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**Criteria for Successful Livable city, Based on the architecture of the  
traditional city of Salt in Jordan**

Thesis booklet

Doctor of Philosophy in Architectural Engineering

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## **ABSTRACT**

The livability of the city is fulfilled through good planning; by providing a vibrant, attractive, walkable and safe environment for people to live, work and play. At the same time, a livable successful city is a place that has a strong and local distinctive identity that reflects the heritage and culture in their built form, this research focuses on the criteria of livable successful cities in Jordan, taking a heritage city of Salt as a case, by connecting the criteria of livable cities with the architectural physical elements which can be categorized under three main categories: landscape, building and street linkage. Jordan cities currently are losing a great part of their heritage due to rapid development, demolition in the name of progress, vandalism, and misuse. Most planning projects have been conducted without a clear reference or benchmark to guide practice. Thus, this research tries to find a guideline for planning and developing livable cities. Mixed-method was used in this study namely; qualitative data collection that involves direct site observation and historical document review. The quantitative data collection involves questionnaires (n= 330) and the data was statically analyzed such, as percentage and frequency.

The findings are determined through the triangulation of all data. This research found that the criteria of a livable city can be categorized under two main factors which are: imageability and walkability. In addition, each factor contains sub-factors including their own physical elements.

**Keywords:** Livable City, Salt City, Heritage City, Imageability, Walkability.

## ***1. The organization of the research***

### **Chapter 1** Introduction

Research Background & Problem statement

### **Chapter 2** Literature review

Overview and define the main terms and concepts in this research; (livable city, walkability, imageability, physical elements and urban qualities)

### **Chapter 3** Case study

Review of the case study.

### **Chapter 4** Research methodology

Explain the methodologies that used in this research, including qualitative and quantitative methods of data collection and data analysis.

### **Chapter 5** Findings and analysis

Present the analysis and findings for the first objective of this study which is: to determine the physical elements that are connected with *walkability* as criteria for a livable city.

Present the analysis and findings for the second objective in this study which is: to determine the physical elements that are connected with *imageability* as criteria for a livable city.

### **Chapter 6** Conclusion

Present the results, recommendations and contribution of this study.

## ***2. Background:***

This study examines the criteria for livable successful cities by connecting the physical elements (building, landscape and street linkage) with the urban qualities by taking Salt city in Jordan as a case study. Generally, heritage cities represent the local people, nations, needs, and cultures within their context so it could be a model for a livable city which means “*fit to live in*” and assist in creating a sustainable environment, taking into account views from a social aspect.

Cities are built primarily to provide a context that allows people to live and interact with each other and with their environment. Appositely, heritage cities have been facing great pressure and threats factored by climate change, rapid urbanization and uncontrolled growth. Fortunately, there has been an international consensus on the importance of safeguarding the monuments and key tangible heritage assets for the next generations. Meanwhile, less significant heritage assets like old-style housing, vernacular architecture, historic urban patterns and features, and historic artefacts on the socio-economic structures, have not been receiving sufficient acknowledgement and protection (Trillo et al., 2020). There is yet a proper theoretical framework to guide the management of urban heritage cities to maintain their heritage and be livable at the same time.

Urban spaces can be judged, as good or as bad, based on the individuals who use them and are involved in. For Jordan and other Arab countries, their older cities signify a matchless historic link with the past. Somehow, the rapid growth and transformation faced by these cities have caused the reduction and misuse of land, and this jeopardizes both the cultural and natural resources of these countries. It is very common to see abandoned heritage buildings in many cities in Jordan, and many of these prominent heritage buildings have owners but are in dire need of restoration. Furthermore, fast urban expansion has been harming the structures of these urban heritage assets.

### 3. Research Agenda:

This study focuses on physical factors that are connected with urban quality in order to create a livable city. Hence, to obtain actual knowledge about the urban design qualities, social interaction relationships information is gathered and is applied to this empirical knowledge in practice. This study first focuses on the theories of urban studies connected with architectural elements and landscape at the meantime understanding the need of the local community of Salt city (the case study) Second, the combined methodology includes mixed methods (quantitative and qualitative) and direct site observation is conducted.

Research statement:

**This research attempts to find the criteria of livable cities in the context of Jordan by investigating Salt city as a case.**

Hence, as explanatory research, this thesis examines the important questions that are highlighted as follows in table 1:

**Table 1:** Research question and research objectives

Research Question	Research Objective
what are the physical elements that are connected with <i>walkability</i> as criteria for a livable city?	To determine the physical elements that are connected with <i>walkability</i> as criteria for a livable city.
What are the physical elements that are connected with <i>imageability</i> as criteria for a livable city?	To determine the physical elements that are connected with <i>imageability</i> as criteria for a livable city.

