THE IMPACT OF CHINESE CULTURE AND PHILOSOPHY ON THE CITYSCAPE IN CHINA:

Decoding the urban environment for a better understanding of built space.
THE IMPACT OF CHINESE CULTURE AND PHILOSOPHY ON THE CITY SCAPE IN CHINA:

Decoding the built environment for a better understanding of built space

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My deepest gratitude goes to my dear friends, the ones far away and the ones close by, and to my family for their continuous support and love; and to Lydia and Janek for their encouragement and being on my side, especially in the past few months.
Spring of 2015, Shenzhen, a large square in the Futian district – the city’s financial and commercial hub, sporting state-of-the-art skyscrapers and multi-lane streets. A young European couple recognizes a fellow ‘Westerner’ in me, approaches, and asks me the question “Hey, can you maybe tell us where the city centre is?”

These two fellow Europeans must have expected that if they locate on the map the largest square somewhere in the geometrical middle of the city, they would find a more or less pedestrian-friendly area with shops, cafés, and restaurants, where they could spend their leisure time. In their minds, it was obvious what ‘the city centre’ meant. Well, that day in Shenzhen taught them that notions of functions of space may differ between cultures.

This anecdote goes to show just how strongly our perception of man-made space is carved into us by the cultural realm we grow up in because culture is reflected in the way civilisations shape space.
Foreword

In the autumn of 2010, having arrived in Shenzhen, South China, is most probably when the seed for this research project was planted in my mind. Not only was it the first time for me experiencing the uniqueness and differences of the Chinese, Cantonese, and 'Shenzhen-ese' people by travelling to China, but I was also fortunate enough to have the opportunity to live there and work in a Chinese architectural and city-building office. Thanks to this, I was able, to some extent, to experience the everyday challenges and opportunities architects, urban designers, and city builders face in creating the cities that arouse curiosity, are discussed, researched, and sometimes harshly criticised around the world.

Apart from collecting my own personal impressions and experiences, I had the chance to exchange with Chinese and non-Chinese experts of the physical environment during the several journeys across the country, in addition to the initial stay in 2010. What intrigued, challenged, and motivated me the most to take up the endeavour of researching on Chinese urban physical environment in more detail was the unfamiliar otherness, culturally as well as in the scope of professional approaches and the understanding of space. Engaging in dialogue and exchange of experiences and knowledge widened not only my professional scope but also the horizon of my understanding of what shapes each individual's interpretation of the built environment; professionals creating it as well as the people inhabiting it.

I believe, in the light of the increasing internationalisation of environmental design professions (architecture, landscape architecture, urban design, spatial and regional planning), that the sensitivity and responsible use of concepts, ideas, and research and design approaches that travel across cultural borders deserve more attention. Two challenges exist parallel to each other: efforts to achieve the common global aims of creating sustainable, environmentally-friendly urban tissue with high living standards and quality of life on the one hand, and on the other the challenge of finding suitable approaches and solutions to create cities that achieve these goals while responding to specific cultural, traditional, and contextual circumstances. Only by combining one with the other is it possible to build cities that provide a holistically sustainable environment for the people that live in them. This thesis aims to contribute to being able to come a step closer to achieving this ambitious goal by shedding light on the complex existing urban textures Chinese cities with which the environmental design professionals are confronted.

Essential questions that arose during the time I spent designing, discussing, analysing, and decoding the Chinese cities, constitute this research project's backbone. The often-repeated and well-established claim that the globalised world produces increasingly similar-looking cities reaches its limits when practitioners and scholars are confronted with the reality of the otherness of cities; with their local specifics and characteristics. China is no exception to that. I have not been the only one to experience the feeling of oddness and the friction in the everyday practice of an environmental design professional concerning foreign – Chinese – city-building approaches compared to the European, 'western'1 sphere by which I had been shaped. It was only possible to a certain, rather

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1 The terminology western and the West, along with several others, is further described in the glossary.
limited extent, to apply my understanding of urban space and the approaches of the creation of the urban built environment to China. It was in fact evident that the set of tools, understood as the acquired knowledge – but also an unknown number of biases – of a city-building practitioner as well as an urban citizen, who has lived in European as well as Middle Eastern cities, that I had brought along was not sufficient to tackle the design challenges because it was not enough to understand, read, and decipher the existing urban environment with which China confronted me. It is the phenomenon of crossing cultural borders and being confronted with a riddle at the beginning and the chances of being able to learn it and learn from it about 'the other' and about oneself. This dissertation is the translation of this experience into the research context, following the questions and curiosity that came up during the time I spent in China.
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1| Introduction

This dissertation will use the word 'space' in a sense that is broader than just a mere reference to the material objects that can be described on the three-dimensional plane. The object of this research is, of course, the built environment, but its physicality is not the core affair of the text; instead, the ideas represented by space, concepts of space, and emotions invoked by space are the most important notions underlying the interest of this research. In other words, although focused on an analysis of the material – the mental, intellectual, and spiritual are the concern of the approach employed here. By investigating the Chinese built space in search of references to ancient philosophical thought, this research seeks to shed light on qualities that are indescribable but at the same time are embodied in the codes of the built environment.

In this, the present dissertation draws on Christopher Alexander’s idea of 'quality that cannot be named' (Alexander 1979) that stands behind all spatial creations, however to a limited extent: whereas Alexander thought of the deepest level of the intangible that can be felt by being reflexive about a certain space, this research examines a more accessible stratum of non-material qualities of space. Laws and rules governing the Chinese physical environment – man-made and natural – are being illuminated here in order to make them more visible to the untrained eye, as deciphering them is far from an obvious task. Chinese architecture and urbanism are the material carriers of various non-material notions of the astonishingly rich culture of China.

The Chinese incorporate references to mythology – for instance, to legendary creatures such as the tiger, dragon, phoenix, or crane – into their spatial surroundings, from the scale of architectural details to the scale of city layout, in a wide range of ways that may seem disconnected or incoherent to an unaccustomed observer. Moreover, a western observer is likely to conclude that the Chinese approach does not seem to emphasise meeting the users' needs as much as western design does and instead be concerned with obscure ornamental elements. This is far from the truth, however, and with a deeper knowledge and a more engaged look, one will see the principles of a different universe of creation of space. An effort to distance oneself from the western-centric notions of space creation is thoroughly helpful in an attempt to sustainably understand what the Chinese doctrines have meant over the three millennia of their development and still mean today.

1.1| Relevance and aim of the research

The fundamental way to understand the benefits that research like this one may bring comes from realising the scarcity of research about the Chinese built environment that employs the perspective of urban planners, urban designers, and architects, and retaining sensitivity to the local cultural conditions in a way that is accessible for non-Chinese audience. That is the combination of vantage points the present research offers: a discussion about the principles and philosophies that constitute the foundation beneath the Chinese built environment.

The next, equally important perspective on the relevance of this work can be understood in the context of the notion of the transfer of ideas, knowledge, people, and many
other immaterial commodities in the globalised world. In other words, this thesis is relevant because it aims at improving the knowledge available to a non-Chinese city-building audience as it is, too, a global trading good facing the challenge of working and researching across cultural boundaries with sometimes insufficient information necessary to approach the task sustainably. The exchange of ideas between China and various countries in ‘the West’ has had a substantial impact on the urban environment on both fronts and shows the nature of the relation between the two. From an early stage in history, architects have implemented ideas from other countries and cultures in their work to impress, improve, or raise the value of their work, China being no exception to this. This is even truer for the societies that we live in today, as we live in an era of constant urbanization characterized by mass-production of space (especially in the case of China). In line with globalist forces, in this urban era, which is defined by the flow of Information and the production of knowledge, the built environment is also increasingly reflecting the traveling of ideas between cultures and countries and is the arena of challenges, friction, and sometimes misunderstandings.

The internationalisation and globalisation of the environmental design professions has reached, especially in the context of the Chinese built environment, a new peak. The fact that countless architects, urban designers, and planners from around the world expanded their sphere of activity to China during the past high-speed urbanisation phase does not tell us anything about the level of preparedness or sensitivity these professionals, or entire offices, in the scope of their assignments. It could be a trap thinking that design solutions and concepts, created by non-Chinese experts, will fit the Chinese environment automatically (with some minor adjustments here and there) due to the generally globalised world to which cities belong and in which experts seem to move around effortlessly. Sometimes the opposite is correct and one begins to question why it happens on such a scale. Another emerging question is why it still seems to be challenging to traverse boundaries across cultures despite the global platform on which this has been happening since decades. This discussion may be especially important for environmental design professionals. The work of the built environment creators affects numerous urban inhabitants – and the scale in China is noticeably larger than in Europe – who live in urban environments created by non-Chinese or based on non-Chinese concepts and ideas. The assumption that the decade- or perhaps even centuries-long tradition of professional experience and education has equipped everyone sufficiently to create physical environment independently of the location and culture leads, at times, to situations where the specifics of an environment might not only be overlooked but perhaps even invisible due to the lack of knowledge how to understand the spirit of a place. However, considering the genius loci (which is a different concept in the West and in China or India) is mostly done and understood as absolutely necessary in the ‘old world’, where architecture and design schools teach their students how to approach a project and find the solution by taking these factors of context (genius loci) into account. Challenges arise when these designers travel with their approaches and concepts across cultural realms, because then sometimes, suddenly and unknowingly (because not sufficiently prepared), they reach the limits of their understanding and sensitivity for the context of the specific project with which they are commissioned.

