage of earlier classical periods than in examples closer to our times. This demonstrates a more comprehensive way of looking at the urban characteristics of the two cities, as expected from the conservation experts.

One of the key contributions of this research in relation to the lost heritage is understanding the links between heritage and identity relations in previously diverse settlements. It has been argued that the population exchange descendants' interest towards their ancestors' cities is relevant to the stories they have listened to and their perception is linked to the traumatic or cheerful encounters that their ancestors experienced in their former place of residences. The virtual reality experiences meanwhile triggered a remembrance of these stories or experiences that the participants had listened to from their ancestors.

This research has demonstrated that historic events and the remembrance or understanding of these events are related to the historical position of the observer. Particularly while describing the reasons behind the loss of these architectural heritage examples, the participants' interpretation of the past events alters. This presents a need for discussion of the recent past events in the context of lost architectural and urban heritage by investigating differing, and in some cases opposing standpoints. Although the number of participants was small, it is essential to state the importance of looking into past events from different perspectives while studying these conflicting subjects.

8.2.2. Memory, Identity and Heritage Ownership

As a response to the objective of this research that examined the impact of virtual reconstructions and user experiences and their link to memory and heritage ownership, this study contributes to the knowledge and understanding of the attitude towards the heritage of the 'other' after the population exchange in the context of Izmir and Thessaloniki. This study attempted to fill the gaps in the knowledge about the understanding and definition of heritage and its ownership among the population exchange descendants as well as the conservation decision-makers. In relation to the findings of this research, it can be concluded that the virtual reconstructions and mobile devices that can be used to experience these virtual environments are valuable tools to raise awareness about the lost heritage in previously diverse communities. Narrated stories and memory is a way to express one's identity and their link to a tangible and intangible heritage. Personal and collective memory is essential for one's identity expression and association with a place. The impact of these virtual reconstructions was mainly positive. It generated interest in visiting their ancestor's hometowns and in the history of the participants' current place of residence. Associations with the personal experiences and stories told between the generations already create curiosity amongst the population exchange descendants towards the diverse recent past. Virtual reconstructions and mobile visualisation tools could potentially enhance the interest and cultural understandings between the current residents of the formerly diverse multi-cultural settlements.

8.2.3. Digital Technologies in Heritage Visualisation

Another major contribution of this research concerns the use of digital technologies in heritage visualisation and their impact on heritage identity relations. This research focused on the lost architectural heritage examples from Izmir and Thessaloniki and how to visualise them using limited data by referencing historical photos or historic cartographic resources. The research has also evaluated the use of digital technologies as an essential tool that has the potential to alter the understanding of heritage and identity relations.

In this context, the research has made a contribution to the understanding of the architectural and urban history of the two cities through the digital platforms generated and the examples of lost heritage buildings that were documented, stored, viewed, monitored and updated.

Digital maps that have been created in Geographical Information Systems (GIS), based on the time period that was prior to the great fires that took place in both cities, allowed the documentation and management of data related to the lost heritage examples. A setting for the documentation of lost architectural heritage examples was generated in a GIS environment where various types of data are stored, managed and visualised. Hence, the GIS maps made it possible to superimpose different datasets representing different themes from the historical maps and generated valuable information. These newly created data by the GIS queries and superimposition of different datasets generate a potential future research area and enable a good setting for possible future new research questions. The setting has made it possible to utilise the platform and the information as potential sources for future research, including the interrogation of the various datasets to identify relationships amongst them. Since these multiple data sets also represented different categorisations of urban and architectural elements of the two cities with new thematic GIS maps, possible future research areas can emerge for future studies.

In addition to the GIS maps, 3D models were created as a practical application using virtual reality and 3D technology mobile devices. Thus, the possibility to create 3D digital models enabled using these digital models in different formats using different mobile visualisation devices. Building 3D models with limited historical resources in order to produce historical information, especially for the purpose of visualisation of lost heritage examples that belong to a society that was displaced about a hundred years ago, is a new area of research in the context of the two case study cities.

The use of mobile visualisation tools enabled the integration of different media while experiencing the lost architectural heritage examples. Participants had a chance to use virtual reality tools that integrated sound options, which allowed them to experience these lost heritage examples not only as a visual experience but also with auditory cues. It has demonstrated that the use of the audio addition enhanced the participants' engagement with the mobile devices.

This visualisation process has also raised issues related to the ethical implications and discussions in relation to the authenticity and accuracy of these models. Additionally, the role of the researchers or visualisers as part of the perception of heritage buildings was also

identified as part of these ethical discussions. It has been pointed out that the following guidelines can generate a constructive way of using digital technologies in heritage visualisation, particularly for examples of lost heritage examples in post-conflict contexts.

- **Digital appropriation should be avoided for the undiscovered parts of the lost heritage examples**

  Historic resources are the only source of data in the case of lost architectural heritage studies; it may not be possible to utilise a comprehensive set of historical data about the heritage building. This demonstrates the challenge of not being able to showcase the subject heritage building in a detailed way and opens up possibilities for digital appropriations. It is advised to avoid this since the generated digital model could be a reference for other future research, and this might provide false conclusions about the lost architectural heritage.

- **Interpretations should be recorded**

  Even though it is not advised to introduce digital appropriation, it might be the case that with similar reference points from the historical data, some level of interpretation can be made. However, it is essential to record these interpretations as part of the digital record and identify which parts of the digital model rely on the historical data directly from the historic resources and which part of the historical data is interpreted.

- **Data format should be useful for future usage and sharing in different platforms**

  This research created a suitable setting for future similar studies related to the lost architectural heritage examples from both cities, and it is also critical to utilise suitable data formats in order to be able to use the generated models as part of future similar research areas. This will also allow constant updates of the information with reference to the possible future discoveries in terms of newly discovered historical images or records of the buildings as well as the other personal narratives that could be collected by future researchers from the population exchange descendants as part of their personal stories or family narratives.

- **Digital models should be suitable for future updates in the case of newly discovered information related to the lost heritage building**

  Although the historic resources could be limited at the time of the study, it is expected that future research could showcase further detailed information about the case study

of lost heritage example, and it is also critical to generate an adaptable setting for the digital model to facilitate updating. This allows the researcher to make the necessary updates to the digital material, generating a living document that could be updated when necessary.

8.2.4. Challenges and Limitations

The challenges and limitations of this research were expected at the beginning of this research in terms of finding adequate historical information about the selected lost heritage buildings and societies. Although this was an identified challenge, it generated research and investigation into innovative solutions and creative ways of testing the ways of documenting the lost architectural heritage.

Additionally, challenges were foreseen in terms of using various kinds of digital technologies considering this research was constrained by the time and technical capabilities of the researcher and access to the software. Nonetheless, the software and manpower limitations still achieved results that tested different software as well as adopting new technologies to produce 3D visualisations of a quality that could support the research objectives. However, similar research undertaken by a group of researchers specialised in various aspects of visualisation techniques and different software alternatives could potentially produce more extensive and more 'realistic' visualisations and VR or AR experiences. The baseline data produced in this research provided opportunities for similar future developments for both case study cities.

Since the area of using mobile devices as part of virtual reality experience is rapidly developing, the research was confined to the technological devices and software available at the time, many of which have been upgraded since then. Regardless of these challenges, the methodology initiated to generate the digital models of lost architectural heritage examples also manifested with assessing different software options and visualisation techniques and modelling tools.

Moreover, although the research achieved reaching out to suitable population exchange descendants through migrant societies and personal contacts, a wider pool of participants could potentially generate slightly different results. The approached groups' willingness to

participate in this research had limitations in terms of the language barrier and, in some cases, the need for translation. These research obstacles were overcome by integrating a translator and having multiple visits during the fieldwork.

Finally, the global pandemic outbreak during the second fieldwork stage of the research produced some additional challenges. The Izmir fieldwork studies, having been concluded before the pandemic restrictions came into force, have not been affected. However, the second fieldwork phase in Thessaloniki during the early months of 2020 had to be brought forward. These unexpected circumstances forced the researcher to undertake the second phase of fieldwork earlier than planned and with limited organisational support. This resulted in using outside space for the focus group and having a smaller pool of participants than initially anticipated. Consequently, the documentation of the focus group was done manually instead of recording, which did not have any major impact on the findings of this research.

8.3. Future Research Opportunities

Whilst this study has provided a successful application of heritage visualisation of lost architectural heritage in post-conflict societies and has initiated rich areas of discussion to understand the changing perception of heritage by utilising different digital technologies, it has also opened up a number of avenues of future research.

There are also a number of limitations in the development of this research which could also be a reference for future research topics with similar aims and objectives. First, access to equipment and resources in relation to the cost and budget constraints could be mentioned as a limitation. VR technology often requires specialised equipment and resources such as high-quality VR headsets, motion tracking systems, and powerful computers. Within this research, adequate digital mobile technologies were acquired within the budget restrictions and the university's software and hardware availabilities. However, more technologically advanced mobile digital technologies could enhance the participant's virtual experience.

The technical expertise and rapid developments of the technology in the field were also other limitations of this research. Even though considerable time and effort were acquired to use and develop the digital material for the research, this was done within the limitations of a PhD study. Considering the background of the researcher adequate to undertake such

research, technical expertise and learning curve were achieved within the limitations of the background of the researcher. Furthermore, the VR simulations strive to replicate real-world experiences, but they involve some level of abstraction and simplification. With the developing technologies, the simulations and participants' experiences could be improved in the future.

The other limitation of this research was related to the sample representation and the participants. Even though this did not have an impact on drawing conclusions from the research, the participants and selected samples were limited to the case study cities and the extent of the participants.

Nonetheless, in addition to developing innovative techniques and utilising digital technologies to test the participants' changing attitudes towards lost heritage, the work described in this research has generated future research areas that require further attention. Further research may expand the understanding of the findings of this study with potential future directions as follows.

The outcomes and methodologies of this research could be developed for other lost heritage examples, particularly by investigating different participant groups and locations. Specifically, recent forced migrated populations could be studied in relation to their attitude towards the heritage of the 'other'. Considering there would be more reliable data about lost heritage examples, the outcome of such a study might develop visualisation qualities and reliability.

Another future research topic is related to the technological developments of digital tools to enhance the visualisation of lost architectural heritage examples. In terms of data reconstruction techniques and improved methods for reconstructing lost architectural heritage will allow future research to enhance the representation qualities. Especially AR, VR and Mixed Reality technologies will enable the users to experience and interact with reconstructed buildings in a more immersive and informative virtual environment.

Investigating methods to incorporate storytelling and narrative elements into heritage visualisation can allow the utilisation of digital models in various formats, such as virtual museums, emotional and sensory engagements, and other ways to evoke personal

connections and visual experiences for the participants, which can open up new research questions. With further developments in mobile technological devices, this experience can open up new research areas.

The recommendations of this study in terms of ethical guidelines for the visualisation of lost architectural heritage can be formalised and implemented in real-life projects for lost architectural heritage examples of post-conflict societies. This can provide new research areas in terms of further studies on cross-cultural understanding and provide a context for the participants to learn more about each other's past following conflict scenarios. Within this framework, open data platforms for sharing historical and digital data will enhance this understanding in culturally diverse societies.

This thesis identified the potential ways to utilise historical resources to generate 3D models for lost architectural heritage examples and various ways to share them with the audience using different mobile devices. For instance, the use of VR and AR technologies allowed the users to experience how the cities were. This research is a significant step closer to introducing this virtual experience using internet technologies. It could allow users to experience their own virtual reality experience by using Web 2.0 technologies.

This research also provided a suitable setting for cross-cultural understanding by learning more about the 'other' culture's heritage and way of life. This can be integrated into different information-sharing platforms where different societies could share information and generate awareness about their common recent pasts.

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Appendices

APPENDIX 1 CONSERVATION SPECIALISTS

	Job Title	Organisation	Type of Projects
I1	Architect, Conservation Specialist, PhD	Private Practice, Municipality	Residential, Monumental
I2	Architect, Conservation Specialist, PhD	University	Urban Conservation, Industrial Conservation
I3	Architect, Conservation Specialist, PhD	University, Committee on Conservation of Cultural Assets	Residential, Monumental, Archaeological
I4	Architect, PhD	University, Private Practice	Residential, Monumental
I5	Architect, Conservation Specialist, PhD	University, Committee on Conservation of Cultural Assets	Residential, Monumental, Archaeological
I6	Architect, Conservation Specialist, PhD	University	Residential, Monumental
I7	Architect, Conservation Specialist, PhD	University	Residential, Monumental, Industrial Conservation
I8	Architect, Conservation Specialist	Private Practice	Residential, Monumental, Archaeological
T1	Architect, Conservation Specialist, PhD	University, Private Practice	Residential, Monumental
T2	Architect, Conservation Specialist, PhD	University	Urban Conservation
T3	Archaeologist, Researcher	University	Monumental, Archaeological
T4	Archaeologist	University	Monumental, Archaeological
T5	Architect, Conservation Specialist, PhD	University	Residential, Monumental
T6	Researcher	University	Monumental, Archaeological
T7	Architect, Conservation Specialist	University	Residential, Monumental

T8	Architect, Conservation Specialist	University	Residential, Monumental
T9	Architect	University, Private Practice	Residential, Monumental, Industrial Conservation
T10	Architect, Conservation Specialist	University, Private Practice	Urban Conservation

APPENDIZ 2 POPULATION EXCHANGE DESCENDANTS

	PLACE OF BIRTH	AGE	Education	Occupation	Where do you live
PEDI1	Selcuk / Izmir	60-69	High School Degree	Electrician	Kusadasi / Aydin
PEDI2	Izmir	45-59	University Degree	Manager	Izmir
PEDI3	Aydin	60-69	University Degree	Teacher	Kusadasi / Aydin
PEDI4	Kusadasi / Aydin	70-80	High School Degree	House wife	Kusadasi / Aydin
PEDI5	Menemen / Izmir	60-69	University Degree	Retired	Karsiyaka / Izmir
PEDI6	Izmir	45-59	University Degree	Own business	Kusadasi / Aydin
PEDI7	Izmir	60-69	High School Degree	House wife	Kusadasi / Aydin
PEDI8	Selcuk / Izmir	70-80	Art School	Electrician	Kusadasi / Aydin
PEDI9	Kusadasi / Aydin	60-69	High School Degree	House wife	Kusadasi / Aydin
PEDI10	Yalova	35-44	Graduate Degree	Academic	Istanbul
PEDI11	Istanbul	45-59	University Degree	Engineer	Kusadasi / Aydin
PEDI12	Edirne	60-69	University Degree	Retired pilot	Kusadasi / Aydin
PEDI13	Germany	45-59	University Degree	Banker	Kusadasi / Aydin

PEDI14	Soke / Aydin	45-59	Graduate Degree	Doctor	Kusadasi / Aydin
PEDI15	Izmir	80+	Elementary School	Mechanics	Izmir
PEDI16	Kusadasi	45-59	University Degree	Mechanical Engineer	Kusadasi / Aydin
PEDI17	Izmir	45-59	High School Degree	Retired	Bornova / Izmir
PEDI18	Tokat	60-69	University Degree	Retired	Kusadasi / Aydin
PEDT1	Thessaloniki	45-59	High School Degree	Medical Supplier	Evosmos Thessaloniki
PEDT2	Thessaloniki	45-59	University Degree	Professor	Evosmos Thessaloniki
PEDT3	Thessaloniki	45-59	University Degree	Historian	Thessaloniki
PEDT4	Thessaloniki	60-69	High School Degree	Insulation works, waterproofing	Nea Kordelio Thessaloniki
PEDT5	Volos, Greece	35-44	Graduate Degree	Communication Specialist	Thessaloniki
PEDT6	Thessaloniki	35-44	University Degree	Journalist	Athens
PEDT7	Greece	35-44	University Degree	Librarian	Greece
PEDT8	Krya Vrysi, Pella	60-69	High School Degree	Unemployed	Thessaloniki
PEDT9	Thessaloniki	70-80	High School Degree	Worked in Iron factory. Retired.	Nea Kordelio Thessaloniki
PEDT10	Athens	45-59	Graduate Degree	Professor	Thessaloniki

APPENDIX 3 SEMI STRUCTURED INTERVIEWS QUESTIONS – CONSERVATION SPECIALISTS

INTERVIEW QUESTIONS CONSERVATION SPECIALISTS			I/T
Id:	Place:	Notes:	
Date:	Interviewer:		
Resident O Migrant Descendant O Conservation Specialist/Government Officer O			

No	ID	AGE	M/F	EDUCATION	PROFESSION	PLACE OF BIRTH
1						

1	Where are you from?	Izmir	Which neighbourhood in Izmir/thessaloniki?
		Thessaloniki	
	How long have you been living there?		Where did you live before?
3	Are you a decision maker in conservation projects in your city?	Yes	Can you explain?
		No	
	Do you consider your city as historic city?	Yes	Why?
		No	
	Do you think tourists come to your city to visit historic buildings and sites?	Yes	Can you give examples?
		No	
	Is there a specific neighbourhood that you are focusing on developing future conservation projects?	Yes	Can you give examples?
		No	
	Do you think conservation projects in your city is successful?	Yes	Can you explain?
		No	
	Is there a specific time period in history of your city that you are focusing on developing future conservation projects?	Yes	Can you give examples?
		No	
	Do you use digital technologies in conservation projects?	Yes	Can you explain?
		No	
	Do you have information / inventory for lost architectural heritage of your city?	Yes	Can you give examples?
		No	
	Do you consider learning more about lost architectural heritage of your city?	Yes	Can you explain?
		No	
	Do you consider developing conservation projects for lost architectural heritage?	Yes	Can you explain?
		No	

	Would you consider using digital technologies for future of lost architectural heritage in Izmir?	Yes	Can you explain?
		No	

APPENDIX 4 SEMI STRUCTURED INTERVIEWS QUESTIONS – PED

INTERVIEW QUESTIONS MIGRANT DESCENDANTS							I/T
Id:	Place:	Notes:					
Date:	Interviewer:						
Resident O Migrant Descendant O Conservation Specialist/Government Officer O							
No	ID	AGE	M/F	EDUCATION	PROFESSION	PLACE OF BIRTH	KNOWLEDGE OF FOREIGN LANGUAGE
1	Do you live in Izmir/Thessaloniki?	Yes	Which neighbourhood in Izmir?				
		No					
	How long have you been living in Izmir/Thessaloniki?		Where did you live before?				
	Why did you move to Izmir/ Thessaloniki?						
2	Are you a descendant of migrants of the population exchange?	Yes	Which generation?				
		No (skip to 3)					
	Do you know the city/town/village that they came from?	Yes	Can you name the city/town/village?				
		No					
	Do you know about the building that they were living?	Yes	Can you describe?				
		No					
	Do you know the profession of the migrants?	Yes	Can you name the profession?				
		No					
	Do you know any buildings from the city of migration?	Yes	Can you name it?				
		No					
	Would you like to visit the city/ town/village of your ancestors?	Yes	Why?				
		No					
	Would you like to know more about the city/ town/village of your ancestors?	Yes	Why?				
		No					
3	Where were you born?	Izmir	Other				
		Thessaloniki					
	When you were asked 'where are you from' how do you respond?	Izmir	Other				
		Thessaloniki					
	Do you consider Izmir/Thessaloniki hometown?	Yes	If not, where is hometown for you?				
		No					
	What makes Izmir/Thessaloniki hometown?						
	What defines your identity in your hometown?						
4		Yes	Could you name which area was affected?				