### 4. Case study

This study takes Salt city as a case study as it is a heritage city that reflects traditions which evolved by the collective memory and their related traditional forms can and must be widely used and re-used in contemporary architectural and urban design projects, with proper community involvement.

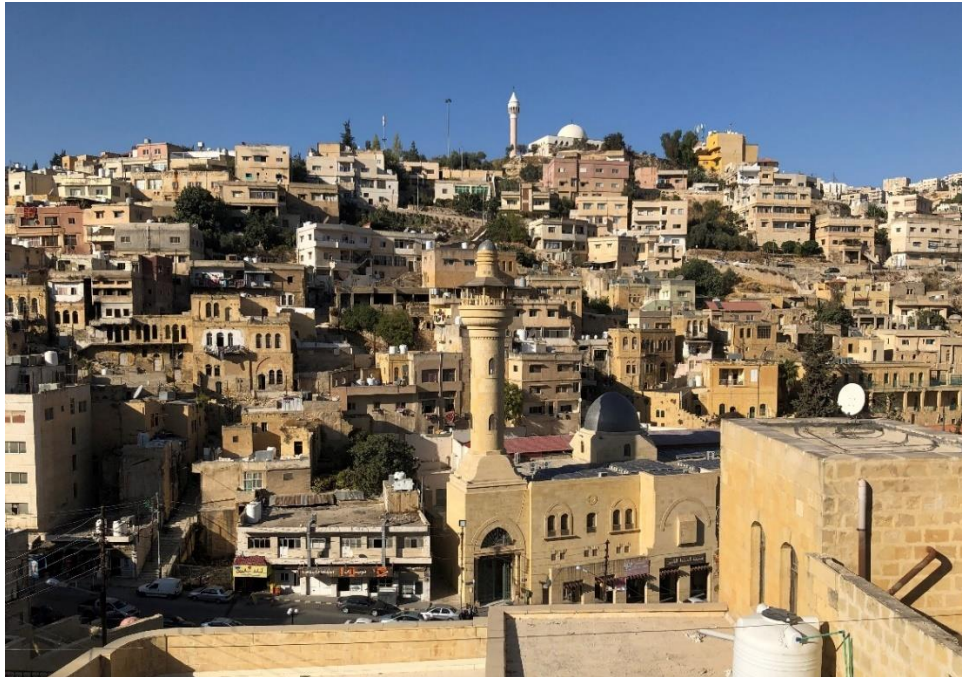
Following is a brief of the case study:

The city of Salt is located 30 kilometers west of the capital Amman and is the fourth largest city in Jordan. It has a population around 140,000 people. It is built on three hills: Jada, Qala' and Salalem, whose central plaza (Saha) is situated at its meeting point. Urban heritage residents and mansions are mostly from the period between 1890 and the end of the 1920s. Local and migrant master builders built these mostly in yellow marl-lime stone, using local technologies, and introduced newly imported materials of metal I-sections and red tiles for the roofs as shown in figure 1.



**Figure 1:** Buildings in Salt City

The city is characterized by large public buildings and private residences built with yellow limestone, which feature three bays and a central hallway. This demonstrates a mix of vernacular and modern architectural influences, as well as skilled craftsmanship. Adapted to the steep topography of the historic city core, the urban morphology consists of an interconnected system of streets, alleyways, public squares, and public spaces as shown in figure 2. In this way, residents' neighborhoods are connected to the city's public spaces and streets in a dense urban fabric. Urban cultures of the city have been shaped by these tangible characteristics, such as the distinctive cultural traditions of tolerance between different cultural groups and religions. Thus, this city is selected to be a world heritage site.



**Figure 2:** Urban Morphology in Salt City

Muslim and Christian communities share many traditions, demonstrated by a lack of physical segregation between them. Through sustainable non-segregated development, the city's Muslim and Christian populations have developed traditions of hospitality in the form of Madafas (guesthouses), known as Dawaween, and a social welfare system. (Fakhouri and Haddad, 2017)

