

Chapter *1*

INTRODUCTION

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1.1_BACKGROUND TO THE STUDY

The evolution of technological achievements in the late 1800's that eventually gave birth to modern thinking where technology will solve all of humanities problems are questioned today. Rapid Infrastructural developments, such as that of the railway line, bridges and roads, has been implemented within urban areas to serve the singular function of movement and flow of people with no regard of integration to place and the people that inhabit it. The notion of this mechanical worldview and reductionist approach to urban development are questioned today in the light of ecosystemic thinking and its application on urban and contextual development.

The discovery of gold on the main reef in Johannesburg in 1886 gave rise to the infrastructural development of the railway line for the transfer of material and resources along the mining belt. The rapid population growth that occurred during that period saw the transition of the railway line from being purely functional for transfer of materials to a passenger line to enable daily commute of residents within Johannesburg and surrounding areas.



Figure 1-01: Context of Johannesburg illustrating the railway infrastructure dividing the urban fabric (Author, 2019).

Today, the railway line through Johannesburg has left a large scar in the urban fabric, disconnecting people from places of value to the community.

The intention of this study is to understand the spatial conditions associated with infrastructural space, how they came about and how architecture can be used to respond to the issues created by the railway infrastructure.

1.2_PROBLEM STATEMENT

1.2.1 GENERAL ISSUE

The complex infrastructure network allow for the integration of heterogeneous places, people, buildings and urban elements into dynamic relationships and exchanges, by unevenly binding spaces together across cities and regions whilst also defining the multitude of material, social dynamics and divisions within and between urban spaces. Infrastructures mediate the multiple connections within and between cities by dramatically, in a highly uneven order, “warp” and refashion the spaces and times of all aspects of interaction, being social, economic, cultural, physical and ecological. The construction of spaces of mobility and flow for some has however led to the establishment of barriers for others. The experiences of infrastructure are therefore highly contingent in the urban environment (Graham and Marvin, 2001). The mechanical integration and organisation of the city has disrupted both the natural systems and sequences of the environment as well as the social fabric and notion of society within the city ¹ (Mumford, 1934).

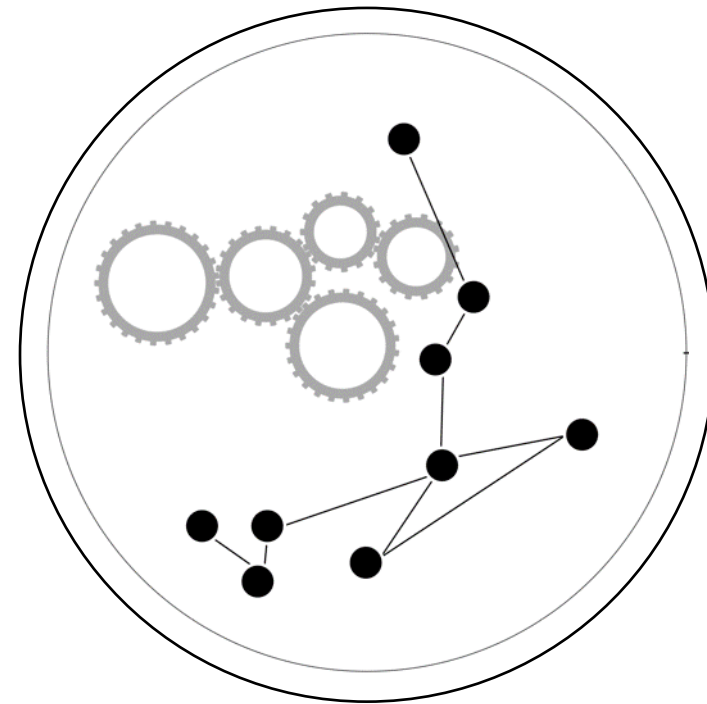


Figure 1-02: General issue (Author, 2019).