Moreover, it can be argued that so far urban research has been strongly euro-centric and later west-centric, even when focusing on topics outside of the West. On top of
that, many paradigms and arguments of the classical Western city-building doctrines are becoming or have already become out-dated in terms of handling the increased complexity of the urban environment and trying to tackle this merely with best practice approaches or those originating in western cultures. Due to this increased complexity, it is impossible to achieve sustainable environmental design without working in interdisciplinary teams and with the knowledge of local cultural specifics.

Additionally, the present research’s relevance may be seen through the prism of issues concerning the future of the Chinese urbanisation. This research broadens the scope of examination of the built environment by looking at aspects which do not always gain consideration, such as cognitive biases (which, as a phenomenon, has by now garnered a Nobel Prize work in economy and may be said to influence all areas of life), contextuality and cultural sustainability (how it is reflected in city-building practice and research and purpose it serves), or innovation (referring not merely to technological improvements but also to innovation and re-innovation in the realms of society, politics, economy, or education). It is important to point out that contextuality is, again, understood differently in China than in the West, as the consideration of geographical circumstances and users’ needs does not exhaust the Chinese approach (it is extended by philosophical and geomatic factors). Perhaps most importantly, however, the dissertation improves its space-related research by bringing in the notions which lie at the fundament of every society or civilization: philosophy, spirituality, mythology, and history. Doing so is even more essential when examining the physical manifestations of a culture that is distinctly different from the one represented by an author or by an audience. Architecture, city-building, and all material space-creation are heavily influenced by philosophical and cultural phenomena. This approach, not new on its own, is becoming increasingly important in the era of globalisation not only for the ability to assess the actual influence of it on local traditions but also due to the growing ease with which practitioners, businesses, and ideas move around the world.

To shortly illustrate the scale of the rapidity of the changes in China in the urban realm, it can be pointed out that between 1978 and 2008, the urbanisation rate rose from 18 to 45 per cent, 357 million farmers moved to cities or transformed their villages into towns, and the number of cities rose from 193 to 655. These numbers are unprecedented in the history of human settlement and underscore the need for our attempt to understand what is going on in China’s cities. Such facts about the Chinese urbanisation included in the background information section of the thesis need to be displayed in the particular cultural context especially when the goal of the research is explaining what makes that particular built environment unfamiliar to a non-Chinese person. However, focusing on the non-Chinese experts who influence, in one way or another, the built environment in China does not mean that mostly foreign experts, concepts, and ideas shape the Chinese physical environment. It is much rather the impact that these travelling experts and the transfer of knowledge have on the environment as a whole that is the focus of this research.

The aim of this research is to contribute to the understanding of the urban texture of Chinese cities by non-Chinese city building professionals and academics, and to their capabilities of reading and decoding Chinese cities. Furthermore, this research,
providing an approach to start a better understanding of the Chinese physical environment, assesses whether a ‘tool-kit’ (or perhaps a set of contributions to a deeper understanding) to a world of connotations and denotations, the urban texture as a carrier of meaning, that is mostly invisible, especially to an eye that is untrained in the Chinese symbology, is possible to be formulated. This research is not trying to explain all possible facets of Chinese architecture and urban design. The outlining of the meanings behind the codes is merely a beginning and the body of knowledge needs to be fed with knowledge and information and experiences from other disciplines and fields, such as history, sociology, political science, etc. It is important to point out and emphasise the importance of input from practitioners for this research brought in through the expert interviews, as well as the interconnectedness of various disciplines, challenges, and boundaries of creating cities and physical space.

In order to not merely contribute to the theoretical body of knowledge, the dissertation offers a special type of research output in the form of propositions addressed at non-Chinese city building professionals from practice and interested observers unfamiliar with the Chinese urban texture that might ease the process of familiarising oneself with the Chinese urban environment. Often, practitioners in city building have limited resources time-wise to follow academic achievements in order to incorporate the latest developments into their everyday work. It is much more common to rely on ‘best practice’ experiences, which is a valid approach and has been successful up to a certain point. However, considering the increasing complexity, the fast development, and the scale of development in the Chinese context, it is not sufficient to rely on practical experiences only – especially since it is virtually impossible to find references matching the scale of the Chinese urban growth. To make this research accessible to the experts who create cities as well as to people analysing the physical environment from the scientific approach, the author had this audience in mind while compiling this thesis. Consequently, one of the main motivations for this research is to contribute to narrowing the knowledge gap that exists in the matter in question. The challenge of the research output will be to balance providing new or expanded perspectives on approaching the Chinese urban environment on the one hand with limiting the scope of ‘misusing’ the research results in the everyday practice of developing and conceptualising design concepts for Chinese cites on the other hand. The intellectual motivation of the author and the lead-up to the research problem can be encapsulated in questions such as ‘what is different in the Chinese built environment from the western one in the eyes of a non-Chinese person?’ and, more specifically, ‘what is needed for a non-Chinese observer to better understand the Chinese urban space?’.
1.2 Research framework

This leads to two primary research questions form the inquisitive base of this dissertation:

**Primary**
- in the process of globalisation and due to the opening to foreign influences, has the Chinese urban development lost its "Chinese-ness" or local cultural context?
- if it has, are there any signs of China shifting back towards it?

These are complemented by secondary questions:
- do the urban codes look differently in China, considering globalisation and technological improvements in construction and design?
- what are the differences in the urban projects' designing and execution between China and the West, how do these differences influence the presence of cultural codes in the built environment?
- do current Chinese urban design approaches support (culturally) sustainable development?

In the light of these questions, the thesis formulates a main hypothesis which it then tries to verify or falsify.
- Chinese urbanisation has never ceased to be rooted in its local context.

The origin of the research questions and hypotheses lies in the motivation to scientifically assess the claim that China has been losing its local context since it has opened its doors for foreign influences, investments, and international collaboration, and to shed more light on this discussion. It has been argued that phases of urbanization undergo similar cycles of transformation to other areas and disciplines: phases oriented on tradition alternate with ones pressing for progress. These are much rather connected to human psychology and its reflection and manifestation in the built environment; it happens independently to technological advancement or superiority vs. inferiority of societies. All of the above are, moreover, overshadowed by the question about the extent to which the western assessment methods are applicable in China.

The dissertation is equipped in a robust background research chapter, which outlines the most important circumstances, conditioning, and factors that have influenced the Chinese built environment. The work tackles the described problems by decoding the Chinese urban fabric based on case studies. The inductive approaches (qualitative research methods, urban hermeneutics, like case studies analysis and interviews of Chinese expert, complemented by thorough literature survey and the evaluation of primary sources, i.e. plan documents or architectural visualizations, among other methods) are applied to conduct the research.

The research looks at the existing methods and how they have been used to analyse the built environment. Methods used in urban design and architecture are discussed. Examples of new research methods and data gathering tools that have been introduced to the field of urban studies in the past few years are provided. After the evaluation and discussion of the presented existing methods and their gaps the multi-method approach that is applied in this thesis - the interdisciplinary method of decoding urban
physical space within its context, and spatial and architectural analysis - is introduced. The use of the tools and methods of urban design in combination with methods from other disciplines – for instance, linguistics – makes analysing the architectural and urban codes typically used in the Chinese context, closely interwoven with the Chinese building traditions, possible.

The output of the present dissertation has a chance to be useful for the non-Chinese city-building expert community. The results presented here, together with the selection of background knowledge, may contribute to levelling the plane of discourse between the Chinese and non-Chinese actors by reducing knowledge gaps and therefore reducing potential misunderstandings. That is due to the assumption that keeping the local context and respecting the cultural roots is the key to sustainable urban development, which is the common goal in city-building.

1.3| Overview

The dissertation is structured in a way that tries to account for the complex and subtle realm – cultural traits that can be traced to thousands of years ago – in which the present research is set. The topic of this work is tackled with the use of qualitative tools in order to cast more light on notions that usually stay hidden from the eyes of non-Chinese architects and urban designers.

Chapter 1, ‘Introduction’, serves to discuss the relevance and aim of this research (sub-chapter 1.1), as well as the research framework (1.2), and finally the overview of the dissertation (1.3) (see fig. 1).2

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*Figure 1: Chapter 1, organisation of the chapter*

In the attempt to construct a coherent narrative, chapter 2, ‘Background of the research’, provides an overview of the broad spectrum of information that create the backdrop against which the main research is carried out, such as the general phenomena of urbanisation to which belong the detailed elaboration on the understanding of contextuality and cultural sustainability, cognitive biases that influence the perception of the environment, and the (re-) innovation and transformation processes the built environment undergoes. Further, the chapter on background information includes an introduction to some of the main aspects of Chinese philosophy and its connection to the Chinese building tradition as well as an overview on the different phases of Chinese urbanisation in order to understand the existing city structure in China. The goal of this chapter is to provide the reader with the information necessary to understand the background of the phenomena analysed in the research chapter. The data presented in the chapter is balanced in such a way as to provide all the necessary knowledge.