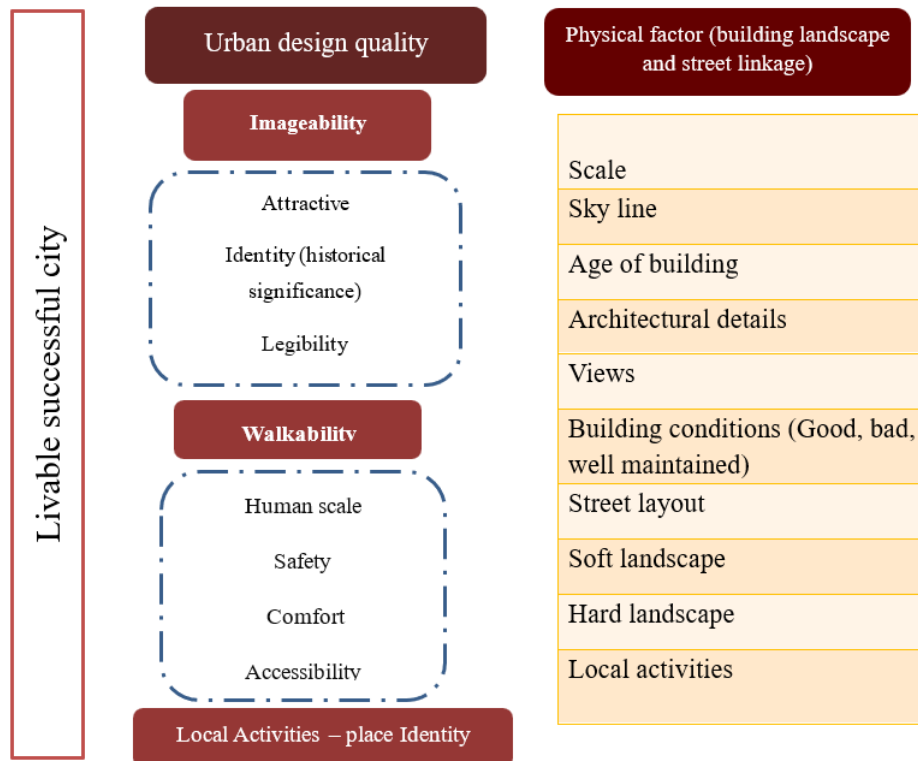
### ***5. Research framework***

The main elements that affect the livability of city can be divided into two main sections; Imageability and walkability each factor had sup factor as urban quality.

The main elements that contribute towards city character categorized in to physical element (landscape, building and street layout) , In this research the contributions of these elements can be attributes, the imageability of city which contains (attractive, Identity (historical significance) and Legibility)

Second factor is the walkability of city that includes (Safety, comfort, human scale and accessibility). In other hand studying the activities that reflect the locals need.

Therefore, the interrelations of all these aspects are important to achieve the livability of city with special character. Figure 3 shows the research framework of this study.



**Figure 3:** Research Framework

Choosing techniques according to the research question is critical Charmaz (2006) says: “Let your research problem shape the methods you choose; your research problem may point to one method of data collection.

The goal of this study is to identify the criteria of livable cities in Jordan by connecting the physical elements with urban quality.

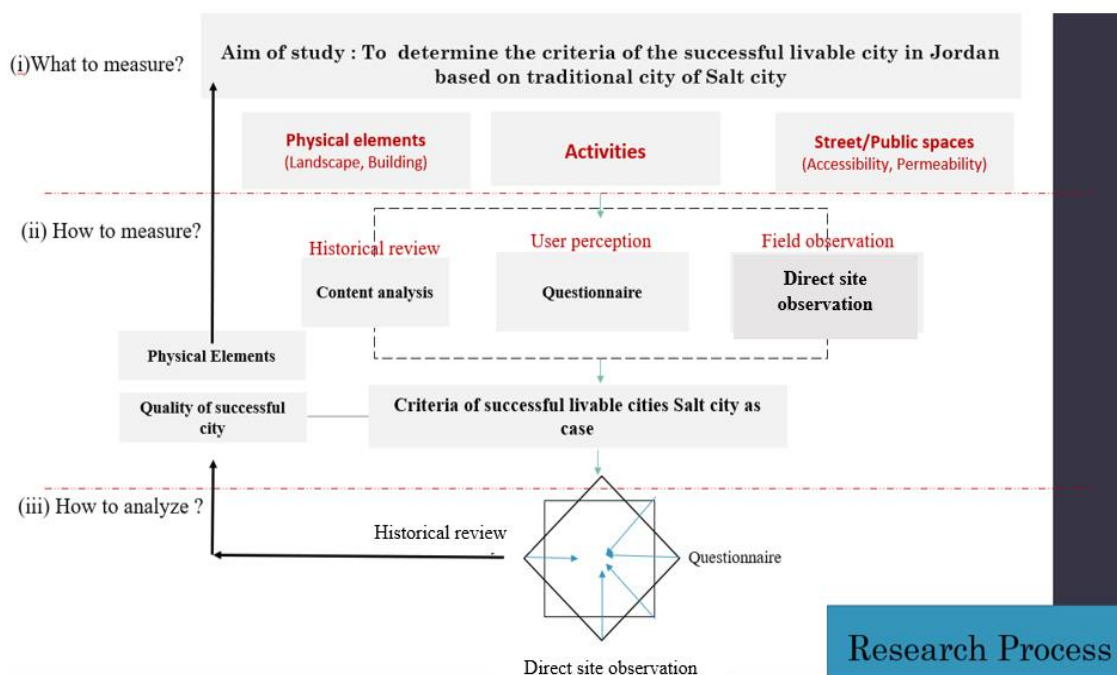
As a result, it is the process by which physical elements connect and affect the livability of the city. This study examined the relationships between physical elements that contribute to the character, and methodologies were chosen as stated in Tables 2 below.