¹ Refer to Chapters 3, Prologue

1.2.2 URBAN ISSUE

In Johannesburg, the implementation of the railway line resulted in a terrible scar in the city. The lack of urban integration during its implementation resulted in the urban fabric to become disconnected, creating dead edges, obstructing the movement in space and disconnecting public spaces. The left over residual spaces found around the infrastructural layer becomes lost and forgotten, making no contribution to the urban environment. The abandoned buildings and illegal occupation of buildings along the railway line have become areas of crime resulting in unsafe environments, unhealthy living conditions, homeless enclaves, taxi lots, parking lots etc. This gives rise to urban decay and ultimate neglect.



Figure 1-03: Urban issue (Author, 2019).

² Refer to Chapters 4, Johannesburg context

1.2.3 ARCHITECTURAL ISSUE

The Architectural issue investigates the potential relationships between building, people and infrastructure, and the role architecture has as a regenerative device to connect and activate the current barriers of lost and disconnected spaces caused by infrastructure.



Figure 1-04: Architectural issue (Author, 2019).

1.3 RESEARCH QUESTIONS

//Main Question

How can architecture be used to retrofit or re-interpret the existing mono-functional infrastructural layer of the railway line?

//Sub-Questions

1. How can architecture be used as a place making device to re-establish a connection between place, people and infrastructure?³
2. How can barriers, dead edges and lost spaces along the rail way line be re-imagined to add new spatial layers and complexities to the existing mono-functional layer of infrastructure?
3. How can Architecture facilitate the multitude of users within its immediate context?

1.4 PROJECT INTENTIONS

This dissertation intends to illustrate a design intervention by uncovering the potential/s inherent in place, as well as relevant interventions that would contribute to the regeneration of the socio-ecological systems in the study area that are currently disrupted by the barriers caused by infrastructural development in Johannesburg.

³ These principles will be discussed in Chapter 3, Theory

1.5 RESEARCH METHODOLOGY

The research will be conducted using a variety of methods in order to understand the current issues caused by infrastructure in the city.

Qualitative research: An investigation into the context will be done as a qualitative research approach. The context will be studied by means of observational studies of the site by means of desktop studies, on-site walkabouts, photographs and mapping. This will allow an understanding of place on a macro and micro scale along with the current patterns of people and their rituals associated to the place.

Literature review: A literature review will be conducted and synthesised into the investigation. The theoretical investigation ranges from an understanding of what infrastructure is, how it developed and how it influences society, along with contemporary views of urban- and place making theories. The synthesis of the origins and development of infrastructure along with relevant current theories and practices will allow the nature of infrastructure to be placed in a continuum of thinking in order to develop an appropriate architectural response. Literature and research of previous work done of the context will be studied in order to understand the history of place through time and the current condition and issues found in the context.

Precedent studies: of local and international precedent studies will be conducted and integrated into the research. The case studies will include: Case studies which will focus on urban integration and place making, formal solutions and pragmatic informants.