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2 All illustrations have been created by the author unless indicated otherwise.
required to conduct the research in a legitimate way but at the same time not to shift the focus of the thesis away from the main questions and topics, as elaborated in more detail in the following (see fig. 2).

| 2.1 | Chinese philosophy and East Asian environmental philosophy | Overview of the fundamental Chinese philosophical, environmental philosophical and spiritual concepts: Confucianism, Daoism, Buddhism, Feng-Shui |
| 2.2 | Cultural phenomena in the creation of space | Overview of geomantic concepts and Chinese building traditions: Yingzao Fashi, Chinese principles of spatial creation |
| 2.3 | Chinese urbanisation | Overview of the Chinese urbanisation process with its drivers and factors of influence: Historical, the Chinese urban system, the railway system, urban transformation and (re-)Innovation |
| 2.4 | Contextual features of physical space | Overview of the process of context based approaches in spatial creation |
| 2.5 | Perception of the environment and Cognitive biases | Overview of cognitive processes perceiving and evaluating (foreign) environments: Cognitive biases, perception and evaluation of space |
| 2.6 | Synopsis | Brief concluding remarks on the content of the chapter |

Figure 2: Chapter 2, organisation of the chapter

The subchapter 2.1, 'Chinese philosophy and East Asian environmental philosophy', concentrates on four pillars of the Chinese spirituality and intellectual heritage: Confucianism, Daoism, Chinese Buddhism, and feng-shui. The subchapter includes the highlighting of the importance of the written heritage of ancient Chinese intellectuals such as Lao Tsu (老子) and Confucius (孔丘) to the understanding of the cultural phenomena, manifestations of which are abundantly visible in today's Chinese urban texture. Looking at these writings and concepts provides the backdrop to understand Chinese building traditions exemplified in the scales of city-building, architecture, urban design, and interior design. The subchapter describes the connection between the creation of physical space and the afore-mentioned cultural and intellectual bases. These topics are expanded by the information included in the following subchapter, 2.2 'Cultural phenomena in the creation of space', which goes into even more detail about both Chinese-specific geomantic concepts (along with comparisons to some non-Chinese ones) and philosophies that indirectly or directly influence the creation of space. The third subchapter, 2.3. 'Chinese urbanisation', includes its own four subordinate sections that serve to paint an exhaustive but concise picture of the relevant background for the research presented further in the text. These detailed parts of 2.3. focus on history of the Chinese urbanisation (a chronological overview of the Chinese urbanisation phases), factors that have influenced the development of cities (such as geographical, social, or economic ones), the Chinese railway system (as a developmental arena important for the Chinese urbanisation and this research), and urban transformation and (re-) innovation processes. It is important to understand that the above and below mentioned factors, described in this subchapter, influencing the process of urbanisation in China are not separable from each other and together they form the layers cities in China are
made of. Further in the subchapter it is discussed how cities are the central zones for innovative practices not just on the economic level, but also at cultural, political, and spatial levels and therefore reflected in the urban fabric. All these above described push-and-pull factors that influence each other are highly interdependent and need to be understood as a fragile interconnected system that changes and is impacted as a whole if one of the individual factors undergoes a transformation. Subchapter 2.4. ‘Contextual features of physical space’ continues the presentation of information that are valuable to the research by shedding more light on the notion of contextual city-building and answering the question why that concept is not only crucial to practitioners but also to the community of urban researchers. This part of the background information serves as a framework to analyse and explain further in the dissertation the importance of cultural sustainability in city-building in general and how to ‘read’ and ‘decode’ the Chinese local context in particular as an important fundament striving for sustainability in city building. The immediately following subchapter, 2.5, is titled ‘Perception of the environment and cognitive biases’ and is dedicated to phenomena in the realm of perceiving the built environment. The questions that this section follows are, on a more general level, how people perceive their environment, and more specifically how people perceive a foreign city (here: non-Chinese a Chinese city) and how being exposed to built environments across cultural realms impacts one’s sensitivity in evaluating physical space. Furthermore, the subchapter considers the topic of the perception of the self and the other, and how our own embossment and conditioning forms the approach and understanding we have about unfamiliar environments. Explaining and analysing these phenomena of cognitive biases helps to better understand how urban space is perceived and evaluated by experts and visitors and how this, in turn, influences how urban space is built, read, and decoded in different cultural realms. The chapter is closed by a synopsis providing a brief conclusion to the content of this chapter.

The third main chapter, ‘Methodology and theory. How the cultural layer of built space can be read’, has the goals of introducing, discussing, and justifying the proper selection of

| 3.1 | Patterns, codes, and signs of the environment | Overview of the fundamental aspects of the existence, reading, and interpretation of codes of the human surroundings |
| 3.2 | Decoding and analysing the built space | Overview of the principles of codes and patterns forming the built environment: Urban Pattern and Semiotics |
| 3.3 | Decoding and analysing the Chinese built space. The urban code of China | Overview and discussion on codes and pattern of the Chinese built environment: Hassenplug’s approach and “The Urban Code of China” |
| 3.4 | Discussion of the presented methods decoding built space | Discussion in the presented approaches on codes and pattern of the built environment: advantages, challenges, and gaps |
| 3.5 | Decoding and analysing the Chinese built space. Enhanced spatial-cultural analysis | Presentation of the analysis approach applied in this research: Case studies, scales of analysis, generated datasets |
| 3.6 | Synopsis | Brief concluding remarks on the content of the chapter |

Figure 3: Chapter 3, organisation of the chapter
methods to carry out the research, as well as equipping the reader with the information needed to follow the argumentation of the research (see fig. 3). This chapter looks at how a selection of qualitative methods, such as the semiotics of the built environment, a methodology that is categorized as urban hermeneutics, are applied and on what scales - from the macro, through the meso, to the micro - of the built environment (the respective case studies form the data pool) the research analysis is carried out.

The subchapter 3.1, titled ‘Patterns, codes, and signs of the urban environment’ lays down the fundament for carrying out the research, using the tools of analysis based on the semiotics of the built environment, by tackling the topic of what is understood under codes of the architectural environment, and how the built urban structure is a carrier of meaning, representing and reflecting cultural processes in the way they appear in the cities. ‘Decoding and analysing the built space’, 3.2., and ‘Decoding and analysing the Chinese built space. The urban code of China’, 3.3., are subchapters dedicated to selected methods that warrant a closer description. They bring up the question of what methods have been used so far in analysing the built environment and offers a general discussion of different methods used to analyse different scales and different locations. Further, these subchapters are dedicated to a key tool of analysis for this research: semiotics of the built environment. It is based on the works of Eco, Gottdiener, Hassenpflug, and other scholars and philosophers. The subchapters try to shed light on how this field of study appear, originated in linguistics, and evolve and also how and when it became relevant for urban research and both the analysis and the creation of the built environment, where elements of urban space become carriers of meaning (signifiers) that refer to meaning or sense (signified). The subchapter ‘Discussion of the presented methods of decoding built space’, 3.4., attempts to critically review the presented tools and methods, trying to analyse their validity and potential gaps. Particular attention is paid to an assessment of Western perspectives and west-centrism and their scope and suitability to analyse the Chinese urban structure. Further, it points out what kind of new interpretations of these research methods we need in order to create a research design that is capable of grasping the process of rapid city building happening in cities as big as, for example, Beijing or Shanghai. The first important steps were made by the research approach of Hassenpflug, Gottdiener, Wu and Gaubatz, and Steinhardt however, in the scope of this thesis identified challenges in their approached will be faced with an overlay of methods to weave a thicker and denser framework to approach the better understanding of Chinese urban transformation. The ‘Decoding and analysing the Chinese built space. Enhanced spatial-cultural analysis’, 3.5., is the subchapter that brings together the methods and tools presented and explains how they are combined in order to carry out the research. The subchapter aims at justifying the selection of methods while also illustrating what is being done differently from the approaches presented in the overview of methods earlier. The research approach in this dissertation may be called a multi-method, case study-based research approach. The research framework, as presented in this thesis, could also be viewed as an approach to cross-cultural and cross border urban research that intends to look at unfamiliar urban settings holistically, including the cultural layer which often is neglected. The analysis of the data is carried out with the tools to decode and decipher the built environment (semiotics of the built environment) in order to be able to see and read the layer of contextuality and local character that the analysed case studies carry. In
connection to this, the subchapter includes a presentation of the set of data being used (general data and case studies) before the actual analysis, elaborating on the general data sets (statistical data, policy documents, interviews, newspaper articles, or project descriptions) being used and the specifically selected case studies (the seven selected cities, and the three different types of city components, city halls, railway stations, and central business districts); the data generation and gathering process is, too, discussed in more detail. The approach also involves the analysis of architectural documents (plans, visualisations, brochures), statistical data analysis, literature review, expert interviews, and video and photo analysis. Chapter 3 also ends with a synopsis to provide brief concluding remarks on the content of the chapter.