	Do you know about the fire that devastated izmir/thessaloniki?	No				
	Do you know any historic buildings in the city before the fire?	Yes	Can you name them?			
		No				
	If you had a chance which one of these lost buildings you would like to visit?					
	Which building you think is the most known in the city before the fire?					
5	Which of the following historic building type you think belong to your ancestor' city/town?	Mosque	Synagogue	Dervishane	Others	
		Armenian Church	Byzantine Church	Orthodox Church		
	Do you know any historic neighbourhoods that doesn't exist anymore from your ancestor's city?	Yes	Can you name them?			
		No				
	Do you know any historic buildings that doesn't exist anymore from your ancestor's city?	Yes	Can you name them?			
		No				
	Would you be interested to know more about these lost buildings from your ancestor's city?	Yes	Why?			
		No				
6	Which of the following street names do you know that was in your city before?	Osmaniye	Frenk	Cezayir han	peynirciler	Seytan carsisi
		mahmudiye	Hukumet	Balik pazari	Ingiliz iskelesi	Meydavar gumrugu
	Which of the following leisure buildings do you know that was in your city before?	Sporting club	Nea selini tavern	American theatre	Alexandria hotel	Levy hamami
		Grand huck hotel	Soldiers club	Balik pazari hamami	New club	Turkish theatre
	Which of the following religious buildings do you know that was in your city before?	Balik pazari cami	St george church	Mekhitaris monastery	Acemler cami	St photini church
	Which of the following government buildings do you know that was in your city before?	Sarikisla	Ottoman Bank	Ottoman Post office	Kisla humayun	Stock Exchange
	Which of the following schools do you know that was in your city before?	Hamidiye Arts & Crafts	Culinary school	Lazaristes school	Macrides school	Evangelist school
	Which of the following commercial buildings do you know that was in your city before?	Spartali han	Karantina Han	Esayan han	Arapyan han	Akkasoglu han
		Vezirhan	Vali pasa han	Dervisoglu han	Kaptan Osman han	Kupecioglu han
	Which of the following type of industries do you know existed in your city 100 years ago?	Fig drying	Brewery	Foundry	Oil production	Pharmacy
		Carpentery	Leather production	Hat making	Brush making	Silk industry
	Which of the following building types do you know existed in your city 100 years ago?	Insurance	Finance	Hydrotheraphy	Orphanage	Arts school
	Which of the followings are architectural features	With cumba	Stone masonry	With basement	With garden	Timber frame

	of historic residential buildings of Izmir?	2 storey	3 storey	With courtyard	With iron shutters	With courtyard
	Do you know what is verhane?	Yes	Can you explain?			
		No				

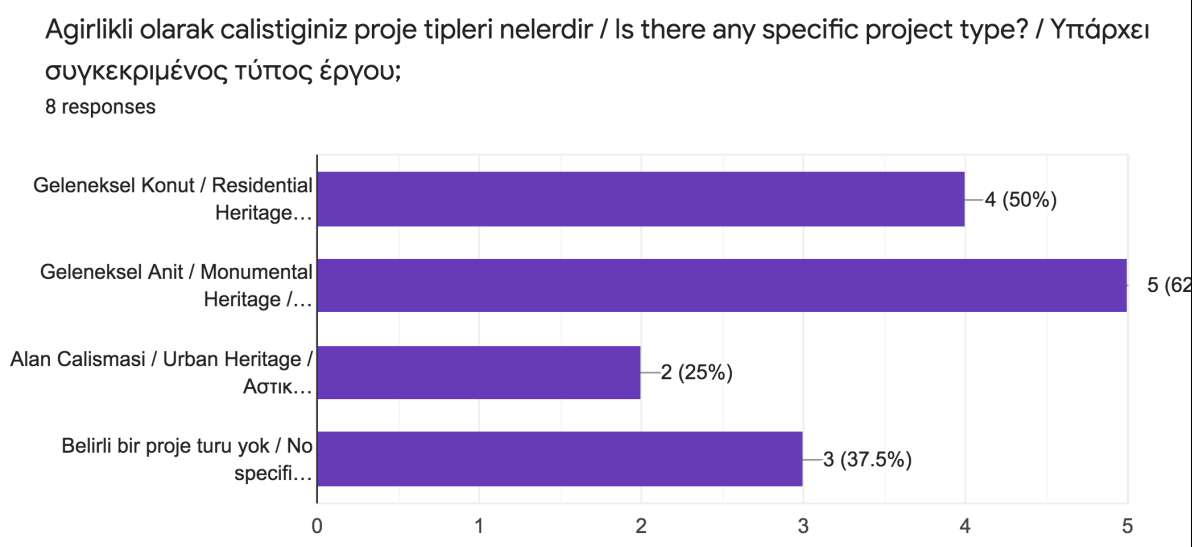
APPENDIX 5 SEMI STRUCTURED INTERVIEWS – IZMIR

Q1	**Ne kadar zamandir Izmir'de koruma projeleri uzerinde calismaktasiniz? / How long have you been working on conservation projects in Izmir? / Πόσο καιρό εργάζεστε σε έργα διατήρησης στη Izmir;**
I1	10-20 years
I2	1-10 years
I3	10-20 years
I4	20-30 years
I5	30+ years
I6	20-30 years
I7	10-20 years
I8	30+ years

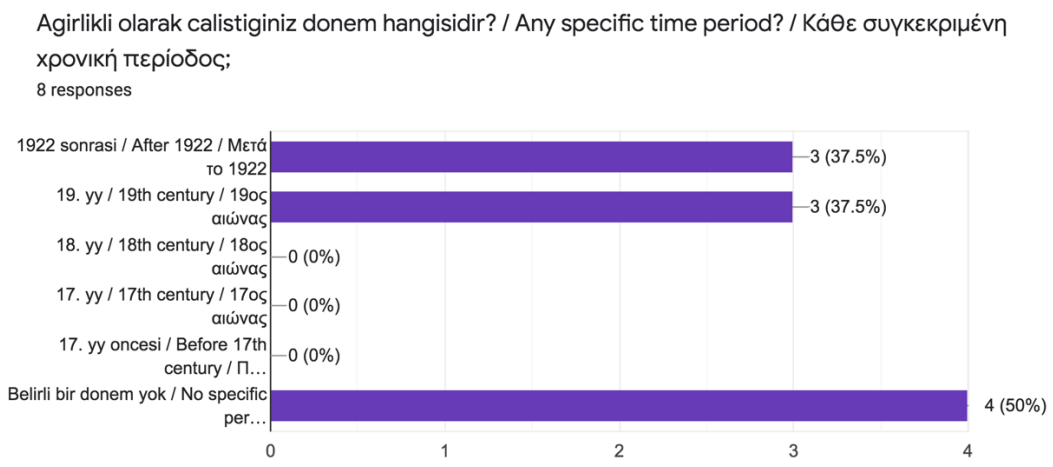
Q2	**Dahil oldugunuz projelerden bahseder misiniz? Agirlikli olarak calistiginiz bolgeler var mi? / Could you please talk about the conservation projects that you were involved, any specific area in Izmir? / Θα μπορούσατε να μιλήσετε για τα έργα διατήρησης που συμμετείχατε, οποιαδήποτε συγκεκριμένη περιοχή στη Izmir;**
I1	Karaburun, historical downtown of izmir
I2	kentsel koruma
I3	- Kaplan Mustafa Paşa Hanı, arkeolojik alan ve yeni Yapılanma projesi - Agora Smyrna Antik Kenti Kazısı Osmanlı yapısı 3B Belgeleme ve Restitüsyon çalışmaları ve Mimari Belgesel Hazırlanması İzmir Katip Çelebi Üniversitesi Bilimsel Araştırma Projesi. - İzmir Tarih Projesi Kestelli Alt Bölgesi ve Yakın Çevresi Operasyon Planı. - Çeşme Kanuni Kervansarayı – Çeşme, İzmir: Rölöve çalışmaları. - Theatron ve Zeus Sunağı Mimari Belgeleme Çalışmaları; Koruma ve Müdahale Önceliklerinin Oluşturulması; Restitüsyon Önerisi; Strüktür, Malzeme ve Fonksiyon Analizleri; Zeus Altarı Mimari Belgeleme Çalışmaları, Propylon ve Stoa Çizim desteği. Kültür ve Turizm Bakanlığı Magnesia ad Maendrum Arkeolojik Kazıları, Ortaklar-Aydın. (Kazı Başkanı: Prof. Dr. Orhan Bingöl ve Mimari Ekip sorumlusu Doç.Dr. Emre Madran yönetiminde). Görevi: Koruma uzmanı. (1995-2003).
I4	İzmir ve çevresinde çalışıyorum.
I5	Ege bölgesinde genel olarak çalışıyoruz. Özel mülkiyette bulunan yapılar üzerinde genel olarak çalışıyoruz. Ayrıca önemli olabilecek devlet mülkiyetinde bulunan (İzmir Saat Kulesi vb.) yapıların projelendirme işlerini yapıyoruz. Also as part of my master's thesis in the preservation of monuments & cities at the Catholic University of Leuven, Belgium (1995-96), I dealt with the building of the old Municipal Slaughterhouses of Thessaloniki and its reuse as a museum of industrial design objects. It is an industrial ground floor building of the early 20th century, eclectic, with a metal roof. My study was never carried out, but today the building has been restored and is used as a space for multiple uses and other artistic activities.
I6	İzmir kent merkezi ve çevresindeki koruma projelerinde yer aldım. Bunlardan bazıları: İzmir Mithatpaşa Endüstri Meslek Lisesi yangın sonrası restorasyon projesi, Aya Vukolos Kilisesi restorasyon projesi, Basmane Nebahat Tabak Evi (Semt Merkezi) restorasyon projesi, Urla Pratik Kız Sanat Okulu restorasyon

	projesi, Tire Tahtakale Hamamı restorasyon projesi, Kuşadası Çalıkuşu Evi restorasyon projesi.
I7	Research projects, selecting studio projects for conservation issues of the city, Industrial Heritage. Agora installation projects. Alsancak train station.
I8	Residential Buildings, Government Buildings, Basmane Train Station, Alsancak Train Station, 1903 dated first multi leveled residential project. Bornova and Buca mansions, Levantine mansions.

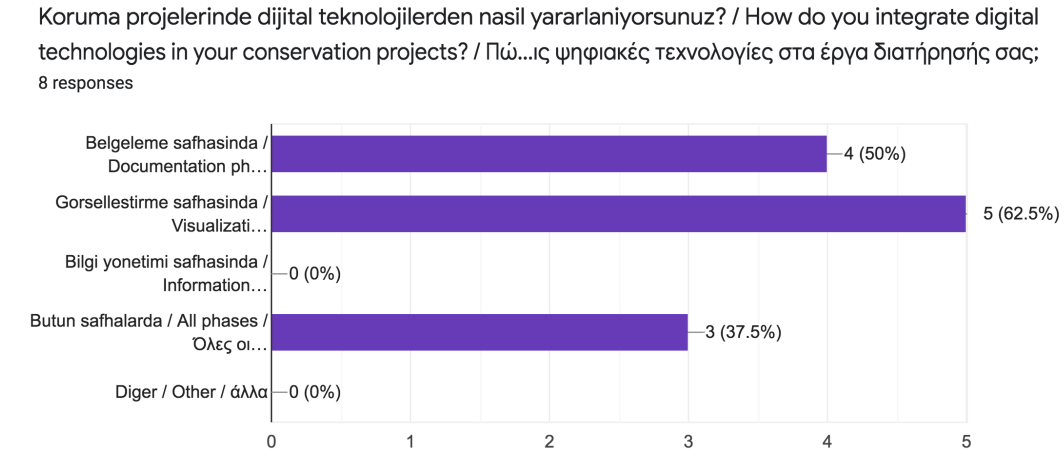
Q3	**Agirlikli olarak calistiginiz proje tipleri nelerdir / Is there any specific project type? / Υπάρχει συγκεκριμένος τύπος έργου;**



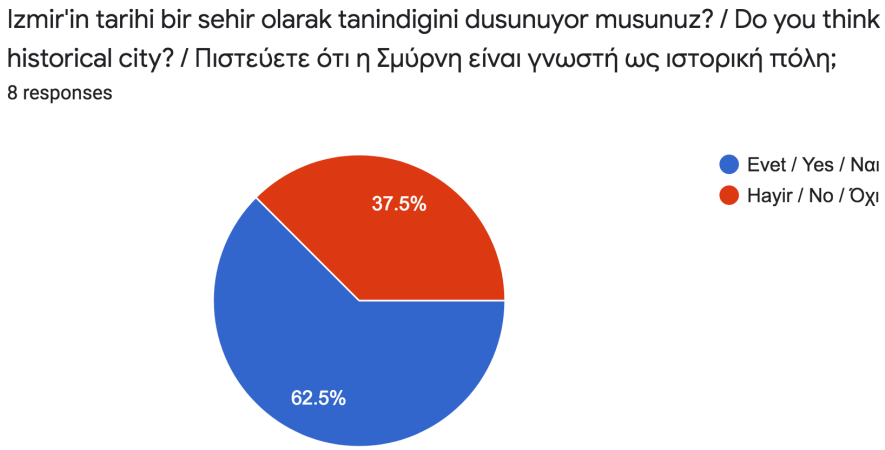
Q4	**Agirlikli olarak calistiginiz donem hangisidir? / Any specific time period? / Κάθε συγκεκριμένη χρονική περίοδος;**



Q5	**Koruma projelerinde dijital teknolojilerden nasil yararlaniyorsunuz? / How do you integrate digital technologies in your conservation projects? / Πώς ενσωματώνετε τις ψηφιακές τεχνολογίες στα έργα διατήρησής σας;**



Q6	**Izmir'in tarihi bir sehir olarak tanindigini dusunuyor musunuz? / Do you think Izmir is known as a historical city? / Πιστεύετε ότι η Σμύρνη είναι γνωστή ως ιστορική πόλη;**

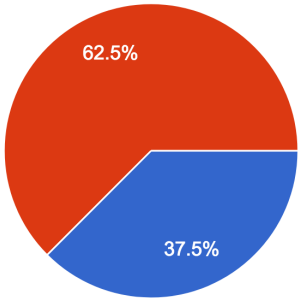


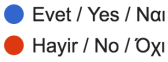
Q7	**Izmir'i tarihi bir sehir olarak taninmasina yardimci olabilecek, sehirde basarili bulduğunuz koruma projelerinden ornek verebilir misiniz? / Can you give examples of conservation projects that you find successful in the city, which may help to recognise Izmir as a historical city? / Μπορείτε να δώσετε παραδείγματα έργων διατήρησης που βρίσκετε επιτυχημένα στην πόλη, τα οποία μπορεί να σας βοηθήσουν να αναγνωρίσετε τη Σμύρνη ως ιστορική πόλη;**
I1	Konak pier
I2	hava gazı fabrika dönüşümü gibi endüstri mirası dömüşümleri yakın köylerin kırsal mimarisinin korunması
I3	Arkas Sanat Merkezi - tek yapı ölçeğinde Eski Foça merkezde, konut olarak yaşamaya devam edebilen bir iki sivil mimarlık örneği İsmet İnönü evi, Kemeraltı, müze Bornova'daki Levanten köşkleri İzmir Agora Smyrna Antik Kenti çok müdahale görmüş olmakla birlikte Kemeraltı tarihi ticaret dokusu Karataş'taki köşkler Tarihi Asansör yapısı
I4	Anadolu apartmanı, Ahmet Priştina Kent Arşivi ve Müzesi, Bornova Charnaud Köşkü, Köstem Zeytinyağı Müzesi
I5	Kemeraltı sokak sağlıklaştırma çalışmaları, genel olarak yapılan koruma amaçlı imar planları.
I6	Aya Vukolos Kilisesi, Tarihi Asansör, Konak Pier, Kemeraltı Abacıoğlu Hanı, Yeşilova Höyüğü, Tarihi Kemeraltı Çarşısı'nda koruma çalışmaları, Antik Agora'da koruma çalışmaları
I7	Successful projects for example studies in Agora for the last 15 years, Sabetai Sevi house, multi-layered city projects.
I8	Basmane Train Station, Alsancak Train Station, 1903 dated first multi leveled residential project. Bornova and Buca mansions, Levantine mansions.

Q8	**Turistlerin Izmir'i ziyaret sebebinin tarihi yapilari gormek oldugunu dusunuyor musunuz? / Do you think that the reason for tourists visiting Izmir is to see historical buildings? / Πιστεύετε ότι ο λόγος για τον οποίο οι τουρίστες που επισκέπτονται τη Σμύρνη είναι να δουν ιστορικά κτίρια;**

Turistlerin Izmir'i ziyaret sebebinin tarihi yapilari gormek oldugunu dusunuyor musunuz? / Do you think that the reason for tourists visiting Izmir is ...ισκέπτονται τη Σμύρνη είναι να δουν ιστορικά κτίρια;

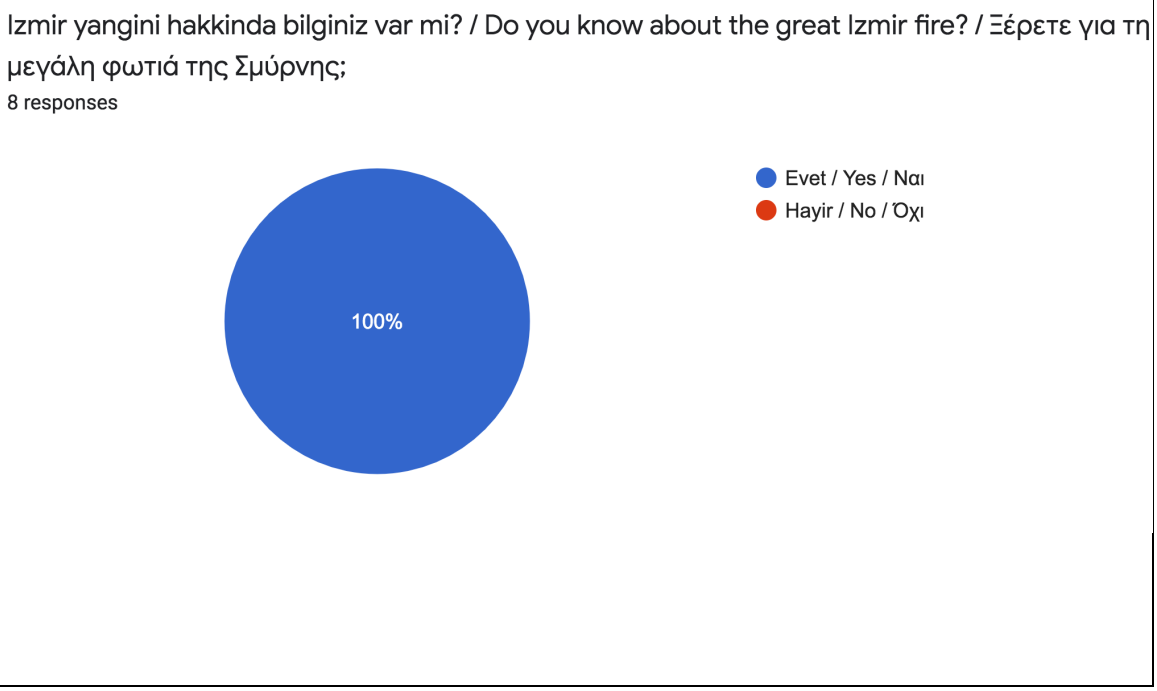
8 responses





Q9	**Turistlerin tarihi ve kulturel onemlerinden oturu daha cok ziyaret ettigini dusundugunuz yapilardan ornek verebilir misiniz? / Could you give examples of historic buildings that are mostly visited by tourists due to their historical importance? / Μπορείτε να δώσετε παραδείγματα ιστορικών κτιρίων τα οποία επισκέπτονται κυρίως οι τουρίστες λόγω της ιστορικής σημασίας τους;**
I1	Efes, Bergama
I2	Antik Alanlar, Efes gibi
I3	Arkeolojik alanlar. İzmir Tarih Projesi ile birlikte Kemeraltı dokusu
I4	Agoradaki kalıntılar.
I5	İzmir Saat Kulesi, Kadifekale, İzmir'de bulunan Geleneksel konut yapıları, Efes Ören Yeri...
I6	Kent merkezinde Kemeraltı Çarşısı, Agora, Aya Vukolos Kilisesi, Tarihi Asansör ve Dario Moreno Sokağı, Kızlarağası Hanı, Konak Meydanı Saat Kulesi ve Yalı Cami, Kadifekale
I7	Kadifekale, Agora, Smyrna theatre. Ancient period buildings has big potential for tourists, not visible yet. Needs excavations.
I8	Ancient Agora area, Train station buildings, Kemeralti historic city centre and commercial buildings, Religious buildings and Khan buildings. Late Ottoman period buildings

Q10	Izmir yangini hakkinda bilginiz var mi? / Do you know about the great Izmir fire? / Ξέρετε για τη μεγάλη φωτιά της Σμύρνης;

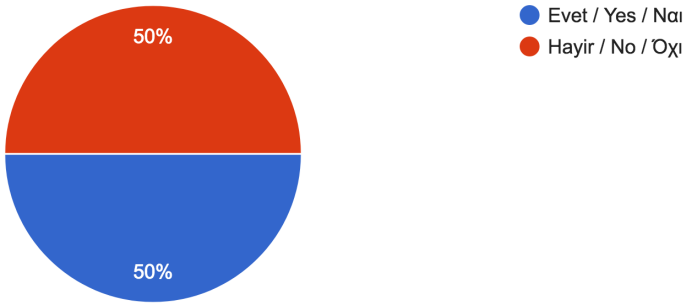


Q11	**Yangindan etkilenen alanlardan ya da binalardan ornek verebilir misiniz? / Do you know any buildings that were affected by the fire? / Ξέρετε κάποια κτίρια που επηρεάστηκαν από τη φωτιά;**
I1	Konak_alsancak hatti
I2	alsancak ve çevresi
I3	Kordon bölgesindeki sivil mimarlık örnekleri
I4	Fevzipaşa Caddesinin kuzeyi büyük oranda yok olmuştur. Örneğin, Kültür parkın içindeki eski hayvanat bahçesinin altında bir Ermeni kilisesi varmış.
I5	Kordon ve Frenk caddesinde bulunan bir çok yapı var. Levantenlere ve Rumlara ait bir çok yapı var. Ayrıca Fuar alanının bulunduğu bölgede yer alan Ermeni mahallesindeki geleneksel konut yapıları yok olmuştur. Aklıma gelen Kordondaki Sporting Club, Aya Haralambos Klisesi ilk aklıma gelenler.
I6	Günümüzdeki Kültürpark alanı ve çevresindeki geniş alan içindeki yapılar, tarihi osmanlı hanları ve diğer ticaret mekanları, Alsancak'ın bir bölümü, Aya Fotini Kilisesi, Sporting Club, Cafe de Paris ve kordondaki dönemin kafeleri ve eğlence mekanları ile otelleri.
I7	About the lost buildings building that 'Izmir Iktisat Kongresi' that took place. Ancient buildings, Ottoman Period buildings. Khan and commercial buildings.
I8	Fuar area, Alsancak area, Ataturk High School region.