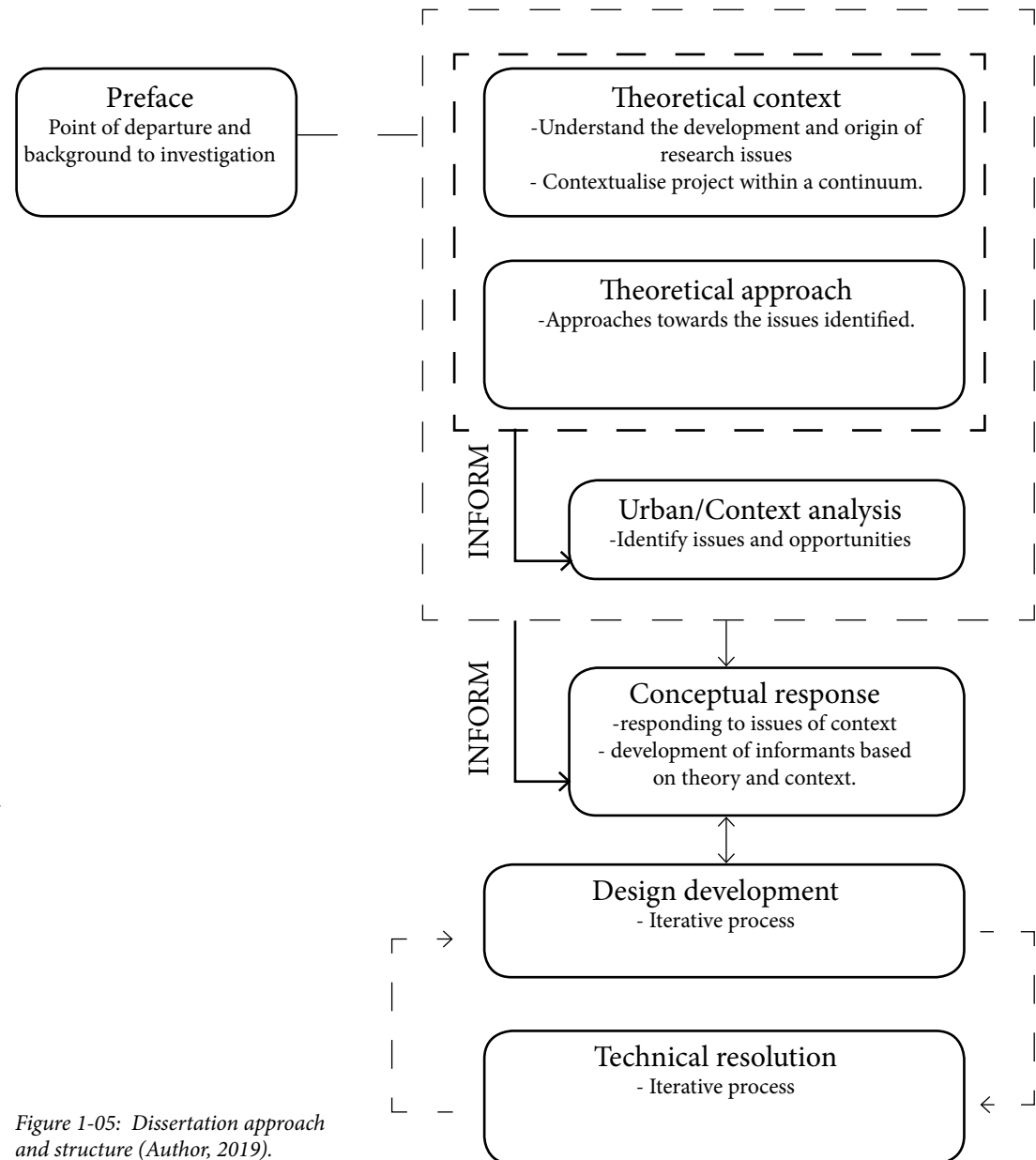


Figure 1-05: Dissertation approach and structure (Author, 2019).

1.6 LIMITATIONS

Certain spaces and areas within the study area could not be accessed during the site visits due to the physical barriers that are in place as well as the perceived unsafety that was experienced within the study area. These spaces were observed from a distance and digital observation tools such as Google Earth and relevant published document were used for analyses. Limited information regarding the heights and levels of the physical railway infrastructure were determined by the existing contour maps available as well as physical measurements done at various points as accurate as possible by using existing measurable references within the context.

1.7 DE-LIMITATIONS

This dissertation does not propose a general methodology for dealing with the remnants and appropriation of existing railway infrastructure. Although, the issues associated with infrastructure are generic as a broad overview, instead, it deals with a very specific context and site that have specific issues, opportunities and potential that would guide the architectural response and design process. Furthermore, this dissertation does not propose a solution for the entire railway infrastructure in Johannesburg, as it investigates the integration and connection of the context on an architectural scale.