The fourth main chapter of the dissertation, 'Research analysis. The codes of the Chinese built environment', includes the main body of research featured in this text and is organised in 4 subchapters (see fig. 4).

The first subchapter, 4.1. 'Case study analysis: an interpretation based on the traditional codes of the Chinese built environment', which is the core analysis part of the dissertation (however far from exhausting the new information created within the research), consists of several subordinate subchapters, each of which is dedicated to one traditional code that appears in the analysed case studies. In it, every code's meaning is explained and its occurrences are listed along with concrete graphic explanations of the occurrences. The following subchapter, 4.2 'Case study analysis: an interpretation based on the creation periods', complements the analysis of 4.1 by sorting the case studies chronologically and including the mentions about those of the cases where traditional codes have not been found. These two presentation subchapters are followed by the one in which the research questions are answered and the research hypothesis is verified or falsified. Here, the thesis returns to the main research questions and hypothesis, whether the largest cities of China are ceased to develop based on their existing local contexts and cultural specifics and provides the answer based on the research results. The chapter is closed by a synopsis, which provides brief concluding remarks on the content of this chapter.

The closing chapter (5) of the work, titled 'Research output, its context, and the bigger picture', hosts the closing remarks, conclusions, and commentary of the carried-out research and is organised in four subchapters (see fig. 5).
The chapter opens with the subchapter 5.1, ‘The Chinese codes: a contribution to a better understanding’, which attempts to formulate a set of helpful observations that could aid non-Chinese city-building experts in navigating the realm of the Chinese urbanisation and its abundance of tradition cultural references. The subchapter 5.2, ‘Research output and its contexts’, reviews some angles from which the results as well as the methods of this research may be viewed, including a discussion on how the research output enriches the state of knowledge about the results of the process of rapid Chinese urbanization and the issue of contextuality in urban design, as well as potential takeaways for education. The subchapter 5.3, ‘Further research possibilities for urban research and practice (in China and globally)’, is dedicated to outlining the potential continuations of the present research as well as implications for related or similar research initiatives, which includes touching upon the aspect of contributing to the community of globally employed environmental design practitioners who might benefit from this research. Finally, the chapter is closed by subchapter 5.4, ‘The bigger picture’, which picks up the various threads that touch upon matters larger than the research focus and upon some overarching themes of the discipline. The dissertation finally closes with concluding remarks that touch upon the bigger picture in which this research is situated and puts the threads that have been discussed in this research together, providing not only a perspective for further future research approaches but also a different angle to look at culturally significantly different spatial settings, learning about and from them as well as about ourselves.
2| Chinese-ness: the characteristics of Chinese cities and the perception of physical space

There is a central quality which is the root criterion of life and spirit in a man, a town, a building, or a wilderness. This quality is objective and precise, but it cannot be named.

- Christopher Alexander (1979)

The term 'Chinese-ness' - the quality that creates the intangible layer of Chinese cities - embraces and overarches the specifics and facets that create the atmosphere and cultural features that are distinctly different from the ones in the European or American environment, because they are rooted in the rich past of over 2500 years of influencing today's China and its society. The various elements and results of these features of 'Chinese-ness' trickle through all aspects of the Chinese country and its society, economy, and the physical environment as well, forming the whole ensemble of China. The following part of this dissertation introduces concisely the elements that are related to shaping the characteristics of Chinese-ness in relation to the built environment in China, the layer that is unique to China. The past has been instrumental in forming and shaping the present of Chinese cities, therefore this chapter provides an overview of the most relevant topics, a fragment of what could be analysed, in order to provide a better background understanding to analyse the urban fabric of today's China. This chapter presents a broad spectrum of information that create the backdrop against which the main research is carried out. As has been emphasised in the introduction to Chapter 1, this research does not wish to settle on an analysis of the surface features of the Chinese built environment but their meaning and interconnectedness to the human beings and surroundings, to use the findings of spatial characteristics to outline the connection to deeper notions – the intangibles of the Chinese culture, spirituality, and philosophy.

The data presented in the chapter is balanced in such a way as to provide all the necessary overview of knowledge required to conduct the research in a legitimate way but at the same time not to shift the focus of the thesis away from the main questions and topics. The first two subchapters discuss factors that are relevant for the understanding of the fundamentals of Chinese philosophy (including the brief introduction of Confucianism, Daoism, Chinese Buddhism, as well as Chinese geomancy) and how it influenced building traditions, which then shaped the urbanization process in China throughout the centuries of its development. Further, the chapter offers a historical overview of the Chinese urbanisation and a selection of topical perspectives on factors that have been shaping it. Next, this chapter provides an introduction to the phenomenon of contextuality in regard to the built environment and the perception of the same. The way individuals perceive the environment is closely connected to some cognitive biases that accompany each individual experiencing and evaluating the built environment. In the realm of this research, it is important to shed light on these background information and mechanisms in order to understand the specifics of the Chinese built fabric, which are analysed in the main part of this work.
Heidegger proposes a view of building and the built environment that looks to encompass all facets of life and tie them together instead of settling for looking merely at the physical side of construction techniques or layout design (Heidegger 1976-2007, 149). Cities are organisms shaped individually by their environment and factors of influence. The study of cities, in this dissertation, aims to trace a set of key ideas - simultaneously ancient and contemporary - that appear to be deliberate choices made in relation to cities. China and the Chinese cities underwent a different process than European and western cities (S. Li 2014, XIV). This realisation leads to a critical assessment of existing approaches to the study of Chinese cities. It is worth remembering that the Western categories of knowledge - well-rehearsed in the Greek thought and systematically practiced in Western academia mapping the mental faculties constructed in a specific cultural context and language - were not primary in the formation of a large number of cities in the world.

2.1 | Geomantic concepts and Chinese building traditions

Philosophy and religion in eastern as well as in the western realms have common roots, as explained by Brian Brown (2016). These two branches of spiritual concepts and philosophy, the Vedic religions of the east (Confucianism, Daoism, Buddhism, Hinduism) and the Hebraic religions of the West (Judaism, Christianity, Islam), spread in two directions along the Silk Road. Brown locates a major period of transfer of spiritual ideas and of development and rising influence of major religions within only about a century in roughly the sixth century BCE. The author has included translations of the Daode Jing, Dhammapada, Analects of Confucius, and Gandhi’s Bhagavad Gita (Brown 2016), creating a rich compendium. Considering this background, the further description will be centred around the main aspects of Chinese philosophy, religion, and geomancy, which are topics that have been analysed and researched by scholars from various backgrounds, and eras. Several scholars studied the field of spiritual life and the determination of behaviour by concepts such as feng-shui, Confucianism, Buddhism and Daoism; an imperfect selection may include Boerschmann (1926, 2012), Lynch (1960), Lip (1979, 2009), Eliade (1991), Hwangbo (1999), Feuchtwang (2002), Kögel (2011, 2015) for Chinese geomancy, and spirituality, Creel (1970), Graham (1989), Wong (2008), Fraser (2008), Ch’en (2015), Fu, Wang (2015) for Chinese philosophy.

The common ethical and spiritual thought of Chinese philosophy is, according to Wong (2008), centrally concerned with questions about how one ought to live: what goes into a worthwhile life, how to weigh duties toward family versus duties toward strangers, whether human nature is predisposed to be morally good or bad, how one ought to relate to the non-human world, the extent to which one ought to become involved in reforming the larger social and political structures of one’s society, and how one ought to conduct oneself when in a position of influence or power. Furthermore, the personal, social, and political are often intertwined in Chinese approaches to the subject. These are the thoughts Confucianism, Mohism, Daoism, and Chinese Buddhism are essentially concerned with, however, in their approach and concept they differ from each other. In the following part, the aspects of these philosophies and religions will concisely be explained and an overview and introduction to the subjects will be given.
Confucianism

Confucianism is one of the two oldest ancient Chinese philosophies, along with Daoism. It is based on the teachings of the scholar Kongzi, 孔子, outside of China best known as Confucius³, who was a philosopher in the Spring and Autumn Period, c.771 BC–c.403 BC, (Wong 2008; Kögel 2015, 560). The name derives from the Spring and Autumn Annals in the State of Lu, in the region of today’s Shandong Province. According to Chinese tradition, he was a thinker, political figure, educator, and founder of the Ru School of Chinese thought. His ideas were officially sanctioned and developed into the system which we know today as Confucianism. Until today, since more than 2000 years, the teachings of Confucius are taught to the Chinese people. Fung Yu-lan (1983b, 1983a), one of the great 20th century authorities on the history of Chinese thought, compares Confucius’ influence in Chinese history with that of Socrates in the West (Riegel 2008; Fung 1983b, 1983a).