Q12	**Izmir'deki kaybolmus/yok olmus tarihi yapilar ile ilgili bilginiz/envanteriniz/calismaniz oldu mu? Did you have any studies about the lost architecture in Izmir? / Έχετε μελέτες σχετικά με τη χαμένη αρχιτεκτονική στη Izmir;**

Izmir'deki kaybolmus/yok olmus tarihi yapilar ile ilgili bilginiz/envanteriniz/calismaniz oldu mu? Did you have any studies about the lost architecture i...έτες σχετικά με τη χαμένη αρχιτεκτονική στη Izmir;

8 responses



Q13	**Izmir'deki yok olmus tarihi yapilarin gelecegi konusunda dusunceleriniz nedir? / What is your opinion about the future of lost architectural heritage in Izmir? / Ποια είναι η γνώμη σας για το μέλλον της χαμένης αρχιτεκτονικής κληρονομιάς στη Izmir;**

Izmir'deki yok olmus tarihi yapilarin gelecegi konusunda dusunceleriniz nedir? / What is your opinion about the future of lost architectural her... της χαμένης αρχιτεκτονικής κληρονομιάς στη Izmir;

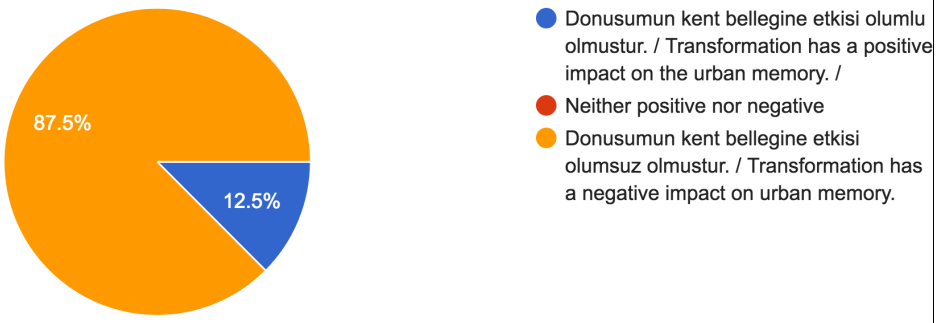
8 responses



Q14	**Izmir'in tarihi sehir merkezinin gecirdigi donusumun kent bellegine etkisini nasil degerlendiriyorsunuz? / How do you evaluate the impact of the transformation of Izmir's historic city centre on the city's urban memory. / Πώς αξιολογείτε τον αντίκτυπο του μετασχηματισμού του ιστορικού κέντρου της Izmir στην αστική μνήμη της πόλης.**

Izmir'in tarihi sehir merkezinin gecirdigi donusumun kent bellegine etkisini nasil degerlendiriyorsunuz? / How do you evaluate the i...ύ κέντρου της Izmir στην αστική μνήμη της πόλη

8 responses



Q15	**Izmir'in gelecek yillardaki kentsel koruma egilimlerinin kent belleginin devamliligi acisindan nasil olmasi gerektigini dusunuyorsunuz? / How do you think Izmir's future conservation vision should be with relation to the continuity of the urban memory? / Πώς πιστεύετε ότι το μελλοντικό όραμα διατήρησης της Izmir θα πρέπει να είναι σε σχέση με τη συνέχεια της αστικής μνήμης;**
I1	Yerinde olmayan yapı ve unutulmus yaşantılar daha dillendirilmeli
I2	üst kararların koruma odaklı alınması gerektiğini düşünüyorum.
I3	Hafıza mekanlarının sürekliliğinin korunması önemlidir. Kent belleğini besler ve kent kimliğini güçlü tutar. Fiziksel koruma çalışmalarının ve sosyo-kültürel değerlerin bütüncül bir bakış açısıyla korunacağı bir biçimde esnek, geliştirilebilir bir politika oluşturulması gerekir. Sürdürülebilir kalkınma modellerinin sürece dahil edilmesi gerekir. Kentliyi, sürecin paydaşı haline getirmelidir.
I4	Alan ölçeğindeki nitelikli uygulamaların uzmanlarınca gerçekleştirilmesi gerekli.
I5	Tarihi yapıların restorasyonu için yeterli ödenekler ayrılmalı, özellikli yapıların restorasyon çalışmalarının gerçekleşmesi için bürokratik çözümler getirilmeli. Özellikle çok varisli yapılara ya da restorasyon için ekonomik güçün yetmediği durumlara çözümler bulunması gerekmektedir. Restorasyon işinin uzman şirketler tarafından yapılması sağlanmalıdır. İşlevsel olarak yapıların doğru fonksiyonlar verilerek kullanılması sağlanmalıdır.
I6	Kent belleğinin devamlılığı için mevcut tarihi çevrenin korunması, kaybolmuş yapılar için gerekli araştırma ve yayınların yapılması önemlidir. Kentteki Ahmet Piriştina Kent Arşivi gibi kurumsal oluşumlar yararlı olacaktır.
I7	Digital technologies could be used to reconstruct lost historic buildings. Archaeological excavation projects for Kadifekale area could be another focus as well. Especially areas related to intangible heritage such as the Ancient Stadium where important events took place in the past now under the earth. Another important event was the death of St Polycarpe so places that religiously important also could be another focus.
I8	There are good project proposals in Izmir for conservation projects but when it comes to actually implementing the projects there are not good projects. For some projects they are not requiring conservation specialists so that also causes some problem.

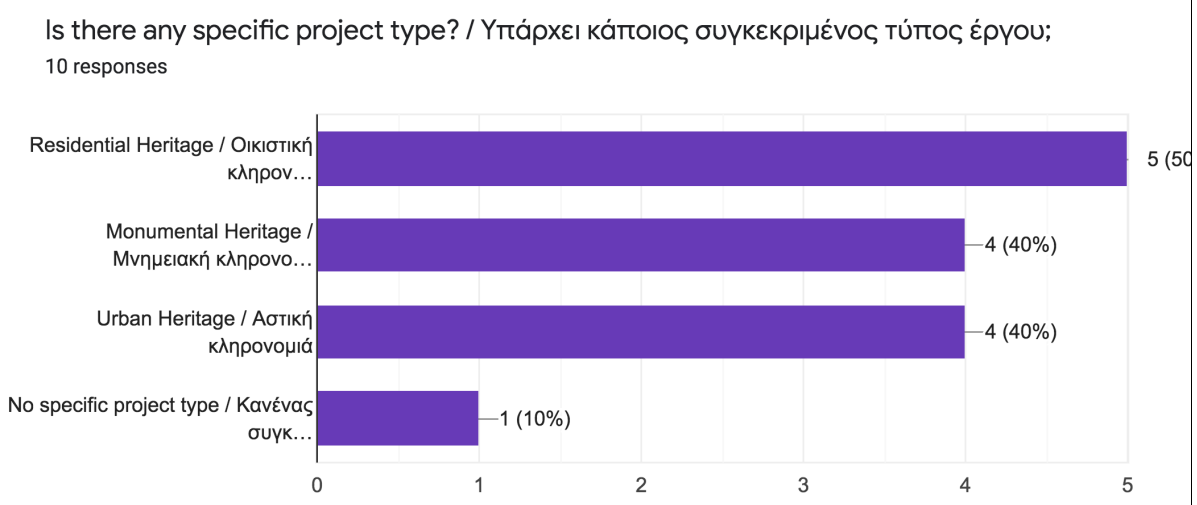
APPENDIX 6 SEMI STRUCTURED INTERVIEWS - THESSALONIKI

Q1	How long have you been working on conservation projects in Thessaloniki? / Πόσο καιρό εργάζεστε σε έργα συντήρησης (ενν. κτιρίων) στη Θεσσαλονίκη;
T1	30+ years
T2	30+ years
T3	30+ years
T4	20-30 years
T5	1-10 years
T6	1-10 years
T7	1-10 years
T8	10-20 years
T9	10-20 years
T10	1-10 years

Q2	**Could you please talk about the conservation projects that you were involved, any specific area in Thessaloniki? / Θα μπορούσατε να μιλήσετε για τα έργα συντήρησης-διατήρησης που συμμετείχατε, σε συγκεκριμένη περιοχή της Θεσσαλονίκης;**
T1	Both academic and practical works. Around 2000 abandoned villages dating back to 12th century and including the Ottoman villages, especially timber structures are very important. How to restore these houses and give life in these villages. In a parallel way we try to visualise before destruction due to war and fire. We have a lot of photos from the first world war period, there are a lot of photos taken by the soldiers shows us how the city was before the destruction. After the destruction a French Urbanest redesigned the city and what was done during 1930s until 1950s was also destroyed they have built around 2000 houses out of this 700 also was destroyed. We are focusing in different periods of these 3 periods. Also restitution projects from old photos for the city centre of Thessaloniki. What was lost during the years have been studied and a project related to the reconstruction of these lost areas around Aristotales Square is an ongoing project. The visualisation will be done with different architectural visualisation as well as physical model of the selected parts of the city.
T2	An exhibition was held in Ankara, by a Rum from Istanbul. Faculty of Engineering in Athens and the subject of this exhibition was the contribution of the Rums in Anatolia in various aspects of life such as trade, industry, manufacturing, science, medicine and architecture. I was asked by this professor to collect material on architectural presence in Anatolia which is a huge subject. Mostly in coastal cities, Mersin, Izmir, Samsun, Trabzon and less is known about inner Anatolia. My works are on more academic side, most applied study was 2016 the project for the restoration and reuse of theological school in Heybeliada in Istanbul. We did all the documentation, Restoration, Restitution and Proposals and additional buildings. 19th and 20th century is the period I am focusing on which means I am not specialised Ottoman. We also started another book on the Muslim heritage of Thessaloniki which is not finished yet and it covers the area since the occupation of Thessaloniki in the 15th century by the Ottomans and goes to 1923 when the exchange occurred when the Muslims had to leave. Most important buildings were inventoried and documented. Mostly the existing ones but there are some lost buildings included in this inventory.
T3	Some works of the Hellenistic period.
T4	Antiquities of the Thessaloniki metro
T5	The most important projects in which I participated are: 1) The restoration study of a listed building in Ano Poli, Thessaloniki, in close proximity to the church of Saint David. The building belongs to the Municipality of Thessaloniki. It is a two-storey flat-fronted mansion of Balkan architecture built in the late 19th century, which was in poor condition. The building was restored both with the traditional

	methods of preservation and with the use of modern material design and the installation of facilities, where it was deemed necessary. Today it is used as an office building. The offices of the Association of Architects of Thessaloniki are also housed there. 2) I also participated in the study & supervision of the restoration of the Folklore & Ethnological Museum of Macedonia Thrace, located in the old area of the countryside. It is a three-story mansion from the early 20th century, built by architect Eli Modiano as the residence of his family. The building morphologically belongs to the current of eclecticism with many Art Nouveau elements in the decoration of its facades. The study was prepared in 1997 by the Ephorate of Modern Monuments of the Ministry of Culture, where I worked at the time and was funded by the EU. The change of use of the building had preceded the 70's. In addition to the necessary static reinforcements, and the restoration of the facades, the study included the redesign of the 3rd floor (attic) in office spaces, the modernization of the electrical systems (addition of elevator & escape exit, external lighting, heating, cooling, data etc) to meet the needs of its new use. Also as part of my master's thesis in the preservation of monuments & cities at the Catholic University of Leuven, Belgium (1995-96), I dealt with the building of the old Municipal Slaughterhouses of Thessaloniki and its reuse as a museum of industrial design objects. It is an industrial ground floor building of the early 20th century, eclectic, with a metal roof. My study was never carried out, but today the building has been restored and is used as a space for multiple uses and other artistic activities.
T6	These are the works: "Prominence of the Roman Agora of Thessaloniki", where I worked from 1989 to 1999 and "Prominence of the Ancient Theater of Philippi", 2002-2003.
T7	The last 12months I have involved in the project of reuse and restoration of the barracks in the former military camp Pavlos Melas. The new use of the building is going to be the town hall of municipality of Pavlos Melas. The barracks was built by the ottoman authorities during 1890s. The original masonry is preserved and the reinforced concrete structural system (columns and beams) which replaced the initial wooden one during '30s is now replaced with a contemporary wooden structure.
T8	I could talk about restorations of buildings in Ano Poli as well as in the historic centre of the city.
T9	Columbus Gallery. Building of 1930.
T10	Yes, for the area of the historic centre of the city before and after the fire of 1917 and for the area of Ano Poli

Q3	Is there any specific project type? / Υπάρχει κάποιος συγκεκριμένος τύπος έργου;



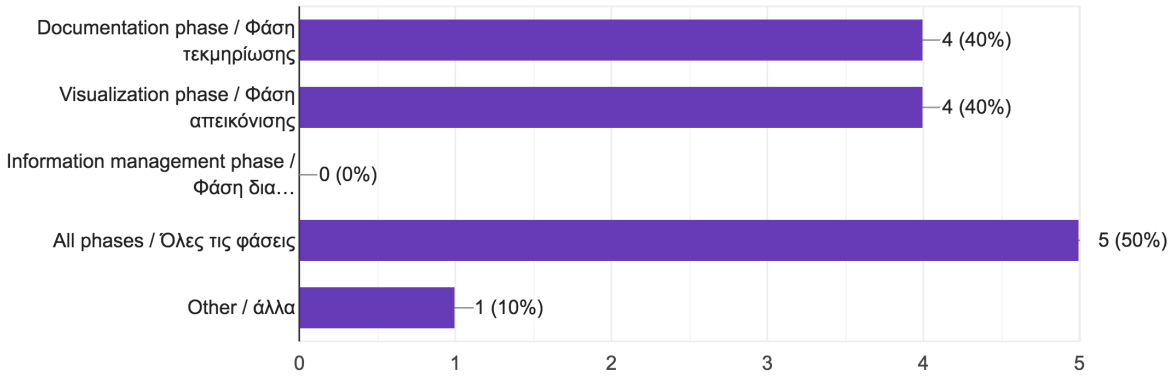
Q4	Any specific time period? / Κάποιας συγκεκριμένης χρονικής περιόδου;



Q5	How do you integrate digital technologies in your conservation projects? // Πώς ενσωματώνετε τις ψηφιακές τεχνολογίες στα δικά σας έργα-προγράμματα συντήρησης-διατήρησης;

How do you integrate digital technologies in your conservation projects? // Πώς ενσωματώνετε τις ψηφιακές τεχνολογίες στα δικά σας έργα-προγράμματα συντήρησης-διατήρησης;

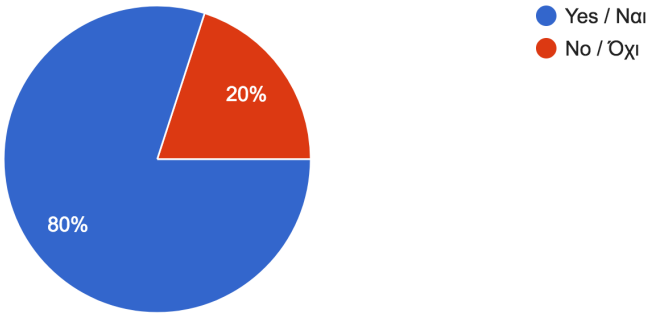
10 responses



Q6	Do you think Thessaloniki is known as a historical city? / Πιστεύετε ότι η Θεσσαλονίκη είναι γνωστή ως ιστορική πόλη;

Do you think Thessaloniki is known as a historical city? / Πιστεύετε ότι η Θεσσαλονίκη είναι γνωστ ως ιστορική πόλη;

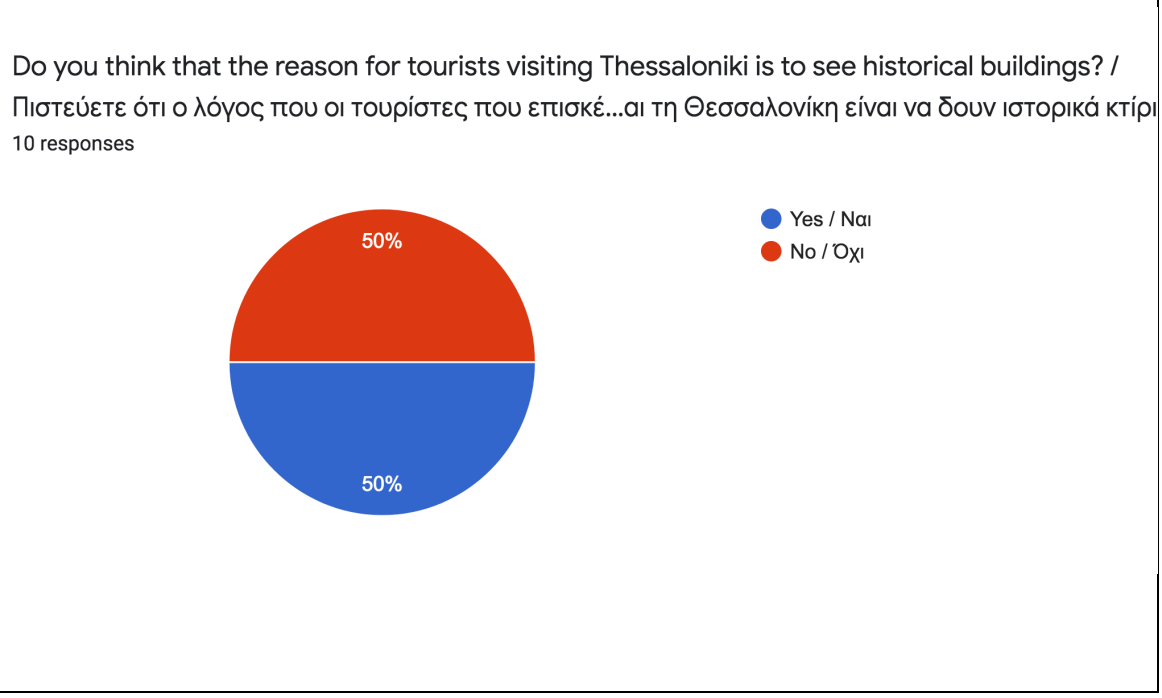
10 responses



Q7	**Can you give examples of conservation projects that you find successful in the city, which may help to recognise Thessaloniki as a historical city? / Μπορείτε να δώσετε παραδείγματα έργων διατήρησης (κτιρίων) που βρίσκετε επιτυχημένα στην πόλη, τα οποία μπορούν να συντελούν στο να αναγνωρίζεται η Θεσσαλονίκη ως ιστορική πόλη;**
T1	There are good examples of residential projects that I have been involved in on the hillside of the city. Timber frame structures were restored using traditional techniques. We are also working on the visualisation of the city as how it was and how it has changed over the years in addition to a physical model of the study area which is around Aristotales Square.
T2	Archaeological site of Galerian, squares of the city, harbour market Ladadika. The Ottoman markets were renovated in 1990s while no land use control was enforced. After 10 years this project started to decay.
T3	Rotunda (Agios Georgios), Galerian Complex, Several Byzantine churches
T4	Bei hamam. Hagia Sophia. Rotunda
T5	Thessaloniki is best known for its Byzantine architectural heritage. In almost all of its churches, conservation work has been done, although their continuous operation often contradicts the rules of heritage protection. St. Dimitrios, although it has been almost rebuilt after significant damage from the fire of 17, I consider to be a fairly successful attempt to restore the monument. Also an excellent example of preserving and integrating the new use is the symbol of our city, the White Tower. Finally, the gallery of Galerius, known as the Rotunda, is another successful example of a conservation project, with special mention to the minaret, which is one of the few examples of Islamic architecture left in the city. In the part of the modern architectural heritage, successful restorations have been made in many villas of the countryside, today's V. Olgas Street, as well as in the historic centre. During the reconstruction period and on the occasion of the earthquake of 1978, a very large percentage of newer historic buildings were lost, with the result that the discontinuities in the urban fabric could not give a complete picture of a historic centre, as is the case in many cities in our neighbourhood. Italy.
T6	Galerius Palace, Agios Panteleimonas, Rotonda, Byzantine Bath in Theotokopoulou, Ottoman Turbes (Musa Baba) in Kallithea Square (Ano Poli), Alysis or Trigoniou Tower, Islahane etc.
T7	White tower, Palace of Galerius, Byzantine churches, Ottoman mosques, Walls of Thessaloniki and other UNESCO World Heritage Sites. There are also some modern monuments that have been reused with a successful way.