**Tables 2:** The Chosen Research methodologies

Questionnaire	Examine the users' perception of the building, landscape and elements and main activities that contribute to city characters.
Historical & document review	Study the importance of the historical background of the city, the understanding of how the physical elements contribute to the historical value and vice versa.
Direct site observation	Examine the elements of city quality (appearance & historical importance) contributing to the characters of a livable successful city

The figure below shown the research process the data collection procedures involved three phases; the first phase was establishing the theoretical framework; the second phase was a preliminary investigation, and the final phase was the final investigation and analyzing data that contributed to the city's character to be livable.



**Figure 4:** Research process

## ***6. Research Findings***

The main findings of this research are:

- This research investigated the main criteria for a livable successful city from the literature and found that the main criteria can be categorized under two main factors which are imageability and walkability. In addition, both factors should be studied in detail to be able to provide proper guidance for the planners as explained below.
- This research investigated the appropriate research methods to be used in this study and found that a mixed-method approach (Questionnaire, Historical Reviews and Direct Site Observations) is very suitable for gathering accurate and robust data.
- This research determined the physical elements that are connected with imageability as criteria for a livable city and found that the main urban qualities related to imageability are attractiveness, identity and legibility. In addition, this research found that each factor contains the sub-physical elements as provided in the dissertation and explained briefly in the contribution below.
- This research determined the physical elements that are connected with walkability as criteria for a livable city and found that the main urban qualities related to walkability are comfort, safety and accessibility. In addition, this research found that each factor contains the sub-physical elements as provided in the dissertation and explained briefly in the contribution below.

## ***7. Research Contribution***

This study contributes to the field of criteria for liveable cities based on heritage sites. The main contributions can be categorized under the two objectives. The first objective contains two contributions as follows:

1. Local building materials and façade design that adapt to climate and respect the place's character should be considered in the design and development of cities in order to create an attractive imageable city.

2. Local activities, city skyline and historical significance are the main elements that define and create the city's identity. These elements should be preserved in any development or design of new cities in order to create an imageable livable city.

In addition, the second objective contains six contributions as follows:

1. To create a comfortable walkable city this study suggests finding a solution for abandoned buildings in old cities such as Salt city. This can be achieved by conserving or adaptive re-use including accommodation with authentic characteristics. Saving these buildings benefits the local economy and improves the quality of life for local residents. Thus, creating livable and healthier cities.
2. Street furniture and public amenities are significant elements in order to create a comfortable walkable environment. Hence, these amenities must be clean, well maintained and accessible to all users.
3. Providing public parks for each neighborhood that have a playground and shaded seating areas are basic units in designing a livable city. They serve as social and recreational focal areas for locals that create a livable community.
4. The location and type of trees play an essential part in providing a pleasing attractive and comfortable atmosphere for street users.
5. Maintain the human-scale design in old cities creates a comfortable and a sense of welcome in the urban environment. Hence, enhancing the walkability in the city.
6. The accessible city factor was divided into three sub-factors that should be considered while designing a livable city summarized as follows:
  - i. Accessibility for pedestrians: Continuous and well-maintained pedestrian walkway, using a type of pavement that prevents slipping and provide an efficient amount of lighting. In addition, offering visual interest and a high volume of pedestrian activity in the walking journey. Finally, reducing cars' speed by using traffic calming techniques mainly on the inner roads.
  - ii. Accessibility and Availability of public transportation: Public transport services must be able to use by all people and within a suitable distance from where they are

and where they want to be. Hence, bus stops must be placed at an acceptable walking distance (max 400m) of a bus stop with public functions and attractions.

- iii. Accessibility for vehicles: Continuous maintenance of streets is a must to achieve safety. In addition, diverse types with a sufficient number of parking near the city attraction must be available within a walking distance (maximum 500m). Finally, the design of the walkway to the parking must be paved, well maintained and has sufficient lighting to ensure safety and comfort to the street users.

### ***8. Research Implication***

The findings of this study help the planners by guiding them in developing a livable city by saving its character and meeting the needs of local community as this study takes the local views into account by using questionnaires as their views are important in shaping a successful livable city and enhancing the public environment through tradition and legacy conservation.

In conclusion, a livable city affects the quality of life of every individual in the city as it affects behaviors patterns as well. Hence, the need for the involvement of all city components in the design of a livable city will contribute positively to the environment and give city users a belonging feeling to their city.