Confucius’s ideas were delivered through his oral transmissions, lore; only generations later were these ideas recorded in the Lunyu or Analects, a collection from around the second century BCE⁴. Two of the well-known philosophers following the teachings of Confucius was Yan Hui (521–409 BC) and the philosopher Zengzi (505–436 BC), a famous pupil of Confucius, who edited and commented on the teaching of the Great Sage. His disciples are believed to have continued the work, especially on the Analects (Kögel 2015, 560). According to them, Confucius invented nothing and understood himself only as a transmitter.

One of the Four Books of Confucianism is the Great Learning. It consists of a short text, said to be by Confucius, and ten comments by his disciple Zengzi. One of the major topics is ‘how to investigate things’ (Kögel 2015, 560). His teachings form the foundation of much of subsequent Chinese speculation on the education and comportment of the ideal man, how such an individual should live his life and interact with others, and the forms of society and government in which he should participate. The philosophy of Confucius emphasizes correctness of social relationships, personal and official morality, justice, and frankness. Confucius’ ideas and teachings regulated the state and society as well as the daily family life with the main idea of creating a balance and harmony through order. A powerful hierarchy, bureaucracy, and order, with a strongly regulated chain of power strengthened his concept in order to reach harmony. While Confucius believed that people live their lives within parameters firmly established by Heaven— which, often, meant for him both a purposeful Supreme Being as well as ‘nature’ and its fixed cycles and patterns—he argues that men are responsible for their actions and especially for their treatment of others. According to Confucius, we can do little or nothing to alter our fated span of existence but we determine what we accomplish and what we are remembered for (Riegel 2008). Confucius claimed that he was ‘a transmitter and not a maker’ and that all he did reflected his ‘reliance on and love for the ancients’ (Lunyu 7.1, Li Ling (1970)).

Confucius’s holistic concepts and principles are also centered around the aspects of aesthetics and beauty: the most beautiful is also the best. Fu Xiaowei and Wang Yi

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3 Confucius is the latinized name of Kongzi (孔子), which is the used in the English language and in this dissertation as well.
4 Mao Ze’dong (毛泽东), first Chairman of the Central Committee of the Communist Party of China, reformed Confucius’s ideas and concepts and adjusted them to the Chinese socialism.
portray Confucius’s approach as follows: ‘[…] goodness is the most important quality, what is most good is also most beautiful […]’ has become defining for scholars (Fu and Yi Wang 2015, 69). The authors state further in their work *Confucius on the Relationship of Beauty and Goodness* (2015) that Chinese aesthetics are the unity of beauty and goodness which seem to have become a self-evident concept in China that roots in the cultural heritage of Confucianism: ‘[…] the supposed unity of beauty and goodness, or *meishan heyi* (美善合一) being the distinct feature of Chinese aesthetics.’ Indeed, in research on Chinese aesthetics since the 1980s, the claim of the unity of beauty and goodness, or the union of the beautiful and good, has been regarded self-evident so that it is practically taken for granted as the theoretical foundation of Chinese aesthetics. The unity of beauty and goodness is simply the unity of form and content, namely, beauty is form and goodness is content. In the words of Ye Lang in *Outline of the History of Chinese Aesthetics*, ‘the form of arts should be beautiful, but the content of arts, good’ (Ye 1985). Fu and Wang, however, explain that there is such an overwhelming support for this idea in contemporary Chinese academic circles that it seems there is hardly any need for philosophical argument either to justify or question the conviction that this is the most salient *Confucian* and Chinese aesthetic feature (Fu and Yi Wang 2015, 68–69).

Besides, the unity of goodness and beauty is not a special and unique characteristic of *Confucianism*, it has occurred in other (e.g. western) realms as well and is therefore still a part of *Confucianism* but perhaps a greater unifier across cultures.

If it is, in fact, true that the unity of beauty and goodness is ‘the sovereign principle at all times and all over the world,’ it is not, therefore, a unique characteristic of *Confucian* thought, which is something that they also claim. Thus, if one agrees that the unity of beauty and goodness is also part of Western, or, more accurately, Platonic, aesthetic tradition, then one must admit that this claim is untenable (Fu and Yi Wang 2015, 69).

According to Fu and Wang, Confucius valued Yue (music, beauty) over Li (ritual, moral). In this context, the authors have argued that taking the unity of beauty and goodness as *Confucian* aesthetic feature is a misinterpretation of his thought and is poles apart from the ancient Chinese aesthetic tradition and from Confucius’s aesthetics (Fu and Yi Wang 2015, 80).

*Confucianism* became a state doctrine of imperial China when the sovereign claimed the Mandate of Heaven. This was venerated in many temples all over the country. In codified rituals and prayers, the emperor had to negotiate between Heaven and Earth at the Temple of Heaven in Beijing or, for instance, at sacred Mount Tai. Everything was highlighted with symbolic objects, colours, numbers and, equally importantly, natural geographic positions. From the strong centralised imperial concept underlying the Mandate of Heaven, to the regional religious centres around the sacred mountains, down to the local religious geography and the practice of *feng-shui* intermingled with folk religion. (Kögel 2015, p. 523), in turn, describes this as the moment when the sensitive religious dependency, from small local habits to large state rituals, began to manifest their symbolic expression in architecture and planning.

**Daoism**

5 For a typical example of this, see Wang Cizao (王次炤), *Meishanheyi de Shenmeiguan jiqi dui zhongguo chuantong yinyue shijian de yangxiang* [The Aesthetic Standard of Unity of Beauty and Goodness and Its Influence on Chinese Traditional Music], *Yinyue yanjiu* [Music Studies] (1995, 43).
**Daoism**, *dao* 道, stands alongside Confucianism as one of the two great religious and philosophical systems of China. Traditionally traced to the mythical 'Old Philosopher' Laozi and to 'philosopher Zhuang' (Zhuangzi) of the 4th Century BCE (Hansen 2008, 0.1; Kögel 2015, p. 560), **Daoism** is an umbrella that covers a range of similarly motivated doctrines. Due to the complex twists and the role it played in the long history of China, the development of **Daoism** and its definition are controversially discussed among scholars. Only three to seven centuries after the main representatives of **Daoism** were supposed to have lived, Han dynasty (around 100 BCE), historians identified Laozi and Zhuangzi as Daoists. An operational definition of the philosophical **Daoism** could be 'what Laozi and Zhuangzi taught' leaving details to interpretation (Hansen 2008, § 1). Other scholars believe the philosopher Laozi is a purely mythical figure, while some ancient historians placed him as a contemporary of Confucius (Kögél 2015, p. 560).

The philosophy scholar Chad Hansen, explains the classification of the six schools of classical thought—*Confucian, Mohist, the Naturalist yin-yang, Legalist, Daoist,* and the school of names. They coined the term *dao-jia* (way-school) or *dao-de jia* (way and virtue school) and came to identify Laozi and Zhuangzi as paradigms of the study of *dao* (Hansen 2008, 1). The central concept of **Daoism**, *dao*  道, can be translated to English in the most familiar and least consciously noticed terms of the language 'way', 'guide', or 'road'. *Dao* (Tao) is a pivotal concept of ancient Chinese thought. (Hansen 2008, 1) offers synonyms to this translation, 'course', 'method', 'manner', 'mode', 'style', 'means', 'practice', 'fashion', 'technique', but eventually returns to the simple translation of 'way' (2008, 9.1.1). The partial synonyms, however, remind us of a second way in which 'way' is an apt translation of *dao*. Paired with *de* (virtuosity), they form the Chinese term for 'ethics', *dao-de*, from the late Classical period (Hansen 2008, 2008, 9.1.1). In western realms, the typical use of 'way' is in advising someone. In this context ways are deeply practical (i.e., prescriptive or normative). In contrast to that, the Chinese *dao* forms the centre of Chinese philosophical discussion. *Dao* occupies the position at the centre of thought that in Western philosophy is filled by terms like 'being' or 'truth'. Metaphysics and epistemology dominated early Western philosophy while ethics, politics and philosophy of education and psychology dominated Chinese thought.