T8	There are from the Roman period, like the ancient market, from the Byzantine period all the church buildings that are also declared monuments by UNESCO, the Ottoman monuments, such as the Command, parts of the walls etc as well as the traditional whole of the Upper City. Finally, the eclectic buildings of the 20th century.
T9	Roman market and gallery complex Byzantine monuments (Pan. Chalkeon, Agia Sofia, Agios Dimitrios, Achiropoititos, church of Agios Apostolos, Agios Nikolaos Orfanos etc.), Newer Monuments (many after 1917 inside the centre and before 1917 in Ano Poli)
T10	The restoration of Roman, Byzantine and Ottoman monuments and monumental ensembles, the restoration of the city's industrial heritage monuments mainly during the Ottoman period as well as some historic buildings after the fire of 1917.

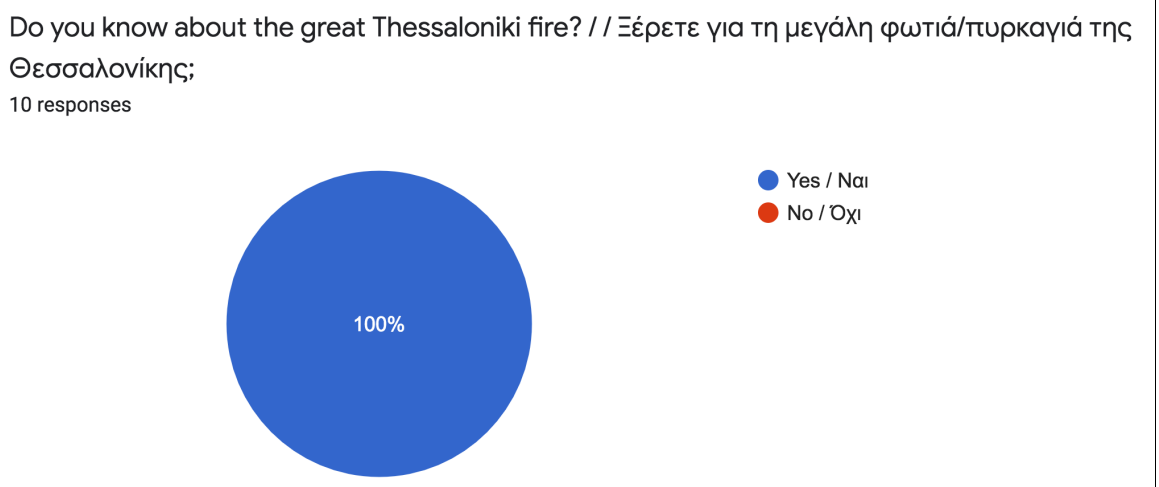
Q8	**Do you think that the reason for tourists visiting Thessaloniki is to see historical buildings? / Πιστεύετε ότι ο λόγος που οι τουρίστες που επισκέπτονται τη Θεσσαλονίκη είναι να δουν ιστορικά κτίρια;**



Q9	**Could you give examples of historic buildings that are mostly visited by tourists due to their historical importance? / Μπορείτε να δώσετε παραδείγματα ιστορικών κτιρίων τα οποία επισκέπτονται κυρίως οι τουρίστες λόγω της ιστορικής σημασίας τους;**
T1	I do not consider the city as very historic city. Only the old town which is an important part of the town that has to be preserved. With the 1930s and 1950s plan they kept them as important part of the history of the city but over the years it was destroyed from 2000 houses they have 40 restored, 4 of them I have restored by myself for different client. This tragic catastrophe wiped out the memory of the city. We rebuild old Turkish houses in an ugly way. This location is very ideal for residential use, thats why when the Turks came in 13th century they choose this place and before them the Romans, because this was the best part of the town, no humidity, water, natural.
T2	Since 2010 our prior Mayor tried to open the city to historic buildings, a lot of visitors from Turkey and Israel. Thessaloniki used to be predominantly Jewish city and dominant group although less than the Jewish one was the Muslims. We have a lot of tourists coming from Turkey mostly to visit Mustafa Kemal's family house. I dont know what is the trajectory of today's tourist agencies. Jewish museums an there are two guides for the Jewish heritage one was written by myself and a colleague Jewish Sites in Thessaloniki you can find it in Jewish Museum. Another guide was written by a local journalist who is not a specialist, also includes Jewish sites and also Muslim sites, although it is a good work but you are not supposed to rely entirely on the data he has collected but it is a start.
T3	Rotunda (Agios Georgios), Galerian Complex, Several Byzantine churches
T4	Rotunda. Hagia Sophia. Church of Acheiropoietos
T5	All the Byzantine churches, the White Tower, the axis with the Hellenistic ruins and the Rotunda, The walls, the citadel and the Upper City, the Turkish Consulate as the house where Kemal Ataturk was born, the Archaeological and Byzantine museums with their important , the markets of Vlali and Vatikioti and the monumental Axis of Aistotelos. Some old baths that have been restored and several others.
T6	Not only because of their historical significance, but also because of the greater visibility of tour operators: White Tower, Kamara, Rotunda
T7	White tower, Palace of Galerius, Byzantine churches, Ottoman mosques, Walls of Thessaloniki and other UNESCO World Heritage Sites.
T8	The Rptonda, the Gallery of the Gallery, the Ancient Agora, the Seven Towers, the Ladadika, the Upper Town, etc.

T9	Byzantine monuments
T10	The traditional settlement of Ano Poli (mainly Ottoman period), The castles of the city (Byzantine and Ottoman period), the Roman monuments and monuments, such as the Roman Agora, the Gallery Palace, etc., the Byzantine monuments declared by UNESCO mainly churches, but also the richness of the newer monuments belonging to the period after the redesign of the city from the fire of 1917, and constitute the majority of the buildings of the historic centre of the city.

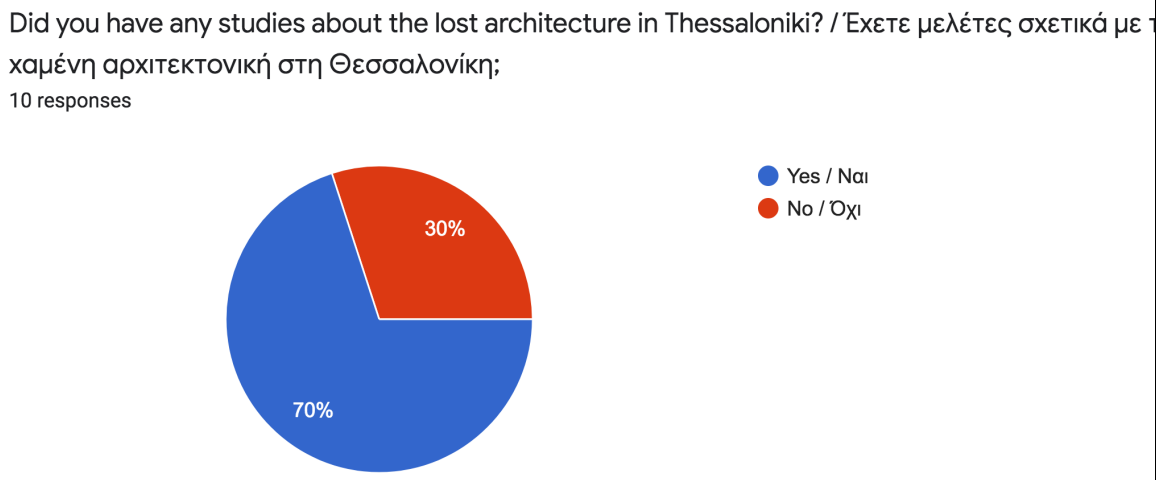
Q10	**Do you know about the great Thessaloniki fire? / / Ξέρετε για τη μεγάλη φωτιά/πυρκαγιά της Θεσσαλονίκης;**



Q11	**Do you know any buildings that were affected by the fire? / Ξέρετε κάποια κτίρια που επηρεάστηκαν από τη φωτιά;**
T1	Before the fire Thessaloniki had 50% Jewish, 25 % Ottomans and 25 % Greeks and some Bulgarians. The archives gives a lot of information about the city past even the family names, these archives are in a very bad condition, everything is damaged because of humidity. In May we will have our first exhibition on how was the town before the destruction in a small part. Archives from Ottoman period with old writing so it is difficult to work on. We have the information but we will try to do in a small central point Aristotales Square. We use digital technologies to visualise and there is a physical model in order to public including to understand even the children what was lost. What is coming out, we started to recognise the Byzantine town, it was something that was studied, but now with the metro studies, there are a lot of important Byzantine period, it is also important for Europe as well because we don't have any Byzantine town left in this condition.. This is one period has to be studied and to answer what was Thessaloniki as a Roman town and Roman Urban plan. After that we have very mixed period when Thessaloniki started to be big town before the fire. After the fire in European level a very important European style Urban plan.
T2	There are a lot of literature about the fire of Thessaloniki you can find a lot of books published. But the fire of Thessaloniki destroyed mostly Jewish quarters of the city, while the fire of Izmir destroyed the Greek and Christian quarters. There were a lot of buildings that were lost with the fire, we know that some mosques were destroyed particularly the mosque next to Konak house, Saatli Djami. After the fire first new plan of the city was 1918.
T3	Yes, but not by name.
T4	Saint Dimitrios. Hagia Sophia
T5	The section of the historic centre, now called the Fiery Zone, included the largest commercial part of the city centre and several homes, leaving 75,000 residents homeless, most of them Jews. 9500 buildings were destroyed in one night. Public buildings, libraries, mosques, synagogues, churches, poor and urban housing. There are several related posts.
T6	All buildings in the fire zone, with the exception of some, such as e.g. Hagia Sophia.
T7	Most of the buildings that were affected by the fire were destroyed. Those that survived were at the edge of the border line of the fire. There are also some byzantine churches and some antiquities inside the fire zone that survived.
T8	Hundreds of buildings were affected and destroyed by the 1917 fire.

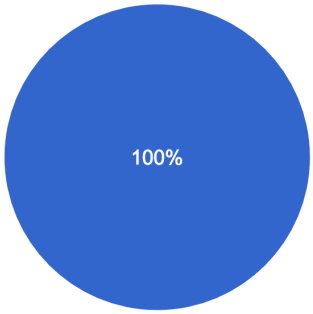
T9	Alliance Israelite, Medieval Palace, Agia Theodora, Saia Industry etc.
T10	The fire of 1917 almost completely destroyed the historic centre of the city within the walls, except for monuments which were either not excavated and discovered, or their construction was very durable, such as the Byzantine monuments. Also, because the fire reached its outskirts, the area of Ano Poli was not affected.

Q12	**Did you have any studies about the lost architecture in Thessaloniki? / Έχετε μελέτες σχετικά με τη χαμένη αρχιτεκτονική στη Θεσσαλονίκη;**



Q13	**What is your opinion about the future of lost architectural heritage in Thessaloniki? / Ποια είναι η γνώμη σας για το μέλλον της χαμένης αρχιτεκτονικής κληρονομιάς στη Θεσσαλονίκη;**

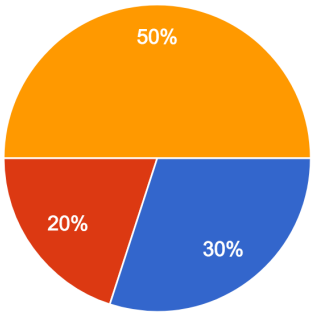
What is your opinion about the future of lost architectural heritage in Thessaloniki? / Ποια είναι γνώμη σας για το μέλλον της χαμένης αρχιτεκτονικής κληρονομιάς στη Θεσσαλονίκη;
10 responses



- Important, public should know more about them. / Είναι σημαντικό, το κοινό πρέπει να γνωρίζει περισσότερα γι' αυτή.
- Neither important nor significant. / Ούτε σημαντικό ούτε ασήμαντο
- Not important, public should not need to know more about them. / Δεν είναι σημαντικό, το κοινό δεν να χρειάζεται να γνωρίζει γι' αυτή.

Q14	**How do you evaluate the impact of the transformation of Thessaloniki's historic city centre on the city's urban memory. / Πώς αξιολογείτε τον αντίκτυπο του μετασχηματισμού του ιστορικού κέντρου της Θεσσαλονίκης στην αστική μνήμη της πόλης;**

How do you evaluate the impact of the transformation of Thessaloniki's historic city center on th city's urban memory. / Πώς αξιολογείτε τον αντίκ...υ της Θεσσαλονίκης στην αστική μνήμη της πόλη
10 responses



- Transformation had positive impact on the urban memory. / Ο μετασχηματισμός είχε θετικό αντίκτυπο στην αστική μνήμη.
- Neither positive nor negative / Ούτε θετικό ούτε αρνητικό
- Transformation had a negative impact on urban memory. / Ο μετασχηματισμός είχε αρνητικό αντίκτυπο στην αστική μνήμη.

Q15	**How do you think Thessaloniki's future conservation vision should be with relation to the continuity of the urban memory? / Πώς πιστεύετε ότι το μελλοντικό όραμα διατήρησης της Θεσσαλονίκης θα πρέπει να είναι σε σχέση με τη συνέχεια της αστικής μνήμης;**
T1	Throughout these different period of destruction of the city not only city have been changed but also there were social issues. If we understand what we lost we will be more careful not to destroy the remaining ones. How the legislation was and how the implication of this legislation and the political difficulties also ended up with wrong decision and that's why we have the town we have today. In general speaking the most catastrophic way after Braas plan was political decisions. When we had a town with 4 floors and change it to 8 this has destroyed the town and we have architectural decisions and we have social changes etc. All these mixture is very important to find out that this historical research that we are working on is not focusing on the future only because what we lost we lost but to understand how to think about our town. From archives there are a lot of information coming out about socially, by legislation, by design, by co-existence of those Jewish, Muslims, Christians a very important mixture of society and how were they living in a harmony in that period, this is very important.
T2	It is important for the general public to learn more about the lost heritage. More and more people are interested in history of the place and the tangible history I mean the architecture or the urban setting things like that. Sometimes on building plans that are found in archives for the Muslim buildings and all those public buildings built by the Ottomans like hospitals, or konak, common utility buildings in addition to photos and maps. Drawings were found in Prime Ministerial archives in Istanbul. This archive you can find of course they are not all digitised and they are not yet all open to researchers but gradually more and more of them come into life. If they are lost buildings, it is important to digitise the archival documents. Not public institutions are taking initiatives for this kind of studies. For instance in Athens there is a centre for Asia Minor Studies and the other is Smyrniotes Association in Athens and they have some collections there in terms of photos or recordings family documents, not specialised in architecture but in general on the setting of these communities that were exchanged.
T3	Yes
T4	I do not know
T5	To the previous question my answer is based on today's knowledge and my specialised experience. I'm not at all sure that it expresses even a small majority of people, even among colleagues. You see then. Despite the tragedy, it was seen as a means of modernizing and westernizing the city's image away from Eastern standards, which symbolized Ottoman rule. My personal view is that urban memory must be continuous and without large gaps. Each season must respect the previous one and leave its own mark with discretion, sensitivity and courage where needed. It is a huge shock for a people to be cut off

	from its roots, from what has shaped it as a culture and way of life. That is why after World War II most cities were restored to their former form and no sweeping innovative changes were made. Of course, history teaches us the opposite, depending on the beliefs of each power. Thessaloniki was destroyed more by the anarchic reconstruction of the post-war years in relation to the fire, which is now a past for which there are no vivid memories. I believe that the awakening and sensitization of the citizens regarding the value of our architectural heritage plays and will play a very important role for the future of the city, in combination with the general protection of the environment, the public space, etc. Time will tell.
T6	Find tools for the integration and maintenance of buildings that facilitate their maintenance and reuse processes. To have initiatives at the level of local self-government, university departments but also synergies between the institutions, in the direction of a more local view and recruitment of the monuments, regardless of the central institutional stage (YPPOA).
T7	With regard to the last question the impact of the transformation of Thessaloniki's historic city centre on the city's urban memory was both positive and negative. Positive for the promotion of the antiquities and against the historic urban fabric. After transformation of historic centre most of the antiquities were revealed, where the grid of the ancient roads was altered. Thessaloniki's future conservation vision should be on the axis of the continuity of the urban memory. The remaining historic buildings should not only be restored but they should also be promoted through contemporary digital tools.
T8	Understanding the structure of the city before the fire, the possible representation of the city after its redesign and the comparative view of modern urban fabric as a result of incompatible urban planning from the middle of the 20th century onwards.
T9	More importance must definitely be given to the preservation of modernist buildings.
T10	Yes I believe it. That is why it is important to use the existing archives to restore the city's violently lost identity before the 1917 fire. These studies and research will provide the coveted continuity of the city's historical memory.

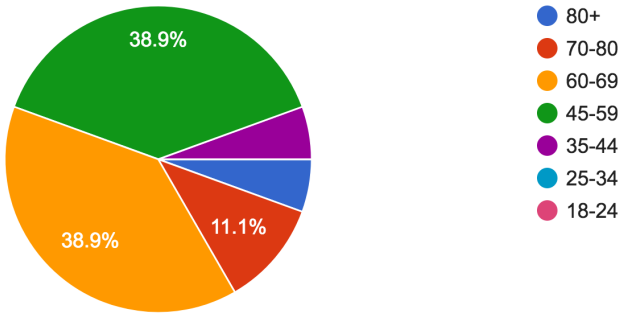
APPENDIX 7 POPULATION EXCHANGE DESCENDANTS / IZMIR

	PLACE OF BIRTH	AGE	Education	Occupation	Where do you live
PEDI1	Selcuk / Izmir	60-69	High School Degree	Electrician	Kusadasi / Aydin
PEDI2	Izmir	45-59	University Degree	Manager	Izmir
PEDI3	Aydin	60-69	University Degree	Teacher	Kusadasi / Aydin
PEDI4	Kusadasi / Aydin	70-80	High School Degree	House wife	Kusadasi / Aydin
PEDI5	Menemen / Izmir	60-69	University Degree	Retired	Karsiyaka / Izmir
PEDI6	Izmir	45-59	University Degree	Own business	Kusadasi / Aydin
PEDI7	Izmir	60-69	High School Degree	House wife	Kusadasi / Aydin
PEDI8	Selcuk / Izmir	70-80	Art School	Electrician	Kusadasi / Aydin
PEDI9	Kusadasi / Aydin	60-69	High School Degree	House wife	Kusadasi / Aydin
PEDI10	Yalova	35-44	Graduate Degree	Academic	Istanbul
PEDI11	Istanbul	45-59	University Degree	Engineer	Kusadasi / Aydin
PEDI12	Edirne	60-69	University Degree	Retired pilot	Kusadasi / Aydin
PEDI13	Germany	45-59	University Degree	Banker	Kusadasi / Aydin
PEDI14	Soke / Aydin	45-59	Graduate Degree	Doctor	Kusadasi / Aydin
PEDI15	Izmir	80+	Elementary School	Mechanics	Izmir
PEDI16	Kusadasi	45-59	University Degree	Mechanical Engineer	Kusadasi / Aydin
PEDI17	Izmir	45-59	High School Degree	Retired	Bornova / Izmir
PEDI18	Tokat	60-69	University Degree	Retired	Kusadasi / Aydin

Age / Ηλικία

Yasiniz

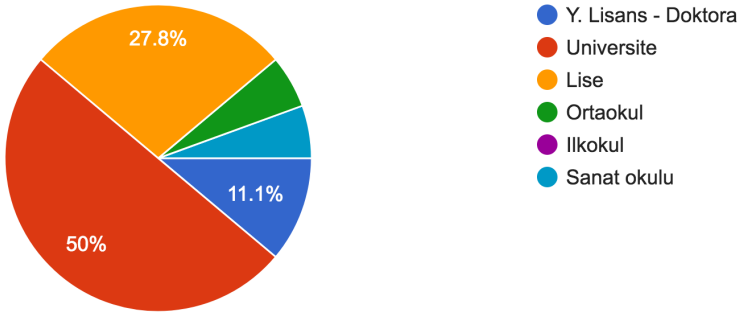
18 responses



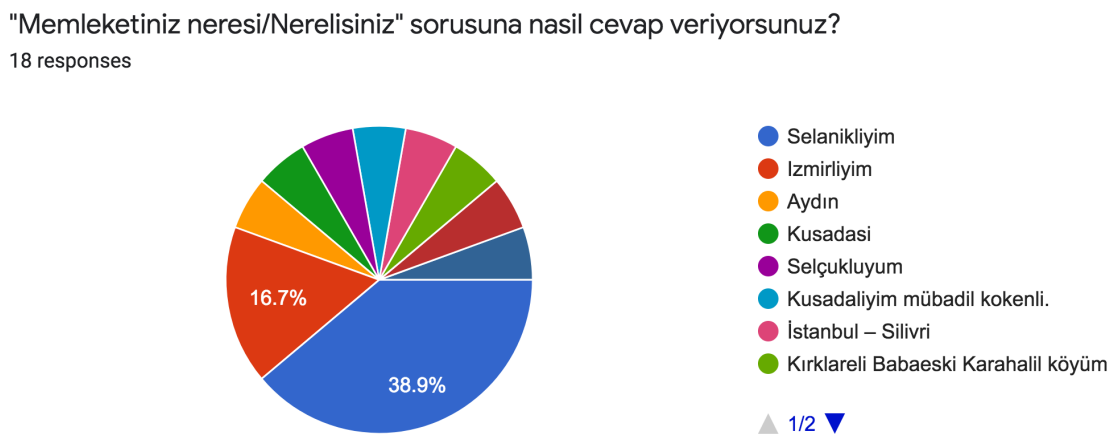
Education / Εκπαίδευση

Egitim durumunuz

18 responses



Q1	How do you answer this question; where is your homeland? / Πώς απαντάτε στην ερώτηση: "πού είναι η πατρίδα σας;"



Q2	How do you define your homeland? What are the things that belongs to your culture in that city? / Πώς καθορίζετε την πατρίδα σας; Ποια είναι τα πράγματα που ανήκουν στον πολιτισμό σας στην πόλη αυτή;
PEDI1	The place that I have settled in.
PEDI2	When they ask where are you from I say 'Selanikliyim'. Its our land what is our homeland. Where our ancestors are from. What also I think is from my culture are being handworker, food, cultural attachments.
PEDI3	I am from Aydin, I was born here and grew up here.
PEDI4	I say I am from Kusadasi, because of my family.
PEDI5	'Selanikliyim' Its culture similar to Izmir today with its modernity.
PEDI6	I am from Izmir, Aegean peninsula and people similar to me.
PEDI7	I am from Izmir, it's the city that I was born and grew up.
PEDI8	'Selcukluyum', it is the place that I was born in and grew up.
PEDI9	I say I am from Kusadasi and also migrant descendant (mubadil kokenli). It is because my ancestors came as migrants.
PEDI10	'Selanikliyim' it's my roots.
PEDI11	I am from Istanbul. Its my birth place and I am easy going with the people.
PEDI12	I am from Kirklaereli Babaeski Karahalil village. Where my grandfather came after the population exchange.
PEDI13	'Selanikliyim' it's my roots.
PEDI14	I say I am from Aegean. I like that it has traces from Aegean Island culture.
PEDI15	'Selanikliyim' food, music.

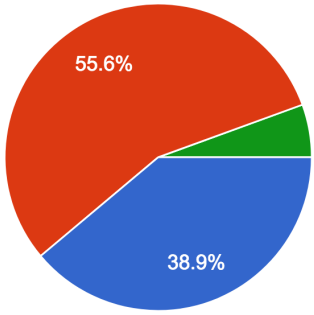
PEDI16	I am from Kusadasi. It’s a place that I was born. This is a Mediterranean culture similar to Aegean seaside towns in Turkey and Greece. Its culture dates back to long time ago.
PEDI17	Both my mother's side and father's side is from Florina and Thessaloniki

Q3	**Which generation population exchange descendant are you? / Ποια γενιά προσφύγων είστε;**
PEDI1	3rd generation
PEDI2	3rd generation
PEDI3	3rd generation
PEDI4	2nd generation
PEDI5	2nd generation
PEDI6	3rd generation
PEDI7	3rd generation
PEDI8	2nd generation
PEDI9	2nd generation
PEDI10	3rd generation
PEDI11	3rd generation
PEDI12	3rd generation
PEDI13	2nd generation
PEDI14	2nd generation
PEDI15	2nd generation
PEDI16	4th generation
PEDI17	3rd generation
PEDI18	3rd generation

Q3	**Which generation population exchange descendant are you? / Ποια γενιά προσφύγων είστε;**

Kacinci nesil mubadil yakinisiniz

18 responses



- 2. Nesil
- 3. Nesil
- 4. Nesil
- Aslında, 1826-1830'larda, mora'dan, isyanlar nedeniyle, Türkiye'ye gelmiş babamın büyükleri. Ama yaşananlar aynı, sonuçta hepsi zorunlu göçler, yaşadığın topraklardan kopuş. Bu nedenle üyü oldum mübadil derneğine

Q4	Where did your ancestors come from? How did they arrive? / Από πού κατάγονταν οι πρόγονοί σας; πώς έφυγαν από το σπίτι τους-ξεριζώθηκαν;
PEDI1	They came from Kavala some 150 km east of Thessaloniki.
PEDI2	They came from different places from my mother's side and father side. I have ancestors from Militi, Ohri, Florina and Selanik.
PEDI3	I have ancestors from Thessaloniki, Kavala and Skopje.
PEDI4	They came from Drama some 100 km north east of Thessaloniki.
PEDI5	Selanik, Avrethisar (Kilkis) Kristoni meaning 'Sarigol'
PEDI6	They came from Manastir, Florina, Pristine, Thessaloniki
PEDI7	They came from Kavala - Greece
PEDI8	They came from Stefanovouno / Elasonia
PEDI9	-
PEDI10	They came from Thessaloniki, Drama
PEDI11	They came from Thessaloniki, Macedonia
PEDI12	They came from Thessaloniki, Kilkis village name Peykova
PEDI13	They came from Kavala.
PEDI14	They came from Rhodes and Kos Islands.
PEDI15	Thessaloniki central area. They had a single story house near the bay.
PEDI16	They came from Mora during early 19th century. Today it is called Monem Vasia.
PEDI17	My father was born in Trakya. They come from Thessaloniki to Tekirdag. They made our grandfathers settled down in the land that they won. Then came to Izmir for work after the elder sister of my father moved to Izmir. The situation here was better. They came from Thessaloniki Langaza.
PEDI18	Florina, near a lake and Thessaloniki

Q5	Can you give information about your ancestors? Education, occupation, places that they lived etc. / Μπορείτε να δώσετε πληροφορίες σχετικά με τους προγόνους σας; Εκπαίδευση, επάγγελμα τόπους που ζούσαν κ.λπ.
PEDI1	They were farmers, had animals. Had basic education.
PEDI2	My grandfather finished primary school, he had basic education and after that he became a gardener. They were living in a classical Turkish house. One story house with a fireplace (ocak) in the main hall with three rooms. There is a barn nearby.
PEDI3	My grandmother had education in their house by private tutors, my mother in law did not have education. My grandmother's house was near today's Turkish Consulate in Thessaloniki. My mother in law grew up in a house in Kavala, Pravista a single story house with a garden
PEDI4	They had a beautiful place and they were farmers.
PEDI5	They were educated for their time. They were farmers.
PEDI6	They had bakery and selling sherbet.
PEDI7	I do not know
PEDI8	From my mother's side they had a small house, from my father's side they had a big house with garden. They were farmers and they had sheeps.
PEDI9	They had basic education, they were farmers.
PEDI10	They were farmers, they had 2 story house where there was a stairs at the entrance.
PEDI11	They didn't have education, they were farmers and doing works in garden. They had two story timber frame building.
PEDI12	My father was a soldier, he was a general in the army, my grandfather had basic education and he was a farmer. They had a single story stone house in the village.
PEDI13	They were farmers and fishermen.
PEDI14	They were breeding animals and had basic education. They had a house with a large garden and barn.
PEDI15	My father was going to a French school.
PEDI16	They were educated in religious school and became Imam.
PEDI17	Basic education, farmers, builders. When we visited we could not see their house. The guide helped us communicate with people living there now. The village is a small village with one coffee shop and restaurant. A small square with a big pine tree. They greeted us very nicely. They gave us some presents, some souvenirs and earth from the land we got some water from the well. They showed us the church, they kept all the things that our ancestors left behind and make a museum. I saw some told that we still use in the farm the original ones. Orak, ellik, bicak, satir, kama, they put them on display. We were very happy.
PEDI18	Land owner. They had winery. Many people did not have any cars but they have their own so they travel from Florina to Thessaloniki with their personal cars. Not only my ancestors but many people there had big lands.

	My grandfather was like a history book, he was talking about all the historic events. He fought in Balkan war, he was captured as fugitive. He managed to escape from the Bulgarian army. They had large land in there, they were living in Florina in summer and their winter house was in the city of Thessaloniki, near Ataturk's house now. They were living in the city for 4 months, they had big wealth there. My grandfather was saying we came here after search from Greek soldiers if we have any wealth on us. So they couldn't bring anything only their clothes and all they could carry. The house they were living in Florina had two courtyards where they had Harem and Selamlik. They had horses and gathered men to protect themselves. We were trying to protect the village from the Greek army. They were coming to the villages nearby and killing men and raping women.

Q6	**Did you visit the place that they came from? Επισκεφθήκατε τον τόπο από τον οποίο προήλθαν;**



Q7	**Do you know any buildings / neighbourhoods / street names from the city that they came from? / Γνωρίζετε κάποια κτίρια / γειτονιές / ονόματα δρόμων από την πόλη από την οποία προήλθαν;**
PEDI1	They were living somewhere called Langaza.
PEDI2	I do not know.
PEDI3	I do not know any names of places.
PEDI4	I do not know.
PEDI5	I visited the city they came from but I don't know what kind of house they lived in.
PEDI6	I do not know.
PEDI7	I do not know.
PEDI8	There was a mosque and a school near the mosque, their house was near the school.
PEDI9	I do not know.
PEDI10	The village they were living in was called Agora, nearby Adriani, Nikoforos, Kalambaki, Doksat.
PEDI11	I do not know.
PEDI12	The new name is Agios Markos, old name of the village was Peykova.
PEDI13	I do not know.
PEDI14	Germe village in Rhodes.
PEDI15	I know around the White Tower area.
PEDI16	I do not know.
PEDI17	We went to their village, with a tour guide. We went with a group of 55 people.
PEDI18	They were managing two Greek villages nearby and four Turkish villages. They were also doing business with Manastir. When they need big shopping they come to Thessaloniki but day to day sometimes they go to Manastir for business.

Q8	**Would you like to know more about their city and visit the city? Why? / Θα θέλατε να γνωρίζετε περισσότερα για την πόλη τους και να επισκεφτείτε την πόλη; Γιατί;**
PEDI1	Yes. To know more about where they have lived in.
PEDI2	I didn't visit where they come from. I want this with all my heart. They are very few people from our past. I want to see the places that my grandfather talked about when I was a kid, the places he played around, the trees that he climbed on. They are my past and they are the stories of my today's life.
PEDI3	I visited the places that they came from, it was very emotional and we wanted to learn more about our roots.
PEDI4	I visited Drama, and I would like to learn more about their city.
PEDI5	I would like to know more about the place yes.
PEDI6	Yes I am curious about it.
PEDI7	I want to visit where they came from and I wonder about it.
PEDI8	I would like to see yes because it's the place where my father and mother were born and grew up.
PEDI9	Yes I would like to visit and know more.
PEDI10	I visit their village every year. I became friends with the villagers. Whenever I go there I feel like I am breathing same air as my ancestors.
PEDI11	Yes, I am curious about the place they were born and grew up.
PEDI12	I would like to know more about the place. I have visited and the Rums from Pontus in the nearby village greeted us very nicely.
PEDI13	Yes I would like to visit and know more.
PEDI14	I would like to see the seaside and the city. It was a special place for my father.
PEDI15	I am old now I want my children and grandchildren to see there.
PEDI16	Yes, I would like to see where my ancestors used to live and I would like to breath the same air they had and know more about the culture.
PEDI17	My grandfather told me a lot of stories so I was curious. They were telling me very good land they owned and it was true. After I saw where they came from I thought I would prefer to live there instead of staying here. Big valleys we passed through. I was very emotional when I went there, our village was very well protected by the people who settled in our ancestor's village. They restored the houses in original way. We saw similar things that my family's village in Turkey there also. For example large entrances. My ancestors had one story stone masonry houses with garden around 5 acres. They were saying it was like a palace, big houses.
PEDI18	Yes. We always feel bad about not having recorded or took notes of what my grandfather used to tell us. He was telling us those stories like a fairy tale.

Q9	**Where did they settle after population exchange? What kind of life they had? / Πού εγκαταστάθηκαν μετά τη την προσφυγιά; Τι είδους ζωή είχαν;**
PEDI1	They were settled in Sirince, Selcuk. Near Izmir. They were also doing farming.
PEDI2	They came to Sirince Izmir. And after that they settled in Kusadasi. My grandfather started working as a clerk in Ziraat bank in Kusadasi because he knew Ottoman language. He was the only employer other than the manager. The family continued to do farming. After he opened a grocery store and continued to do farming.
PEDI3	My grandmother's family settled in Karsiyaka Izmir and she became a housewife and my mother in law's family settled in Odemis Izmir.
PEDI4	They settled in Kusadasi and continued being farmer.
PEDI5	They came to Menemen, they continued being farmers.
PEDI6	They settled in Izmir and they had bakery and other side became painter.
PEDI7	They settled in Izmir Halil Rifat Pasa, and my father was in printing business.
PEDI8	First they settled in Mersin, near Ceyhan river. Because of malaria epidemic, they were re-settled in Selcuk Izmir. They continued to do farming and they had sheeps. Same as before.
PEDI9	They came to Kusadasi and they continue being farmers.
PEDI10	They came to Sirkeci Istanbul by train. They stayed in quarantine for 3 months and they moved to Yalova. They became farmers also they trade textile and owned a grocery store.
PEDI11	They came to Fener village in Silivri. They were farmers as well.
PEDI12	In December 27th 1923 they came to Mudanya with a boat and they were assigned to Tekirdag Babaeski. They continued being farmers and they had sheeps.
PEDI13	They came to Izmir and continue working in the farm.
PEDI14	They came after the population exchange around 1945. They were first settled in Nazilli Sumerbank area. They were first cook, and tailor and after that they moved to Kusadasi and became fisherman.
PEDI15	They came to Rhodes and after that Antalya, Aydin and Izmir. My father worked in postal services because he knew French and worked there until retirement.
PEDI16	They came to Kusadasi and became farmers.
PEDI17	My father was born in Trakya. They come from Thessaloniki to Tekirdag. They made our grandfathers settled down in the land that they won. Then came to Izmir for work after the elder sister of my father moved to Izmir. The situation here was better. I had a coffee shop in the village when there were elderly coming to the coffee shop. They were telling me a lot of stories, There was a lake in our village and there is woods, animals that they breed. They were farmers, they owned sheep. For example my mother's father was raising animals. They came from Thessaloniki with boat. They ran away from the Greek army and from the war zone. When the war ended they did not feel comfortable

	and after population exchange decision they came here. They waited for days in a port in Thessaloniki. They left their animals and land. They just brought whatever they could carry. They came 35-40 houses together and they settled here same village in Turkey.
PEDI18	They stayed there 12 years under Greek occupation and come to Tokat after population exchange. They were saying they suffered so much. In Tokat they were calling them 'gavur', they were not welcomed in the mosque even. They did not have easy life he was saying they suffered a lot. When they first arrived they came to a place near Izmir with a boat after that they were resettled in Tokat.

Q10	**Do you know about Izmir fire in 1922? / Γνωρίζετε για την πυρκαγιά της Σμύρνη το 1922;**



Q11	**Do you know which areas were affected after fire? / Γνωρίζετε ποιες περιοχές επηρεάστηκαν από την πυρκαγιά;**
PEDI1	I think mostly near Alsancak neighbourhood and old exhibition park area.
PEDI2	It started in Basmane region in September 13th 1922 and it lasted for 4 days. It destroys the city centre into ruins.

PEDI3	I heard about the fire but I don’t know any places.
PEDI4	Alsancak area.
PEDI5	Kemeralti, Tilkilik, Alsancak, Cankaya, Tepeecik and Goztepe areas.
PEDI6	I do not know about the fire.
PEDI7	Alsancak
PEDI8	I do not know about the fire.
PEDI9	I do not know about the fire.
PEDI10	I do not know.
PEDI11	I read about the fire affected Konak and its neighbourhood.
PEDI12	All of Alsancak, near Pasaport pier and Kordon (quai)
PEDI13	I do not know about the fire.
PEDI14	Kokaryali area.
PEDI15	The area around Kulturpark.
PEDI16	I do not know.
PEDI17	There were fires after the war. Bad things happened I heard but I dont know any buildings or areas.
PEDI18	Alsancak.

Q10	Do you know about Thessaloniki fire in 1917? / Γνωρίζετε για την πυρκαγιά της Θεσσαλονίκης το 1917;



Q12	Before the population exchange and fire, how do you think Thessaloniki was? / Πριν από τη προσφυγιά/εγκατάσταση των προσφύγων και τη πυρκαγιά, πώς νομίζετε ότι ήταν η Θεσσαλονίκη;
PEDI1	I don't know any buildings or areas from Thessaloniki or Izmir but I would like to see how it was before.
PEDI2	The fire of Thessaloniki started in August 18th 1917. It was lasted for 32 hours. I know that 72 thousand people became homeless. The area between Vardar street and the bay became affected especially Turkish and Jewish quarters. I would like to see how Thessaloniki was before the fire. I think it was like a beautiful city like a lace.
PEDI3	It was similar to Izmir's past I think.
PEDI4	I know that there are Turkish quarter in Thessaloniki, I would like to see it. I think it was beautiful
PEDI5	It was similar to Izmir with single story houses and shops.
PEDI6	I do not know.
PEDI7	I do not know.
PEDI8	I do not know about the fire but I would like to see the burned down buildings from the Muslim neighbourhood. I think it was similar to Izmir.
PEDI9	I do not know about the fire but I would like to see all of it as it was before. I think it was a beautiful city.

PEDI10	The area around Aristo square, Ayasofya and up to the hill government building damaged. I know about Saatli cami and some Hans. Before the fire there was more Turkish identity in Thessaloniki, after that the rebuilding, more open areas, squares.
PEDI11	I would like to see how it was before the fire. I think it was similar to Izmir.
PEDI12	I saw some old photos. I would like to see the bay area, Hurriyet square, old Turkish cemetery, Old Turkish mansions in the hillside, Jewish quarter and Vardar street.
PEDI13	I would like to visit and see how it was before.
PEDI14	Fire affected areas around the Beyaz Kule at the seaside. I would like to see the theatres art places.
PEDI15	Vibrant life in seaside, restaurants, shops and cafes.
PEDI16	I do not know.
PEDI17	When I saw Thessaloniki I thought I was in Izmir. They have similarities, especially seaside around White Tower. I think it was similar to Izmir also around Yesilyurt, Karatas nowadays when we see the Turkish quarters and the hill area with castle.
PEDI18	My grandfather was talking about Thessaloniki. He was describing the streets with cobblestone and houses with shutters. There was a Greek market where they were doing their shopping. Houses were generally with 'cumba' where many Turkish people used to live. Not many Greek people. They had great neighbors and they were going to Friday prayers in Thessaloniki when they were staying during winter times. Even in winter times ladies of the house stay in Thessaloniki full time and men sometimes travel back and forth between Florina and Thessaloniki. My grandfather's sister recently passed away at the age of 111 and she was talking about being neighbors with Mustafa Kemal's family.