**Daoism** has two different fundamental texts, the *Daode Jing* (Tao Te Ching) and the *Zhuangzi*. Laozi is the named author of the book *Daode Jing*, a classical text which is fundamental in both philosophical and religious **Daoism**. The book also influenced *Confucianism* and *Buddhism*. Both the *Daode Jing* and the *Zhuangzi* are composite texts written and rewritten over centuries with varied input from multiple anonymous writers. Each has a distinctive rhetorical style. According to Hansen, the *Daode Jing* is rather terse and poetic, the *Zhuangzi* prolix, funny, elusive and filled with fantasy dialogues. Both texts flow from reflections on the nature of *dao* and related concepts that were central to the ethical disputes of Ancient China (Hansen 2008, 0.2). Laozi and

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6 The spelling of **Daoism**, *Dao*, and *Daode Jing* in the realm of this research are according to the official Chinese Romanization of the original Chinese terms. For further reference see Feng, English 2011: ‘The two spellings, “taoism” and “daoism”, come from two systems of Romanizing Chinese. Western scholarship was dominated by the Wade-Giles system in which the sound closer to d was represented by a t and the sound closer to a t by t’. The Chinese recently developed and adopted their own official Romanization. It used the more intuitive d/t representation. Western scholars are gradually adopting the official Chinese Romanization. This creates a temporary inconvenience for the reader who does not know the two systems or their relation. It also creates a theoretical puzzle—“tai” and “Taoism” are arguably English terms today. The choices of Chinese speakers should not change English conventions. However, English writers have already stopped writing Peking in favour of Beijing.’
Zhuangzi was never met and were ascribed to Daoism only in retrospect; tradition has treated them as the Socrates and Plato of Daoism. To identify the Lao-Zhuang as a stream of thought may have become common only as with Neo-Daoism in the 3rd century AD. Not only is it true that 'Zhuangzi never knew he was a Daoist' (Graham 1989, 128), he probably also didn’t know anything about the Laozi (Hansen 2008, 1). The underlying basis for the distinction between the philosophical and religious poles of Daoism was epistemic. Both species of Daoism start from a common critique of the 'ordinary' knowing of dao (way, guide). From this mildly sceptical or relativist base, philosophical Daoism tends toward pluralism, perspectivalism, scepticism, political equality, and freedom. According to scholars such as Hansen, the religious 'mysticism' usually is accompanied by a credulous assertion of supernatural epistemic abilities—the control of a magical or mystical way of overcoming scepticism (Hansen 2008, 1). The 'Religious Daoism' has become a deeply malleable concept due to its natural characterization of the ideology behind any non-Confucian or anti-conformist thought. Hence, scholars like Hansen refer to scholars from religion while focusing on what philosophical content can be extracted from the classical exemplars: Laozi and Zhuangzi (Hansen 2008, 1). In the religious interpretation, Laozi is one of the Three Pure Ones in Daoism and named as the founder of philosophical thinking in the religion. The Three Pure Ones, the Daoist trinity, are considered the highest gods in Daoism. The Three Pure Ones are the Jade Pure One, the Supreme Pure One, and the Grand Pure One. Each represents a deity and a heaven, and different Daoist schools developed around each of them. The congregation of all three results in the return to the Way or dao (Kögel 2015, 561). Apart from Daoism being analysed from a more philosophical as well from a religious approach, scholars ascribe some important differences as well as overlaps with the above discussed philosophy of Confucianism. Daoism and Confucianism share a similarly anti-sceptical, unreflective authoritarian epistemology, so explains Hansen, and the presupposition is the possibility of mysteriously cultivating an infallible or superhuman intuitive guidance system (Hansen 2008, 1). These two ancient Chinese philosophical and religious concepts disagree about ethical details. Much of the thrust of Daoism naturally motivates a reaction against the moralistic and elitist inclinations of Confucianism. Confucianism stood for a rather rigid, detailed, traditional pattern of hierarchical social behaviour. The withdrawal from society, the antipathy toward ritual roles, traditional 'morality', and any social structures or traditional culture suggests a kind of Daoist 'ethos' as an antithesis to Confucianism in China (Hansen 2008, 3). 

Taking the teachings of Daoism and focusing on the impact they had on the everyday life of individuals following the philosophical or religious guidelines leads to Zhuangzi's focus on wei and wu-wei 無為, the deeming action and the non-deeming action. It describes to process of the introspective discussions of skilful behaviour that develops into a kind of satisfying and tranquil state of harmony with action (occupation, societal role, as well as every other action performed during an everyday routine) that an individual pursues and might aspire to become the 'second nature' (Hansen 2008, 9.1.1). It is explained as an individual performing an action while in an aesthetic or performative trance. Such behaviour requires a focus and absorption that is incompatible with ordinary self-consciousness, purpose and rehearsal of instructions. Besides this loss of a sense of the ego, the experience is credited with creating a unity between the actor and the external world, and with a sense of heightened awareness and tranquillity that comes
with the masterful practice of an acquired skill. Mastery is experienced as ‘becoming one with the activity’ (Hansen 2008, 9.1.1).

Daoists stand for the belief that there is no one particular social dao. However, despite the non-existence of a superior dao, tian (nature or sky), is being treated as the normative authority. In the Zhuangzi (Ch. 33) it says: ‘tian (nature, sky) constancies can cover but cannot sustain; Earthly cycles can sustain but cannot cover it. Great dao (guide) can embrace it but cannot distinguish it’ (Hansen 2008, 3.3). Although it is insightful to say ‘humans live in dao’ as ‘fish do in water’, the insight is lost if we simply treat dao as being or a pantheistic spiritual realm. Dao remains essentially a concept of guidance, a prescriptive or normative term.

Treating the environment correctly is not purely a matter of satisfying conventional human interests such as conserving resources for our future consumption, nor need it be a matter of recognizing a value that the environment has in complete independence of its impact on us (Wong 2008, 4.2). In other words, the Daoist self is not a substantial independent existence but a relational one whose boundaries extend into the conventionally non-human, and from a Daoist perspective that is reconstructed to be oriented toward the problem of the environment, we would do well to acknowledge the ways in which whatever we value in ourselves is connected to the non-human (Hourdequin and Wong 2005, Wong 2008, 4.2). Dao (Zhuangzi) and tian, dao and the earthly cycles; there lies the connection to all aspects of life including traditions and approaches that have been internalised and survived until today shaping the society and environment, the recurring cycles in all things of Daoism. Achieving the state of harmony and balance applies not only to the individual but also to the greater society.

Today, Daoism is among five religions, including Buddhism, Islam, Catholicism and Protestantism, recognized by the People’s Republic of China. The various Daoist associations created during the Republican period were disbanded at the creation of the PRC; a new Daoist Association was created in Beijing in 1957, ceased all activities in 1966, and was reactivated in 1980. The renewal of Daoist practice during the 1980s and 1990s was strong but unequal. The ‘infrastructure’ limitation (the lack of available temples) is the major obstacle to religious practice, however in some parts of the country temples are tolerated, and temple fairs and pilgrimages are organized. Despite the difficulties, Daoist studies is growing in China, having already established presence in some Chinese universities. Daoists and scholars of Daoism want to distinguish Daoism from sectarian groups (a vital necessity) and from ‘superstition’—the intellectuals of the Qing and Republican periods mostly identified Daoism with ‘superstition’, hence the particularly harsh treatment Daoism received from the state over the last century (Goossaert 2009, pp. 185–187).

**Chinese Buddhism**

Buddhism arrived in China probably around the Han Dynasty (206 BCE–220 CE) through Buddhist missionaries from India. Most scholars ascribe the arrival of the Buddhist thoughts to the exchange of not only trading goods but also ideas, concepts, and philosophies along the Silk Route. When Buddhism arrived in China, first the process of Indianisation did take place, but it is also true that another process was going on, namely, the adaptation of Buddhism to Chinese conditions. While Indian ideas were gaining ground, the Chinese were also fashioning changes in the Indian ideas and practices,
so that Buddhism became increasingly Chinese and easier to accept to the Chinese. Ch’en calls this process “the Sinicisation of Buddhism in China” (Ch’en 2015, 5). The first documented translation of Buddhist scriptures from various Indian languages into Chinese occurs in 148 CE with the arrival of the Parthian prince-turned-monk An Shigao (安世高) who established Buddhist temples in Luoyang and organized the translation of Buddhist scriptures into Chinese.

The Chinese intellectuals had been hungry for fresh ideas when Buddhism came to China. The highly developed Buddhist arguments found response with Chinese intellectuals and the discourse that could ‘domesticate’ this alien system, the Neo-Daoist ‘abstruse learning’ which focused on the metaphysical notions of being and non-being. That issue resonated superficially with a Buddhist puzzle about the nature of Nirvana (Hansen 2008, 8). If Nirvana was the opposite of Samsara (the eternal cycle of rebirth or reincarnation) then was it a state of being or of non-being? Nirvana is the achievement of the Buddha—the expression of Buddha-nature. Buddhism arrived in China armed with a paradox that would delight thinkers of a Daoist turn of mind—the fabled paradox of desire. Rebirth was caused by desire and Nirvana could be achieved only by the cessation of desire. That meant that in order to achieve Nirvana, one had to cease to want to achieve it. This argument informs the Mahayana notion of a Bodhisattva, who qualifies for Nirvana but voluntarily stays behind in the cycle of rebirth to help the rest of us. Enlightenment could only be achieved all at once. The Mahayana wing of Buddhism was the more successful in China because this implicit egalitarianism—everyone could be Buddha, just as everyone can be a Daoist or Confucian Sage. The other Buddhist philosophy that had the greatest appeal in China was Madyamika, which answered the question of the nature of Nirvana or the Buddha nature by not answering it—Neo-Daoist quietism (Hansen 2008, 8).

The famous Chinese philosopher, essayist, and diplomat Hu Shi had a different approach and assessment of Buddhism arriving in China. During a lecture at the Harvard University in 1936 ‘The Indianization of China (Ch’en 2015, 3), he discussed the role Buddhism played in China. Hu contended that:

[...] the plain, simple religion developed by the ancient Chinese consisted primarily of worship of ancestors, of natural forces, and of tian [heaven]; of belief in the efficacy of divination; and of some vague notions of rewards and retributions. After Buddhism was introduced into China, the simple, practical Chinese were confronted with a hierarchy of heavens peopled by deities, some of whom have forms, desires, and passions just like ordinary human beings, others with forms only but no desires for sensual pleasures, and still others with no forms but only consciousness. Parallel to these heavens were a series of hells, hot and cold, in which the torments became progressively more tortuous and terrifying [...]. (Ch’en 2015, 3)

Hu had on more than one occasion condemned Buddhism as one of the greatest evils to have befallen China, according to (Ch’en 2015, 4–5). Other, more moderate assessments of philosophy scholars conclude that for a few centuries, the Chinese were captivated by the overpowering religious panorama brought in with Buddhism, but in time, what some scholars call the basic personality or the local genius of the Chinese, began manifesting itself. By this local genius or national character is meant
the sum total of the cultural traits which the vast majority of the Chinese adhered to, traits that had been developed by them during their long history (Wales 1967, xxii-xxiv). It was through the manifestation of this local genius that they were able to choose ideas from the Indian religion and modify them to fit the Chinese situation (Ch’en 2015, 5–6). By investigating the role of Buddhism in the ethical, political, economic, literary, educational, and social life of the Chinese, Ch’en investigates further in his work how the Indian religion gradually became sinicized and accepted as an integral part of the Chinese way of life (Ch’en 2015, 12).

**Chinese environmental philosophy, feng-shui**

The term *feng-shui* is derived from the combination of two Chinese words, *Feng* 風, wind, and *Shui* 水, water. Most scholars who conduct research on *feng-shui* agree that this term was first introduced in the *Zangshu* (葬書), or *Burial Book*, written by Guo Pu (276-324 CE). The author states that Qi, 氣, the cosmic breath, vital cosmic current, or essence of the universe, can be scattered when it meets wind or stopped when it meets water (Huang 2012, 4–6). Not only in China but in large parts of East Asia, the substance or rather energy Qi was the basic constituent of everything, one could describe it as a Chinese alternative to the atoms of matter assumed by the Greeks and inherited by Western science (Hwangbo 1999, 191–92).

*Feng-shui* can be described as a philosophical and holistic approach to creation and organisation of the physical environment as well as to the spiritual aspects of one’s individual life with the goal of ensuring balance between the human and the environment. *Feng-shui* assumes a unique organisation of the world consistent with various phenomena in its own right. Its use can provide anything, from the design of an imperial palace to the design of a dress or a piece of porcelain, a greater claim, holistic in its approach to conceptual consistency (Hwangbo 1999, 191). The term *feng-shui* was gradually used to denote a variety of theories dealing with many different types of built spaces, first tombs, and later it included structures such as cities, temples, official buildings, dwellings, and altars. By following the theories of *feng-shui*, people are able to locate, orient, organise, and establish the built spaces in an auspicious way. However, contrary to popular beliefs, these theories are not systematic, and most, if not all, are loose combinations of different principles (Huang 2012, 4–6). Based on these principles, a framework of guidelines was developed and have been documented in *feng-shui* texts, many of which still relevant in today’s *feng-shui* practice. The *feng-shui* system incorporates concepts of traditional Chinese philosophies such as Daoism and Confucianism (Hui Tu Labanjing 2000, 58). The development of Chinese *feng-shui* in the Ming (1368-1644) and the Qin (1644-1912) Dynasties was very important, as various ancient philosophical and religious ideas of Yin-Yang, the Five Elements, Confucianism, Buddhism, and Daoism were merged and systematized, forming the basis of many newly formulated *Feng-shui* theories (Luo and Xiao-Xin He 2004). A large proportion of the old *feng-shui* texts known to us and influential nowadays were written and compiled during this period (Huang 2012, 111). Following that, Huang describes, in the Ming Dynasty (1368-1644 CE), diverse *feng-shui* theories were further developed, renewed

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7 Important scholars on Chinese *feng-shui*, are the works of (Han 2006) Bao-De, Zheng-Sheng (Du 1995), Shang-Jia Qiu, and Ronald G. Knapp, just to name a few of particular significance.
and systematized, and most importantly, the two most prominent schools of feng-shui, the Form School (形法派) and the Compass School (理氣派), were established (Huang 2012, 4–6; Han 2006). Over the course of history, increasingly complex architectural theories of feng-shui were developed on the basis of ancient philosophical, astronomical and religious ideas. And according to the feng-shui-related texts throughout history, a number of old theories and principles of architecture developed in an earlier time were possibly rejected in a later time. Chinese feng-shui has seen a steady development from ancient times to this day (Huang 2012, 7). In addition to that, guidelines and rules existed before the feng-shui principles were even developed, for example ‘the toilet should never be placed in front of the house’ (3rd-century-BCE Shuihudi Rishu Bamboo Texts) they are usually mentioned but not at all explained in ancient texts. Although this example is illustrating a rule older than the official first texts of feng-shui, it is a principle that finds use even in today’s architectural conceptualizations. It cannot be denied that by far not all feng-shui principles, found in old texts or practiced nowadays, are formulated on the basis of feng-shui theories. Some of these concepts are likely to have already existed before the development of feng-shui theories. The eight trigrams, a concept to organize spatial arrangements according to heaven and earth, emerged in the I Ching or Book of Changes (Hwangbo 1999, 192), a Chinese classic of the fifth century BC. Each figure consists of three bars, which can be full or broken according to whether they represent yin or yang. The different combinations of full and broken bars appear in two geomantic diagrams arranged differently to show the conceptual patterns of changes in heaven and earth (figs. 6 and 7).

Many of the feng-shui theories merely loosely incorporate certain architectural principles, some of which even contradict others, and due to that, according to Huang, feng-shui should not be seen as a well-organized system (Huang 2012, 4–6).

Wu and Gaubatz, as well as Steinhardt, among others, refer to the principles of feng-shui as the reflection of Chinese beliefs in geomancy (Wu and Gaubatz 2013, 51). In their work about studying the Chinese city, the authors come across the strong influence feng-shui principles had on the establishment, planning, and administration of cities.
since ancient times. The use of geomancy in urban design is by no means unique to the Chinese - ancient Etruscan and Roman cities, for example, used aspects of geomancy in their design as well (Wu and Gaubatz 2013, 51). Feng-shui may be understood as an environmental philosophy that entered and initially organised the conceptualisation and usage of space (Huang 2012, 11). Feng-shui developed as a mélange of art and science as much as an intellectual discipline, incorporating everyday tactics how to approach and create space, with links to a particular cosmology or world view. It derived from the existing philosophical concepts, and governed the creation of the built space in ancient East Asia (Hwangbo 1999, 197–98).

Daoism and feng-shui are much more neutral compared to some other East-Asian philosophical traditions such as Confucianism. However, feng-shui, by promoting aspects such as being in harmony with nature and ‘slow’ living, openly argues against principles that are generally seen as an intrinsic part of ‘modern’ urban living and has despite, or because of it not only travelled to the West but also a revival in the recent decades. One of the most visible examples of these are the ideas about creating an optimal environment for living by applying the philosophy of feng-shui (Hwangbo 1999, 197–98). As an alternative architectural theory incompatible with Western classification systems in its origin, it is certainly worthy of scrutiny, if only for the parallels and contrasts in world-building that it presents.

2.2| Cultural phenomena in the creation of space

Narratives have different connotations in different cultural realms: they create and construct meaning, also in the built environment. China is an example of conflicting narratives with the notions of contemporaneity, tradition, and recently the ‘new Chineseess’ introduced by Xi Jinping being all valid terms to use in discussion about the Chinese built environment. Tze-Ki Hon introduces the notion of ‘alternative modernity’, which is explained the easiest as a unique approach to modernisation based on one’s culture and history (Hon 2014, 212). This term is relevant to both the description of modernisation discussions of the 20th century and the contemporary phase of urbanisation. In the late Imperial and Republic periods, ‘alternative modernity’ was understood as the search for a middle road; a compromise between hard traditionalism and radical westernisation. The proponents of this thought postulated keeping from the Chinese tradition what is the most important for the Chinese identity in order to protect the uniqueness of spirit of the nation as well as to prevent social unrest that, they argued, would inevitably come from too rapid modernisation; and, while admitting China’s backwardness in numerous disciplines of life, taking what is best about the Western technology and organisation of state, labour, and the public domain. This period may also be considered the beginning of the notion of ‘Chineseess’ as we understand it today.

These different approaches, full and total modernisation and globalisation at the cost of traditions and ancient concepts on the one hand and absolute protectionism of the ancient ways, concepts, and traditions with rejection of new influences on the other hand, as well as all levels of moderation in between, can be found in the spatial environment of the Chinese cities. However, most interestingly, to understand what aspects of these cultural manifestations of schools of thoughts and ancient philosophical
and spiritual practices not only survived until today but are as relevant as they have been, undergoing perennial cycles of transformation in their physical manifestations (transforming along the possibilities and technology of modernisation and globalisation) or remaining constant in the way they find reflection in the built space, is crucial to the background of this research.