Q13	**Before the population exchange and fire, how do you think Izmir was? / Πριν από τον ξεριζωμό (των Ελλήνων) και τη φωτιά, πώς νομίζετε ότι ήταν η Σμύρνη;**
PEDI1	I think it was more green with more trees.
PEDI2	I saw Izmir's old photos, as far as I saw the houses and shops in kemeralti was spectacular, the architecture was wonderful . I used to work in Hamza Rustem passage in Izmir.
PEDI3	Similar to the Ataturk house in Kordon, there must be houses like that on the quai, transportation must be with horse carriage.
PEDI4	It's a pity.
PEDI5	I would like to see how it was before. Small buildings houses and shops I think it was beautiful city.
PEDI6	I do not know.
PEDI7	I do not know.

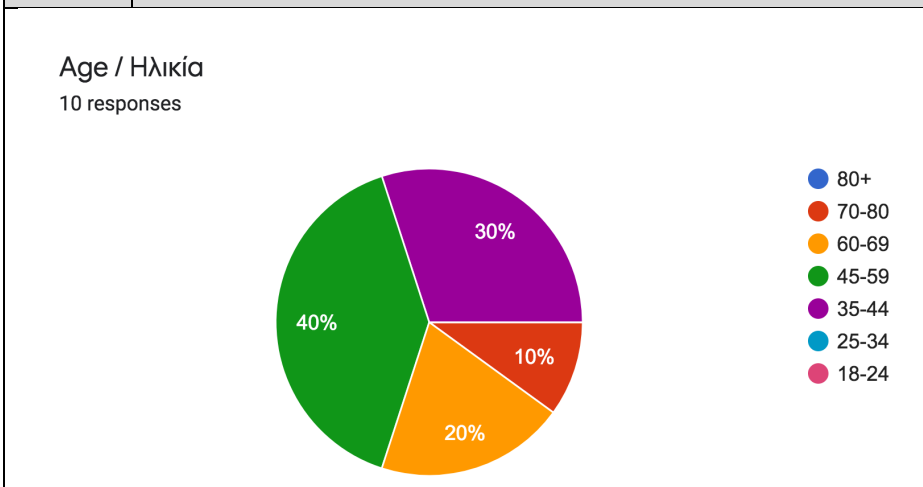
PEDI8	It was a modern port city.
PEDI9	Before the fire it was an underdeveloped stone buildings, dark Izmir.
PEDI10	It was a cosmopolitan city with different cultures living together.
PEDI11	I think there were wooden buildings with gardens next to each other with.
PEDI12	I don't know much about it.
PEDI13	I would like to know more.
PEDI14	I would like to see Karatas neighbourhood and Alsancak's levantine life style. I would like to see Karatas hospital before fire.
PEDI15	Shops in Pasaport, and mansions in Kokaryali and Bornova, it must have been a vibrant city.
PEDI16	A port and commercial city where Greeks and Levantines used to live.
PEDI17	We met when we visit there people coming from Trabzon, we met people looking for their old friends from Izmir and they asked our help.
PEDI18	Similar to Thessaloniki.

Q14	**How do you think population exchange affected Izmir and Thessaloniki? / Πώς πιστεύετε ότι η ανταλλαγή των πληθυσμών επηρέασε τη Σμύρνη και τη Θεσσαλονίκη;**
PEDI1	Its crowded and chaotic.
PEDI2	Unfortunately they could not protect the historic urban tissue. It's a concrete jungle.
PEDI3	I wish they could have survived with their authentic identity.
PEDI4	I wish the past did not disappear, it makes me sad.
PEDI5	For Izmir when the occupiers (referring to Greek Army) if we will not be here everything should disappear. It is very imperialistic thought.
PEDI6	Izmir had been beautiful every time and I did not see Thessaloniki.
PEDI7	In Izmir there was a big demolition.
PEDI8	The architecture became more modern.
PEDI9	They were more developed.
PEDI10	Although the fire destroyed the city's past, paradoxically the new settlers had areas for modern urban planning.
PEDI11	Izmir Kordon area and the Thessaloniki quay area are similar.
PEDI12	The old urban tissue of the cities were disappeared, authentic architecture were lost. I wish the old city remained as it was before, I wish it was protected and the modern city was planned away from the city centre.
PEDI13	I would like to know more.
PEDI14	Thessaloniki is a modern city and has vibrant night life and shopping areas. Izmir became a different city with losing different cultures and homogeneous Muslim communities.
PEDI15	I think both city seaside has a lot of resemblance.
PEDI16	Culture that has been formed over the years had a serious damage and the majority of it completely lost.
PEDI17	Izmir and Thessaloniki similar with their seaside, hillside and castle. I like to see traditional places when I visited Thessaloniki and Izmir. I would like to go again.
PEDI18	We shouldn't demolish, this is wrong. If we forget the past our past will be forgotten as well we can not make good decisions. I remember when I was a kid I was playing around a church building and I remember they took down the church bell down and demolished the church and built new houses there. This is very ignorant and very wrong politics.

APPENDIX 8 POPULATION EXCHANGE DESCENDANTS / THESSALONIKI

	PLACE OF BIRTH	AGE	Education	Occupation	Where do you live
PEDT1	Thessaloniki	45-59	High School Degree	Medical Supplier	Evosmos Thessaloniki
PEDT2	Thessaloniki	45-59	University Degree	Professor	Evosmos Thessaloniki
PEDT3	Thessaloniki	45-59	University Degree	Historian	Thessaloniki
PEDT4	Thessaloniki	60-69	High School Degree	Insulation works, waterproofing	Nea Kordelio Thessaloniki
PEDT5	Volos, Greece	35-44	Graduate Degree	Communication Specialist	Thessaloniki
PEDT6	Thessaloniki	35-44	University Degree	Journalist	Athens
PEDT7	Greece	35-44	University Degree	Librarian	Greece
PEDT8	Krya Vrysi, Pella	60-69	High School Degree	Unemployed	Thessaloniki
PEDT9	Thessaloniki	70-80	High School Degree	Worked in Iron factory. Retired.	Nea Kordelio Thessaloniki
PEDT10	Athens	45-59	Graduate Degree	Professor	Thessaloniki

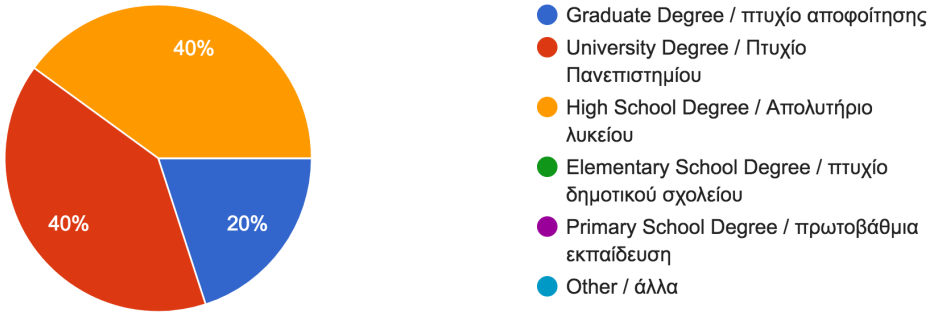
	Age / Ηλικία



	Education / Εκπαίδευση

Education / Εκπαίδευση

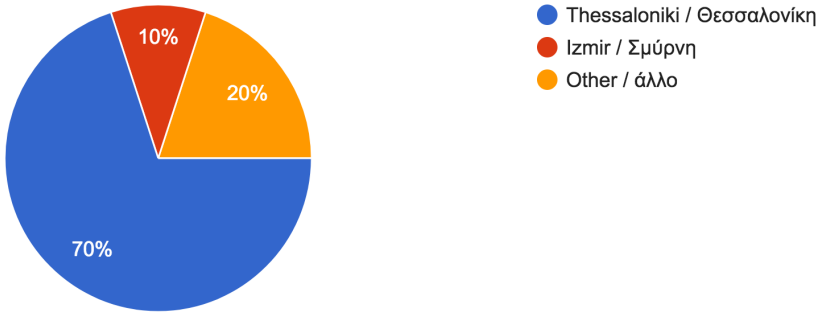
10 responses



Q1	How do you answer this question; where is your homeland? / Πώς απαντάτε στην ερώτηση: "πού είναι η πατρίδα σας;"

How do you answer this question; where is your homeland? / Πώς απαντάτε στην ερώτηση: "πο είναι η πατρίδα σας;"

10 responses

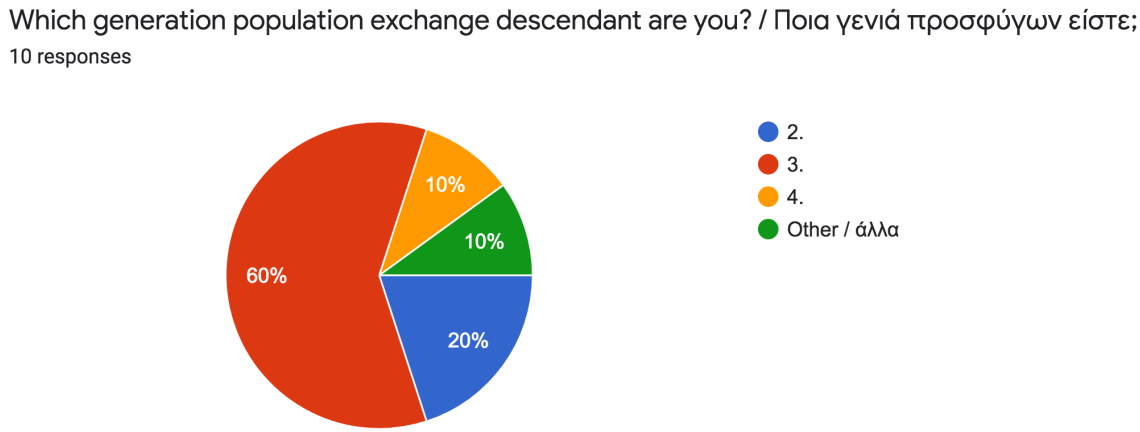


Q2	**How do you define your homeland? What are the things that belongs to your culture in that city? / Πώς καθορίζετε την πατρίδα σας; Ποια είναι τα πράγματα που ανήκουν στον πολιτισμό σας στην πόλη αυτή;**
PEDT1	The place I was born in, morals, and customs
PEDT2	The place, geographically, where I was born. Together with all the elements such as religion, language, education, culture. Because the city is multicultural, it is of various nationalities and the things that belong to it.
PEDT3	It is the common cultural heritage, the refugee memory and the identity
PEDT4	They are multicultural, hospitable people, revelers love culture. It is a crossroads of East and West
PEDT5	It's the city I grew up, my memories, my personal history
PEDT6	People, food, sea.
PEDT7	The lands where my ancestors were born, me and my children. My language, our manners and customs.
PEDT8	Homeland is the place I live, its Greece. The homeland of my grandfathers is the point.
PEDT9	I say Im from Izmir, Kordelio. Here in Thessaloniki I also live in Nea Kordelio.
PEDT10	I say I am from Athens. I dont think my mother takes pride from her Turkish origin or Greek Turkish origin. Unless she was in Turkey, or she finds someone from Turkey. Actually what I take proud to say most of the time I was born in Athens I am Athenian, and I have roots from Crete from my father's side. I take big pride from my father's birth place.

Q3	**Which generation population exchange descendant are you? / Ποια γενιά προσφύγων είστε;**
PEDT1	3rd generation

PEDT2	2nd generation
PEDT3	3rd generation
PEDT4	3rd generation
PEDT5	2nd generation
PEDT6	3rd generation
PEDT7	4th generation
PEDT8	3rd generation
PEDT9	2nd generation
PEDT10	3rd generation

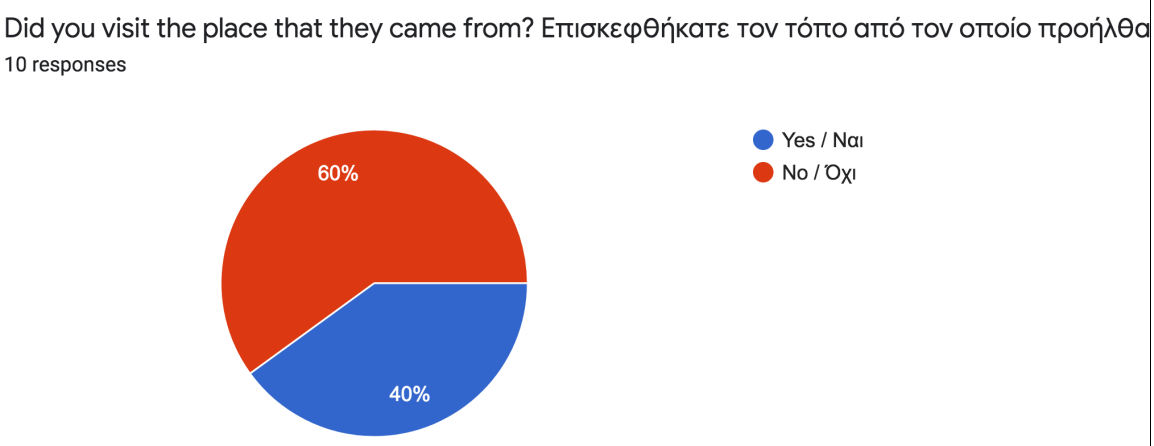
Q3	**Which generation population exchange descendant are you? / Ποια γενιά προσφύγων είστε;**



Q4	**Where did your ancestors come from? How did they arrive? / Από πού κατάγονταν οι πρόγονοί σας; πώς έφυγαν από το σπίτι τους-ξεριζώθηκαν;**
PEDT1	Area of Smyrinis Mandalia, with the catastrophe/
PEDT2	Baku Russia, banking point
PEDT3	My ancestors came from Kukloutzas. Altindag today. They were forced to flee their homes in 1922 due to the persecution by the Kemalists.
PEDT4	They originate from the Kordelio of Smyrna, today's name Karsiyaka. They were expelled during the catastrophe in Asia Minor in 1922.
PEDT5	My father was born in Istanbul. His family came to Thessaloniki around 1925 (yes he was quite old when I was born) due to the unstable situation I suppose. From my mother's side both grandparents were from Izmir area (grandad from Alacata, grandma from Nymphaio). They came to Crete during the exchange of populations
PEDT6	Kirklareli (40 ekklisies). The left twice - once following the evacuation of the 1st WW and a second time during the exchange of populations
PEDT7	From Pontus they were uprooted by force.
PEDT8	From wider area of Pontus. They were uprooted.
PEDT9	My grandfather from Karsiyaka they came to Thessaloniki with a small boat. They ran away in year 1915. Because Turkish collect all the Greeks and they send them to jobs in Eskisehir other areas.
PEDT10	Vourla is the place that they came from. From the narrations that we have, they did not keep anything. From my ancestor's narrations they were kicked out suddenly. They left from Izmir, as it happened that was something that they did not prepare for therefore it happened very suddenly, they weren't organized to leave as a family altogether so they left separately. My grandmother who was the eldest sister, her brother and the middle sister adhered to their grandmother and the grandfather. In the crowds they were pushed into the boats by Turkish soldiers and they lost mother, father and the youngest kid and they never saw them ever again.

Q5	Can you give information about your ancestors? Education, occupation, places that they lived etc. / Μπορείτε να δώσετε πληροφορίες σχετικά με τους προγόνους σας; Εκπαίδευση, επάγγελμα τόπους που ζούσαν κ.λπ.
PEDT1	They had basic education, my grandfather was a barber.
PEDT2	From my father's side my grandfather had abakery and my grandmother was housewife. From my mother's side they were workers.
PEDT3	My ancestors were mainly engaged in agriculture (olives, figs and vines). They were elementary school graduates. They lived peacefully in Koukloutzas. They came at the age of about 12-14 years. Their parents went to Smyrna for their work. Sometimes they took their children with them.
PEDT4	Grandma's family owned a patisserie in Kordelio and fisherman who went fishing. They lived in Papaskalas, today called Bostanli.
PEDT5	My grandfather from my mother's side was born in Alacata and came to Heraclion when he was about 12. He was a barber. I think that his father was cultivating vines but not sure. My grandmother from my mother's side was from a village called Nymphaio and came to Heraclion when was about 10. Her father owned carriages and was transporting agricultural products. My grandmother became an embroiderer
PEDT6	My great-grand father Konstantinos Kazantzoglou was a shoe maker and a communist, living close to Istanbul. My great-grand mother was from Kirklareli (40 ekklisies) - she went to school in her 40's following the death of her husband.
PEDT7	They were farmers and lived in Yozgat.
PEDT8	Grandfathers were illiterate. Parents had basic education.
PEDT9	They were living in Bostanli, they came to Thessaloniki. Fisherman in Bostanli. My mother's family from Izmir. Bostanli was small houses with bahce (gardens), garden was for not for selling for themselves they were fisherman. Many Greeks died there, and my grandfather came to Thessaloniki first time. After that Greek army goes there and my grandfather reconnected with family. My grandfather's brother from my father's side could not come here, he was killed on the way. My grandmother from my father's side also lost his father he was killed after 1914. They took him for roadworks.
PEDT10	My father teases my mother as they were refugees and penniless, not in a nasty way but to make jokes. And my mother used to say we have golden spoons to eat with. She was talking about the wealth, she was coming primarily from wealth, I understood that my great grand father probably owned land. Most probably they were farmers of some sort, cultivating grapes, tobaccos. They used to use camels to carry goods. Laborers, workers working for the farm. They had 4 children 3 girls and 1 boy. Two story with 'oda', my mother kept talking about it. They had the sleeping areas on the top floor. She described a courtyard with a plants and a pergola. They had a nice view, across the farms that they owned over the hill. My grandmother was speaking Turkish.

Q6	**Did you visit the place that they came from? Επισκεφθήκατε τον τόπο από τον οποίο προήλθαν;**



Q7	**Do you know any buildings / neighbourhoods / street names from the city that they came from? / Γνωρίζετε κάποια κτίρια / γειτονιές / ονόματα δρόμων από την πόλη από την οποία προήλθαν;**
PEDT1	No.
PEDT2	No.
PEDT3	I know the nine fountains in Koukloutzas, I saw them when I went, and in Smyrna I walked to Paralleli and the Waterfront, the Quai, to the Clock Tower.
PEDT4	No I do not know.
PEDT5	No
PEDT6	No
PEDT7	They have same streets in some cities still.
PEDT8	No
PEDT9	I know all the churches. Bostanli there was a church Resurrection of Christ Church. I remember many church, Karsiyaka there were no fire but for the material of the church they used them in school other buildings. In Karsiyaka there was a church but now its a school. In Karsiyaka the police station was a Greek building. Also I know the house of the train workers at the end of the market. St George church in Izmir, St Photini church with its tower. Aya katerini church.
PEDT10	No. From what I know now, Izmir and in Istanbul there were well educated Greek people, my grandmothers family weren't very much educated, they weren't playing the piano, they weren't speaking other languages, they weren't this kind. They were farmers, to tell you the truth I am even suspecting my grandmother never got educated so they may never have been to Izmir from Vourla. My grandmother's brother continued his education in Athens so I think there was a gender issue.

Q8	**Would you like to know more about their city and visit the city? Why? / Θα θέλατε να γνωρίζετε περισσότερα για την πόλη τους και να επισκεφτείτε την πόλη; Γιατί;**
PEDT1	Yes. To see the places that they lived.
PEDT2	Yes I would like. Of course unfortunately everyone has died when I can do any visit it will have only personal motivation.
PEDT3	I would like to know more. It was the place where they lived and made their living there. They left their parts in childhood, under tragic conditions, traumatic. They became refugees. They could never go back to the place where they were born.
PEDT4	Yes of course I want to.
PEDT5	Yes, it's part of my personal history
PEDT6	Yes - out of curiosity.
PEDT7	Of course. It is our history, the homeland of our ancestors, the lands where our grandparents were born. It would be a wonderful experience.
PEDT8	Yes, historical reasons. No other reasons than emotional.
PEDT9	I went there 16 times. First time i went was 1980 to see my grandfathers house. Because I heard about the location, I went there I found the small corner of the house and tree outside the house and well from the house. I found many houses of my father's friends. My father came to Thessaloniki when he was 12 years old so he remember everything. I went to many places, Europe other places South Africa. I like to see people before political division. I dont understand this politics.
PEDT10	I would love to go. I have looked it up now I have more clear idea about these masonry buildings they had.

Q9	**Where did they settle after population exchange? What kind of life they had? / Πού εγκαταστάθηκαν μετά τη την προσφυγιά; Τι είδους ζωή είχαν;**
PEDT1	In Rethymno, Crete. My grandfather opened a hairdresser again. When they started distributing new land to refugees, they were transferred to Nea Koukloutzas, now named as Evosmo.
PEDT2	My father went out first to Piraeus and then they went to Rhodopoli, Serres. My mother was born in Kavala where her own parents had arrived from Anatolia. Life for the years they lived was not easy, he had a lot of work in difficult times and different threads. They had poor life with struggle but dignity.
PEDT3	They settled in Thessaloniki, on the outskirts of the city, which they named Neo Koukloutza (as was the name of their village in Central Asia, to keep alive the memory of the place where they were born). Initially they found a roof around the church of the small village they found, in tents and shacks. Then they lived in houses built for the refugees. Life was very difficult. They were engaged in the cultivation of the land and the breeding of animals (cows).
PEDT4	After the persecution they settled in western Thessaloniki and founded the new Kordelio. And he was dealing with fruits and vegetables.
PEDT5	My father's family settled in Kalamaria Thessaloniki. They were given a house (it became an apartment building where I now live and my grandfather owned a little shop, something like a mini market. My father had limited education and worked as a labor worker. My grandfather from my mother's side seetled in Crete. He became a barber. He was communist and was executed by the Nazis during the occupation. My grandmother grew up in an orphanage. Her father didn't make it to Greece during the exchange (he was killed from one of his Turkish employees) and since the were 4 siblings and their mother couldn't raise them she grew up in an orphanage. She was widowed when 28 and had a really difficult life raising two kids alone
PEDT6	First they settled to Komotini (Gumultzina) and they had a normal life. But during the dictatorship of Metaxas, police became suspicious of my great-grand father - due to his communist beliefs - and he took his family and left to Thessaloniki.
PEDT7	In Greece and specifically in Western Macedonia, in the municipality of Eordea. They worked in public works and of course with the agriculture they knew.
PEDT8	Mecedonia, Pella 40 km west of Thessaloniki. They settled in agricultural area, there were farmers.

PEDT9	They came to Salonica, small town too many people. Worked for French Army. They were working for the French Army. They built roads, worked in construction.
PEDT10	What happened was, they were taken by boat from Izmir to Mittilini, they stayed on a camp for a short period and another boat took them all the way to Thessaloniki. From here they took my grandmother to have her employed somewhere so they moved her to Athens as a maid for rich family houses in a very posh area of Athens Kolonaki, where she was sobbing all day because she was thinking of her family left in Thessaloniki. And through redcross later on they were reunited and after a while they started allocating houses in Athens. They had a very good condition in Turkey, she never really made the distinction between Greece and Turkey, she was always referring to Vourla as her birthplace.

Q10	**Do you know about Thessaloniki fire in 1917? / Γνωρίζετε για την πυρκαγιά της Θεσσαλονίκης το 1917;**



Q11	**Do you know which areas were affected after fire? / Γνωρίζετε ποιες περιοχές επηρεάστηκαν από την πυρκαγιά;**
PEDT1	Kafantari area and the Jewish quarters.
PEDT2	Mainly the central area.
PEDT3	The whole historical centre of Thessaloniki was affected. The fire burned most of it from the upper town (Castles) to the beach. The fire victims exceeded 75 thousand people. The homeless were forced to leave their burned-out homes and settled in areas outside the centre.
PEDT4	From Anopoli to the port of Thessaloniki.
PEDT5	Yes. The Jewish area that is around Dragoumi str
PEDT6	Most central areas.
PEDT7	Mainly the centre and east.
PEDT8	Central Thessaloniki
PEDT9	Big area were affected.
PEDT10	Great part of the city centre, then all the way to the marketplace, towards the old town. Fire destroyed many wooden buildings. Similar situation also happened in Thessaloniki.

Q12	**Before the population exchange and fire, how do you think Thessaloniki was? / Πριν από τη προσφυγιά/εγκατάσταση των προσφύγων και τη πυρκαγιά, πώς νομίζετε ότι ήταν η Θεσσαλονίκη;**
PEDT1	A small town reached until Vardar, inhabited by Jewish, Turkish and Greeks.
PEDT2	A multicultural urban port city.
PEDT3	Before the fire, the city retained many of the elements of the common past of Jews, Muslims, and Christians (Greeks). It was a city where everyone lived and was economically active in various professions (trade, port, food, etc.). The fire destroyed this feature of the city, severely damaged its economy and created many problems for the inhabitants.
PEDT4	It was a very developed for its time, cultural, with also developed architecture.
PEDT5	I've seen pictures. It was multicultural for sure. I haven't give it much thought actually
PEDT6	Multinational.
PEDT7	A large village mainly in the city centre in the port with relatively few wealthy inhabitants.
PEDT8	Small town, provincial.
PEDT9	Salonika was small town too many people. I know Yedikule, the hillside Turkish quarter. I know more about Izmir than Thessaloniki.
PEDT10	I have the impression of places like Mittilini, where you see stone streets with marketplaces, that expands themselves on to the public realm its not enclosed markets not enclosed spaces. Mostly mixed use residences on the top floor and commercial places, cafes and random sort of streets with surprises of little open areas and squares, not grid plans.

Q13	**Before the population exchange and fire, how do you think Izmir was? / Πριν από τον ξεριζωμό (των Ελλήνων) και τη φωτιά, πώς νομίζετε ότι ήταν η Σμύρνη;**
PEDT1	Large city, multicultural.
PEDT2	Paris of Asia minor.
PEDT3	Izmir was one of the largest ports in the Mediterranean. Greeks, Armenians and Levantines were active in trade, creating conditions of prosperity, not only economic but also spiritual. Public and private buildings and schools demonstrated the development of the city, which was the metropolis of Hellenism, with half of its population being Greek.
PEDT4	It was the largest port in the Mediterranean and had many influences from European culture.
PEDT5	I think they kind looked alike, still do. Multicultural, rich (richer than Thessaloniki), a small metropolis of the time
PEDT6	Mainly Greek. It had the biggest Greek population than any other city in the world.
PEDT7	A big rich city, with comforts and luxury. Beautiful and imposing.
PEDT8	Metropolis with prosperous Greeks.
PEDT9	My mother's parents were from Izmir. I know churches St Photini, Aya Katerini other small churches, there used to be a Greek School now its a Turkish School.
PEDT10	Mostly in terms of the materials I would expect probably stone and then mixture of eclecticism like a little bit of neoclassicism, architectural orders, inclined roofs with french tiles, and features on the balustrades definitely wooden fenestration, colors very earth colors, and a very little touches of color but again its very soft. Its definitely not white of the Mediterranean and its not the cubical, much warmer and much earthy, beige, light brown, terracotta, that kind of thing like a popularized Italian style, hints of Late Roman maybe Venetian style. A lot of earth and a lot of stone. A lot of wooden facades, or extensions, oda, that wooden box overhanging to the facade of the building.

Q14	**How do you think population exchange affected Izmir and Thessaloniki? / Πώς πιστεύετε ότι η ανταλλαγή των πληθυσμών επηρέασε τη Σμύρνη και τη Θεσσαλονίκη;**
PEDT1	Smyrna lost the glory of the multicultural city, on the other hand Thessaloniki started to grow.
PEDT2	It was destructive for Smyrna. For Thessaloniki through the commercial activities and the economic life of the city, the impact was less.
PEDT3	The exchange of populations affected both Smyrna and Thessaloniki. For Smyrna, its destruction due to the fire caused a strong shock. The forced departure of so many Greeks and Armenians was a serious blow to its economy, its intellectual and social development. On the contrary, the arrival in Thessaloniki of thousands of refugees from Central Asia and the Pontus, may have initially caused major problems for their settlement, but secured the useful human resources that contributed to its development.
PEDT4	It was not population exchange it was persecution. And a persecution always has its consequences.
PEDT5	I think they both lost a huge part of their identity. They were multicultural and became poorer by losing a huge part of their population. In both cities people from villages settled as well so that also changed the dynamics
PEDT6	Smyrna had already lost most Greek population with the war and the destruction of the city. Thessaloniki lost completely its Turkish population. Both cities entered an irreversible circle of national homogenisation.
PEDT7	Unfortunately one was destroyed and burned from end to end, and counted many dead. For Thessaloniki, things were calmer, the order of things was influenced by how the immigrants would be assimilated and how they would survive.
PEDT8	Through much troubles, they forced the Greeks who were uprooted from their land and they worked hard and to create economic and cultural input.
PEDT9	Izmir and Thessaloniki was more or less the same. I know Izmir better than Thessaloniki. I learned more about things in Karsiyaka, I read about it learn about everything since 1980. I know more or less all the things. They looked similar from the sea. Aya Ioannis church in Thessaloniki similar to Aya Katerini church in Izmir. Now in Thessaloniki maybe 3-5 mosques left, Bedesten still here. Now with our society, we celebrate the Greek Army entrance to Izmir, we recreate this event, give flowers to Greek Army as people of Izmir. Music, dances, zeybekiko, aftaliko, kasapiko, we organize events. I went last time 16 years ago. The old houses in Bostanli was there until 1995, after that all old houses gone. This change is not good old houses people dont know about this. When I first went it was better, now changed a lot. Thessaloniki life goes slowly. Many places near the sea the social life is

	good. Going around easy. Now different immigrants from Iraq, Pakistan for the last three years.
PEDT10	I think its a very big loss. I think that it would be very interesting to had this spectrum of different type of buildings. Its about preserving ones identity by being able to look back. And also they say there hasn't been a place on earth even if we look at it cynically in terms of its financially back then it being beneficial to the city, I think if a city or any city that has been damaged had a chance to be maintained or being preserved without any damage from fires or any other damage, its always a plaster city. In world New York, Paris or wherever you go to La Villette and you see a reminiscence of another time and ok they have changed the use of it but at the same time you see the traces of what it looked like. Any city you go to there is always a place to have something that you can trace back to look into those history, what it was like. The animations where people try to rehabilitate at least virtually, they have done very nice visuals the ancient Roman part of Thessaloniki for example, the Hippodrome and places like that would be very interesting. But they can only rehabilitate virtually, not physically. At least you can build a museum where you can project all these things for someone who wants to see them.

APPENDIX 9 GIS DATABASE

Spatial 0bject (Feature)	Geometry	Attributes
Study Area	**Polygon**	- Definition - Method 1. Primary Zone (Charles Goad Map 1905 / detailed) 2. Secondary Zone (Charles Goad Map 1905 / without buildings) 3. Third Zone (other maps)
Building Blocks	**Polygon**	- ID (block number)
Building Lots	**Polygon**	- ID (block _ lot) - Owner - Ownership 1. Private 2. Public 3. Foundation 4. Unknown - Registration Status (Current)
Building	**Polygon**	- ID (block + lot + building number) - Address - Name of the building - Building Category (Type _ function) G Government G1 government office G2 bank G3 trade G4 transportation E Educational E1 school I Institutional I1 insurance company I2 stock exchange I3 consulate RS Residential R Religious R1 mosque R2 church (catholic) R3 church (greek orthodox) R4 church (armenian orthodox) R5 church (other)

		C Commercial C1 khan C2 shop C3 restaurant C4 cafe C5 pharmacy C6 tailor L Leisure L1 hotel L2 social club L3 theatre L3 bath house -Number of storey -Height -Main Structural System 1. Masonry 2. Timber Frame 3. Hybrid system (timber frame+ masonry) 3.1 Masonry at basement and lover floors, timber frame at upper floors 3.2 Masonry and timber frame together in all floors 4. Steel 5. Unidentified -Material of Masonry s stone b brick ui Unidentified - Finishing Layers 1. Exposed stone 2. Exposed brick 3. Paint 4. Unidentified - Wash Color (from old photos) 1. white 2. yellow 3. brown 4. red 5. gray 6. black 7. unidentified - Roof Type (Form_Covering Material From Photos) F Flat roof P Pitched roof H Hipped - Change Status of the Building

		1. Lost (Original plan scheme, façade arrangement can not be perceived and almost all the architectural element lost) 2. Original plan scheme and façade arrangement can be perceived though there are changes in both and some of architectural elements are changed 3. Slightly changed (Original plan scheme and façade arrangement is conserved in spite of the changes in architectural elements.) 4. Not changed (The building preserved completely or there are few small changes in architectural elements.)
Private Open Areas	**Polygon**	-ID (building lot + private open area no) -Category C. Courtyard G. Garden U. Unidentified open area
Study Area 2	**Polygon**	- Definition
Building blocks 2	**Polygon**	- ID (block #) - Previous ID
Building Lots 2	**Polygon**	- ID (block + lot) - Previous ID

Izmir Bay	**Polygon**	
Streets	**Line**	-ID -Name of the street
Photos	**Point**	-ID -Name of the building -Name of the photographer / source
Descendants of the Migrants of Population Exchange	**point**	(Data Collected From Surveys/Questionnaire) -ID -Number of Migrants -Occupation of the migrants -Current Residence (Migrants) 1. Izmir 2. Aegean Region 3. Other -Current Residence (Interviewee) 1. Izmir 2. Aegean Region 3. Other -Duration of Residence In Current Country (Interviewee) -Date of Resettlement to Turkey (Migrants) -Name of the street / area in former city (Migrants)

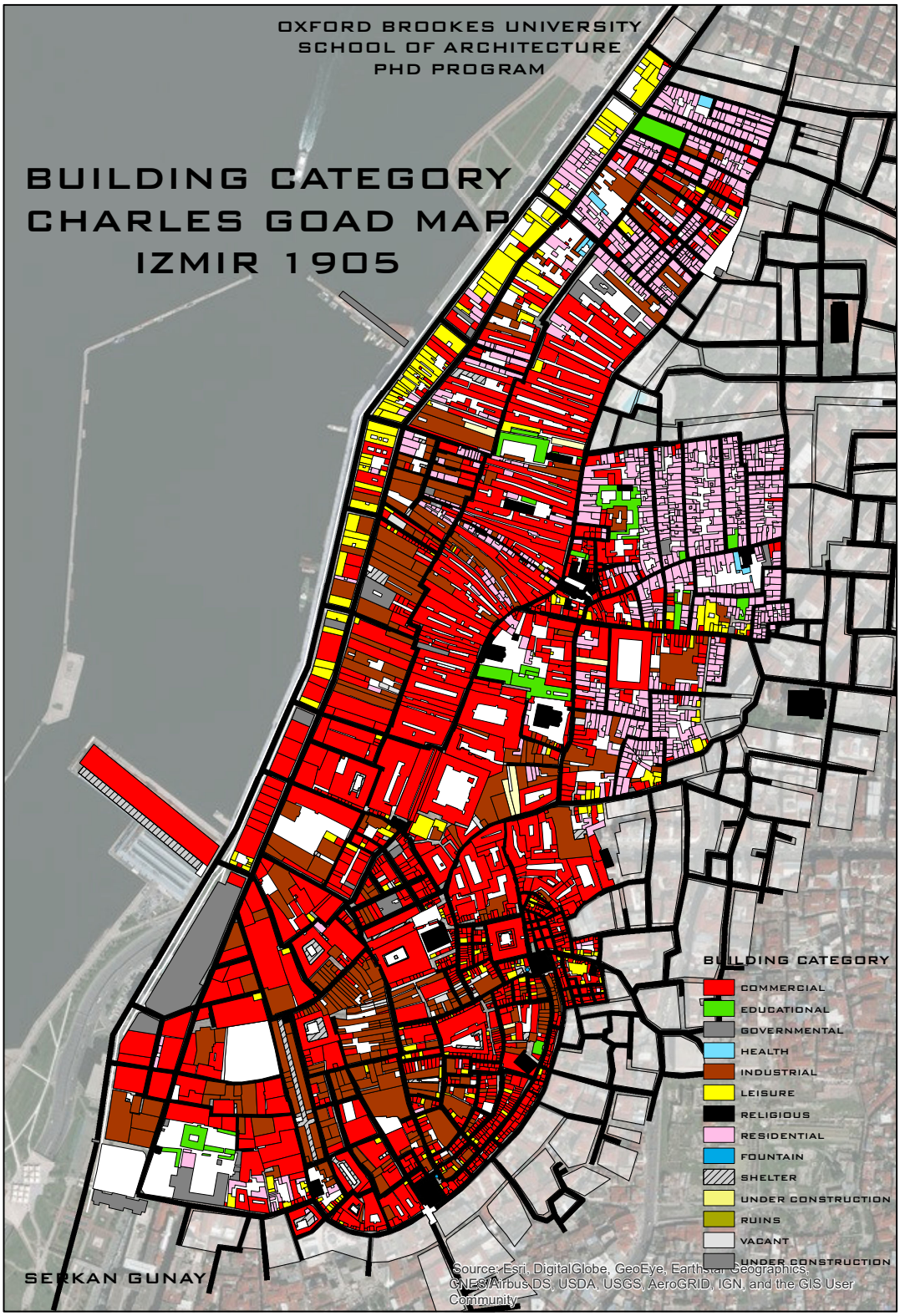
		-Problems / Challenges During Resettlement (Stories) 0. No 1. Yes 2. Unknown -Self-definition of identity 0. From Izmir 1. From Thessaloniki 2. From Balkans 3. From Turkey 4. From Greece 5. Migrant 6. Others -What defines the identity 0. Ethnicity 1. Religion 2. Language 3. Other -Knowledge about Greek heritage in Izmir 0. No 1. Yes 2. Unknown -Knowledge about Jewish heritage in Izmir 0. No 1. Yes 2. Unknown -Knowledge about Armenian heritage in Izmir 0. No 1. Yes 2. Unknown -Knowledge about Turkish heritage in Thessaloniki 0. No 1. Yes 2. Unknown -Knowledge about Jewish heritage in Thessaloniki 0. No 1. Yes 2. Unknown -Knowledge about Armenian heritage in Thessaloniki 0. No 1. Yes 2. Unknown -Spoken language at home (Migrants) 0. Turkish 1. Greek 2. Bilingual (Turkish & Greek) 3. Other

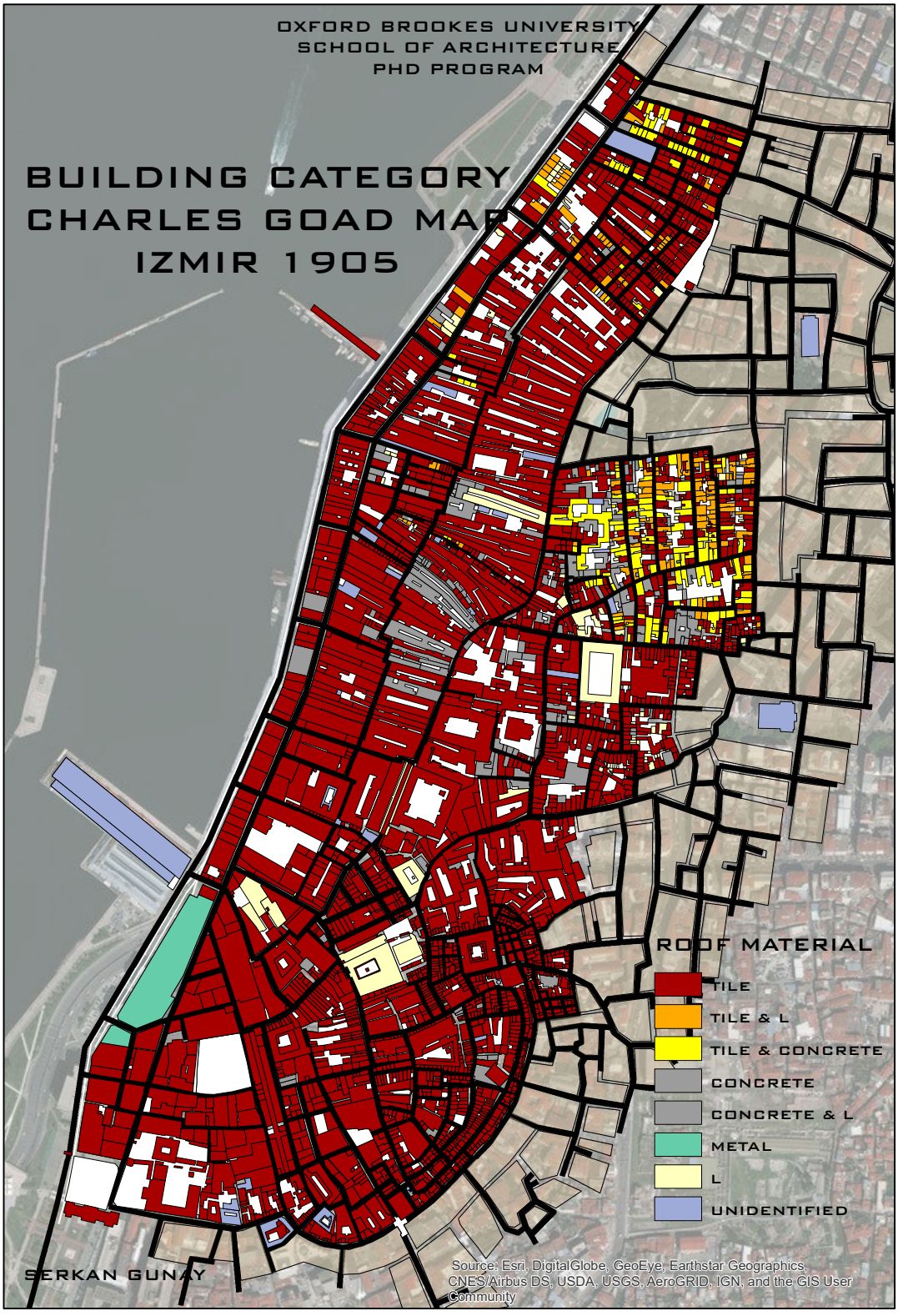
		-Spoken language at home (Interviewee) 0. Turkish 1. Greek 2. Bilingual (Turkish & Greek) 3. Other -Interest In visiting ancestor's city / village 0. No 1. Yes 2. Not Applicable - Reason if Yes -Reason if No -Knowledge About the city/town/village of their ancestors 0. No 1. Yes 2. Unknown - Knowledge about missing family members (stories) 0. No 1. Yes 2. Unknown -Architectural symbol for Izmir (from 3D models) -Architectural symbol for Thessaloniki (from 3D models) -Desires for future of the city's architectural heritage
Government Officials (Conservation department and related officials)	**point**	(Data Collected From Surveys/Questionnaire) -ID -Occupation -Decision maker in conservation projects 0. No 1. Yes 2. Unknown -Current Residence 1. Izmir 2. Aegean Region 3. Other -Duration of Residence In Current Residence -Date of Resettlement to Izmir -Self-definition of identity 0. From Izmir 1. From Aegean 2. From Balkans 3. From Turkey

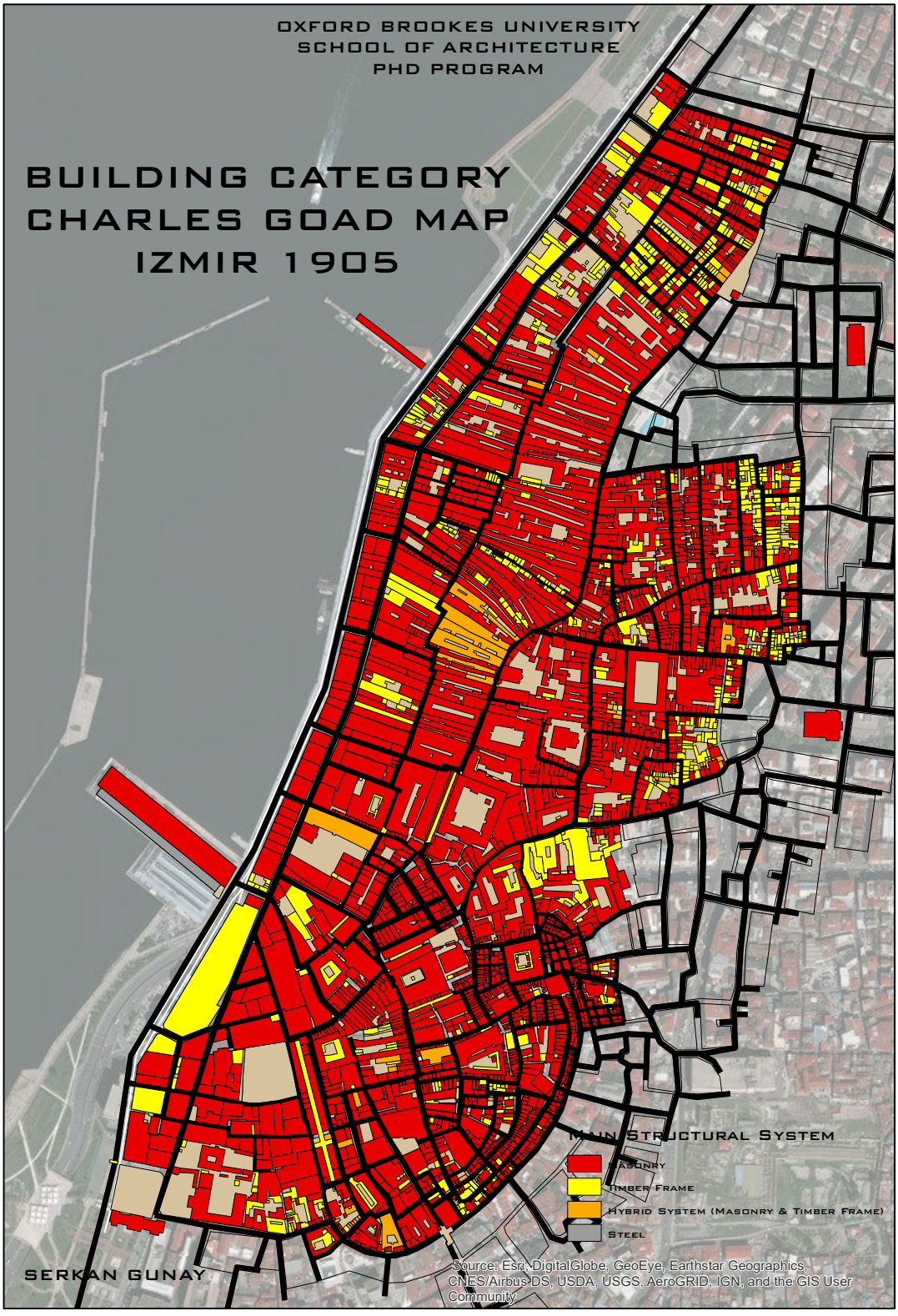
		4. Migrant 5. Others -What defines the identity 0. Ethnicity 1. Religion 2. Language 3. Other -Knowledge about Greek heritage in Izmir 0. No 1. Yes 2. Unknown -Knowledge about Jewish heritage in Izmir 0. No 1. Yes 2. Unknown -Knowledge about Armenian heritage in Izmir 0. No 1. Yes 2. Unknown -Knowledge about Turkish heritage in Thessaloniki 0. No 1. Yes 2. Unknown -Knowledge about Jewish heritage in Thessaloniki 0. No 1. Yes 2. Unknown -Knowledge about Armenian heritage in Thessaloniki 0. No 1. Yes 2. Unknown -Interest In knowing more about 'Lost Heritage' 0. No 1. Yes 2. Not Applicable -Interest In developing projects for 'Lost Heritage' 0. No 1. Yes 2. Not Applicable -Interest In using digital technologies in architectural conservation projects 0. No 1. Yes 2. Not Applicable -Architectural symbol for Izmir (from 3D models)

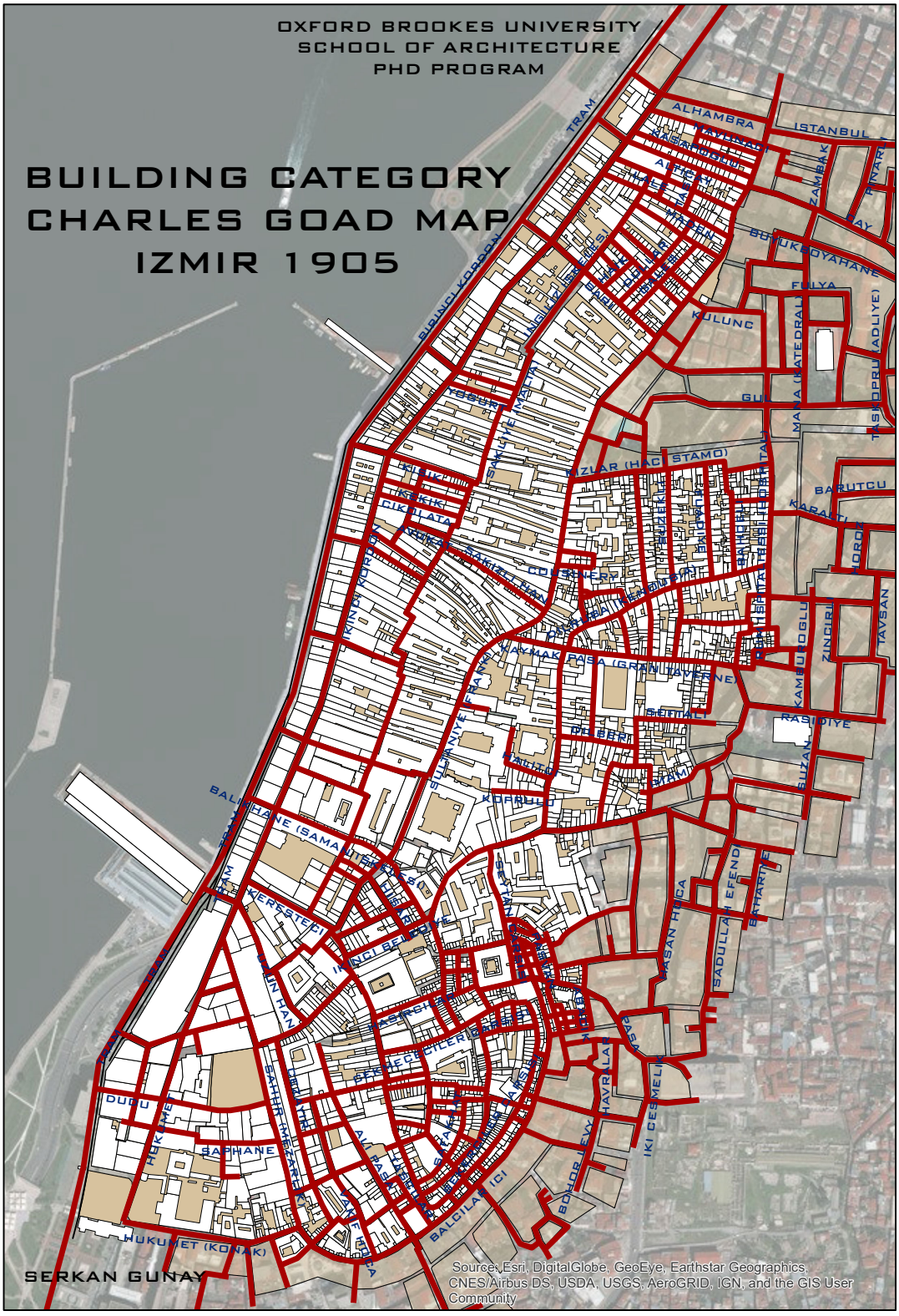
		-Architectural symbol for Thessaloniki (from 3D models) -Desires for future of the city's architectural heritage

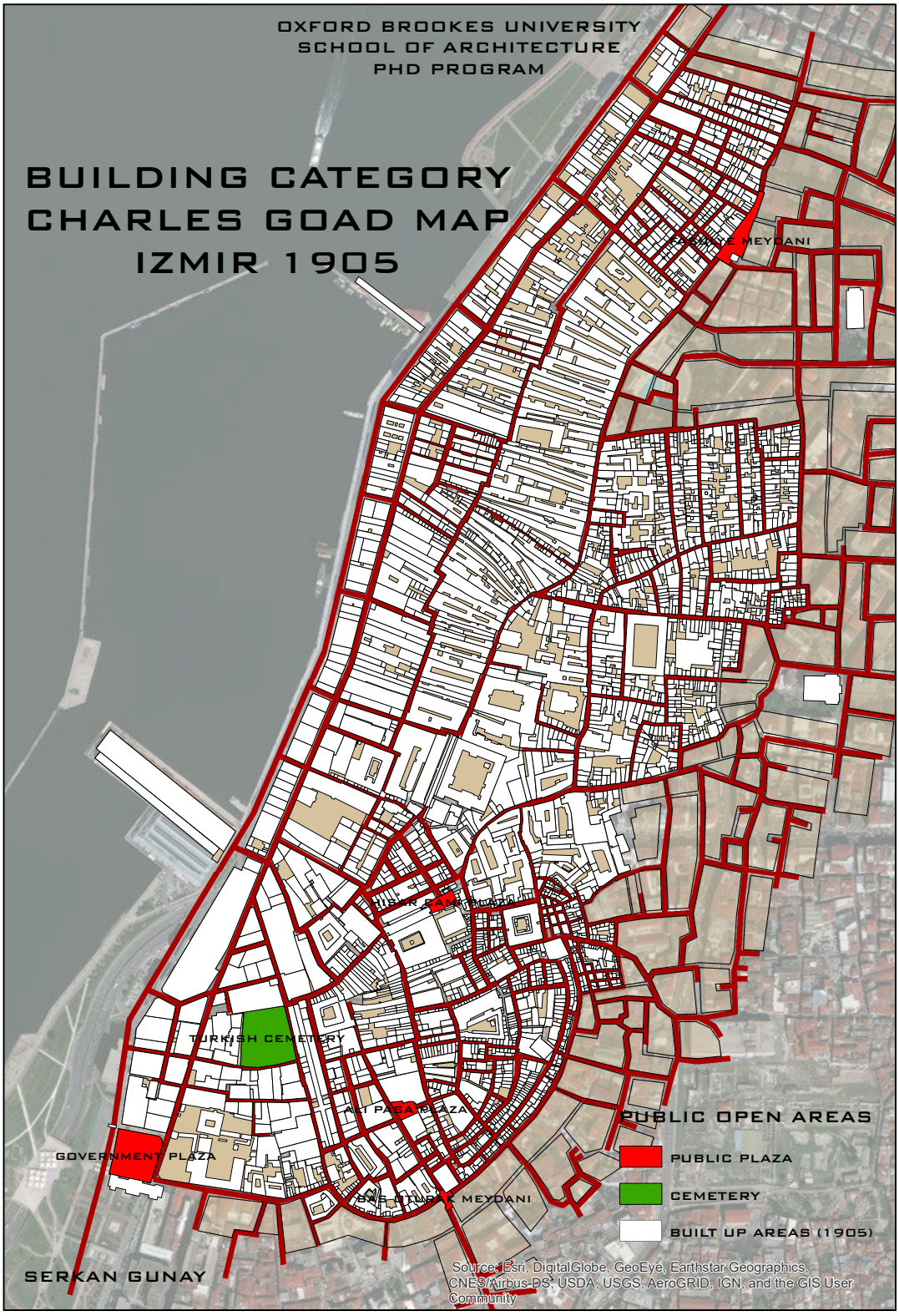
APPENDIX 10 SAMPLE OF FIELDWORK MATERIAL

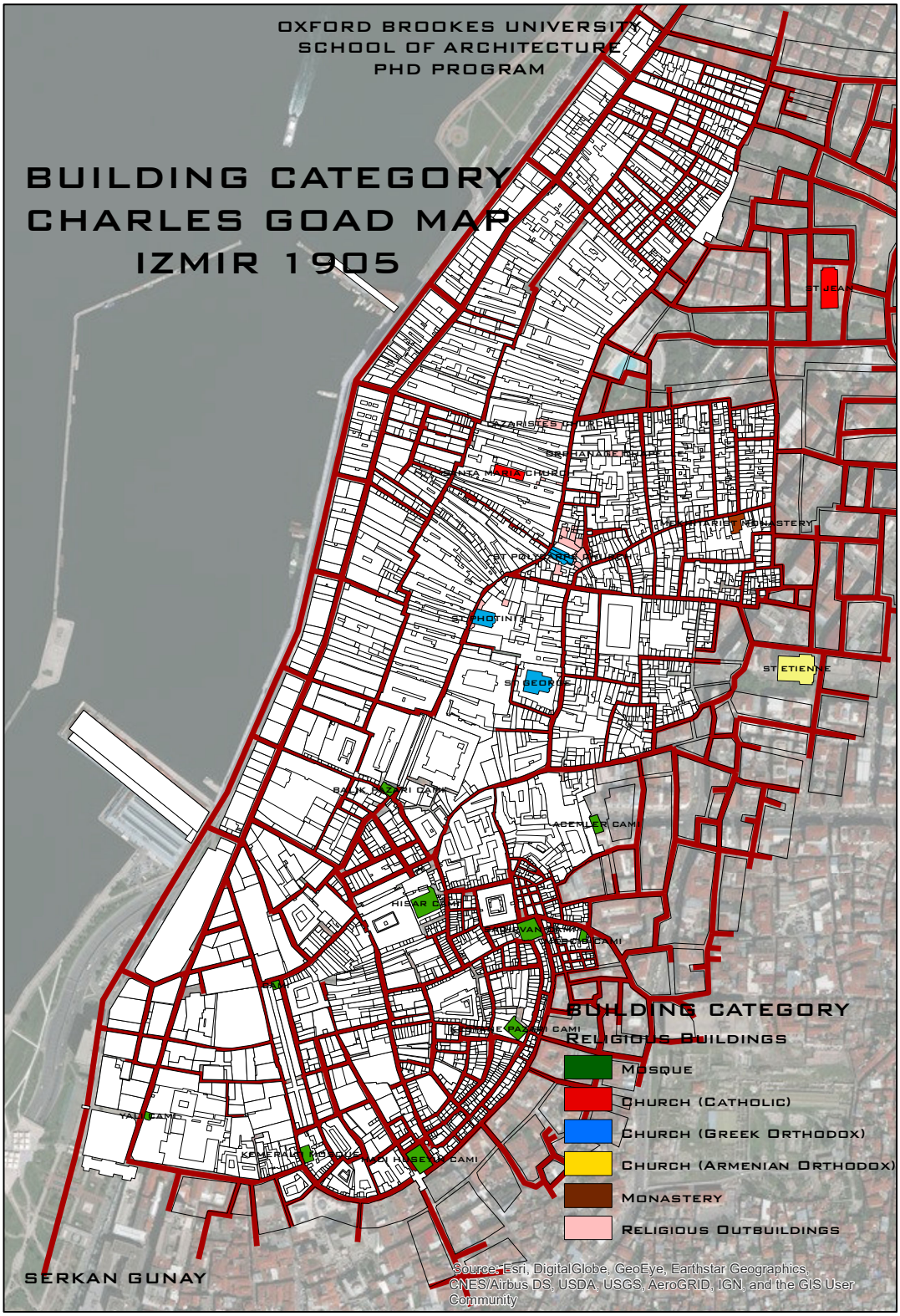



OXFORD BROOKES UNIVERSITY
SCHOOL OF ARCHITECTURE
PHD PROGRAM
BUILDING CATEGORY
CHARLES GOAD MAP
IZMIR 1905
ROOF MATERIAL
TILE
TILE & L
TILE & CONCRETE
CONCRETE
CONCRETE & L
METAL
L
UNIDENTIFIED
SERKAN GUNAY
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community


OXFORD BROOKES UNIVERSITY
SCHOOL OF ARCHITECTURE
PHD PROGRAM
BUILDING CATEGORY
CHARLES GOAD MAP
IZMIR 1905
MAIN STRUCTURAL SYSTEM
MASONRY
TIMBER FRAME
HYBRID SYSTEM (MASONRY & TIMBER FRAME)
STEEL
SERKAN GUNAY
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community


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SCHOOL OF ARCHITECTURE
PHD PROGRAM
BUILDING CATEGORY
CHARLES GOAD MAP
IZMIR 1905
SERKAN GUNAY
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community


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PHD PROGRAM
BUILDING CATEGORY
CHARLES GOAD MAP
IZMIR 1905
TURKISH CEMETERY
GOVERNMENT PLAZA
PUBLIC OPEN AREAS
PUBLIC PLAZA
CEMETERY
BUILT UP AREAS (1905)
SERKAN GUNAY
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community


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SCHOOL OF ARCHITECTURE
PHD PROGRAM
BUILDING CATEGORY
CHARLES GOAD MAP
IZMIR 1905
ST JEAN
ST ETIENNE
ST GEORGE
BUILDING CATEGORY
RELIGIOUS BUILDINGS
MOSQUE
CHURCH (CATHOLIC)
CHURCH (GREEK ORTHODOX)
CHURCH (ARMENIAN ORTHODOX)
MONASTERY
RELIGIOUS OUTBUILDINGS
SERKAN GUNAY
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community