### 2.2.1 Geomantic concepts and Chinese building traditions

In order to illustrate and explain the characteristics that shape and form the Chinese building traditions, it is important to first shed some light on to the geomantic concepts and traditions creating and organising space in non-Chinese context. This will help to see not only the differences between these notions but also their similarities and common roots in concepts of belief systems and ancient understandings of humans interacting and being in dialogue with the environment and nature. The introduction of non-Chinese geomantic concepts and building traditions in this sub-chapter is intended to provide a brief and concise overview of them; the text is not trying to offer a complete analysis of the topic. Despite the main attention being turned to the Chinese specifics and aspects shaping and influencing the environment, it is relevant to paint the larger picture of cultural and geomantic concepts that have existed and still influence the creation of the physical environment today. Across the cultural realms of the ancient Silk Route, several local building traditions and geomantic concepts can be found, like the *axis mundi* and genius loci prominent in the European cultural realms, or Vastu-Shāstra existing in the Indian subcontinent shaping its building traditions. Apparently, people’s concerns about the configuration, the orientation and the spatial hierarchy of built spaces are not confined by cultural, religious, and geographical boundaries (Huang 2012, 9). All of these are based on numerous similar ideas about how to locate, orient, organize, and establish built spaces. These geomantic concepts and building traditions were not limited to a certain scale but rather included a variety of scales, such as cities, villages, palaces, temples, houses, and altars, providing a framework of how to ensure a proper connection and a harmonious relationship between the individual and their external natural or built environment.

**Non-Chinese geomancy and building traditions**

The non-Chinese ancient geomantic concepts influencing building traditions in the European cultural realms and further in the Middle East and Africa can be briefly summarized as *axis mundi* and genius loci. In the Indian Subcontinent the concept Vastu-Shāstra has been present since ancient times and has a surprising set of similarities to the Chinese ancient concepts, as will be briefly described in this sub-chapter.

*Axis Mundi*

The *axis mundi*, which is also called the cosmic axis, world axis, world pillar, centre of the world, or world tree, in certain beliefs and philosophies, is the world centre, or the connection between heaven and earth, explains Eliade, 48–51 (Cooper 1992). It expresses a point of connection between sky and earth where the four compass directions meet as the celestial pole as well as geographic pole. At this point of the *axis*
mundi, travel and correspondence is made between higher and lower realms (Eliade 1991, 48-51). The centre of the axis mundi may have the form of a natural object, such as a mountain, a tree, a column of smoke or fire, or a product of human creation, such as a tower, a ladder, a staircase, a maypole, a cross, or a totem pole. Its proximity to heaven may carry implications that are chiefly religious (pagoda, temple hill, minaret, church) or secular (obelisk, lighthouse, rocket, skyscraper) and the image appears in religious and secular contexts (Chevalier and Gheerbrant 1996, 61–63, 1996, 173–75).

The axis mundi concept may be found in cultures utilizing shamanic practices, animist belief systems, or in major world religions across Africa, Europe, and Asia, as well as in technologically advanced urban centres (Cooper 1992; Eliade 1974, 16). Mircea Eliade describes it as ‘every microcosm, every inhabited region, has a centre, that is to say, a place that is sacred above all’ (Eliade 1991, 40).

Genius Loci

The genius that is referred to when we speak about the genius loci originates in the ancient Roman mythology and was a spirit of protection, often portrayed as a snake (loci, the plural form of the Latin noun locus, refers to the particular spot, place, position, space, or site). The original understanding of the term genius loci referred, in ancient Roman times, to religious and spiritual places such as temples and other places of worship, but also to secular places (loci) such as provinces, cities, sites, buildings, or individual rooms within buildings (Norberg-Schulz 1982, 1991). Christian Norberg-Schulz is one of the well-established scholars, along with others such as Christopher Alexander, who focused on phenomenology of architecture, where the intangible aspects (geomantic, spiritual, philosophical, emotional) meet the tangible (the man-made) physical space.

Genius loci
can be describes as all the material and immaterial characteristics that a particular section of the earth surface bears (Norberg-Schulz 1982, 1991; Curdes 1997, 152). It defines the individual identity of the place, which is moulded out of a combination of features that make a place unique. The genius loci is a complex structure or system of different characteristics and features. Important are the physical elements of the system (streets, the typology of buildings, the vegetation, topography), but also elements such as the climate, light, odours, the people, and the specific history play an important role (Rossi 1982). A place, locus, is understood as an autonomous, individual, and unique combination of natural and man-made characteristics that in concert create a distinctive and special place (a city, village, landscape). This is what differentiates one place from another and makes it unique (Curdes 1997, 153). The spirit of the place is therefore a phenomenon that is subjective and objective at once. Some elements of the spirit of the place are measurable, documentable, and, through repetition of the analysis, possible to be confirmed by others, even over longer time stretches, and are, therefore, objective (Curdes 1997, 152). These material and immaterial aspects of a
particular place, in concert, form (urban) space.10

Vāstu-Śāstra

In India, the ancient geomantic and spiritually influenced concept of building tradition in called Vāstu-Śāstra. Among scholars there is an ongoing debate over when some of the well-known Vāstu-Śāstra-related treatises were written, however, most scholars agree that these treatises were compiled intermittently between the Gupta Period (c. 4th-6th century CE) and the 15th century before the era of Mughal Empire. The Sanskrit word ‘Vāstu’, as frequently mentioned in these texts, is said to be derived from the verb ‘Vas’ that means ‘to dwell’, and thus the word Vāstu is used to denote the dwelling site or the places where immortals and mortals reside (Huang 2012, 3). Therefore, Vāstu-Śāstra is generally understood as the ancient Indian science of architecture. In these Vāstu-Śāstra texts, we can find numerous systematic or unsystematic theories and principles regarding different types of built spaces, such as cities, palaces, temples, dwellings and altars (Dagens 1994). In the epics and religious texts compiled before the Gupta Period, many descriptions of ancient Indian building customs can be found, various of which are similar or comparable to the descriptions in the Vāstu-Śāstra texts (Huang 2012, 3). It is interesting to note that even though Chinese feng-shui and Indian Vāstu-Śāstra are two architectural traditions developed in different cultures and regions and consolidated by a variety of religious and philosophical ideas, several common themes of the two traditions can be identified. According to Huang, three themes are especially worth noting: ‘the configuration of built spaces, the orientation of built spaces, and the spatial hierarchy within built spaces’ (Huang 2012, 3). These fundamental rules can not only be found in ancient texts but also in today’s practice, although the geomantic concepts have been changing over the centuries of their existence. Until the present day, one popular belief is that the observance of Vāstu-Śāstra rules can bring good fortune to people and guarantee them an auspicious built space. Therefore, home buyers these days tend to examine whether all the details of a house are in line with these guide lines and housing developers tend to ask their commissioned architects to carefully design houses that meet these requirements and satisfy functional and aesthetic requirements at the same time. Otherwise, these houses could very possibly be difficult to be put on the market or less profitable (Huang 2012, 3).

The Chinese building tradition and the Indian equivalent, Vāstu-Śāstra, are two of the most age-old and well-known architectural traditions of the world (Bhattacharyya 1963), (Huang 2012, 1). Though, the specific execution of these similar sounding rules differs significantly between the concepts described above. Surprisingly, the two pre-modern traditions, rather than dying out over time, have survived well into the present and still exert great influence on today’s architectural practice respectively in the Chinese and the Indian cultural spheres (Huang 2012, 1). This applies even though the significance and teachings of the concept of genius loci is present in current curricula of environmental design students such as architecture or planning across Europe.
difference, however, lies in the application of these concepts as well as their execution in creation and construction of physical space within the respective realms from which they originate.

**Geomancy and Chinese building tradition**

The Chinese building tradition is composed out of many influences, such as *feng-shui*, the *yingzao fashi*, and other ancient concepts, which assigns significance to the ways in which structures are built by bringing together philosophy, religion, other geomantic beliefs, and the people's interaction and experiences with the natural world. This is the groundwork and fundament based on which the Chinese building traditions have developed. Rules and guidelines as overall concepts, valid across China, as well as specific rules originated in local circumstances and conditions and therefore applicable in particular regions only, exist in parallel and contribute to the complexity of the various Chinese traditions and rituals of creating the built environment in harmony with nature and spiritual or philosophical concepts. The Chinese building tradition and its fundamental rules stem from a variety of disciplines, such as science, religion and philosophy, astrology (astronomy), architecture, and divination, as well as on experiences of best practice. As an autonomous discipline in China and across East Asia, architecture and environmental design professions as known to the West are only about a century old (Hwangbo 1999, 191). Nevertheless, even without establishing a professional discipline particularly assigned to design and create the built environment, an abundance of rules and guidelines were collected over the centuries that formed a rich body and clearly postulated how to approach the conceptualisation of particular projects of various scales (from dwellings to temples, palaces, and cities). Some scholars see the ideas of Daoism and Buddhism as being responsible in China for beauty and harmony with nature. Boerschmann assumed, during his travels to China during the turn of the 19th and 20th century, the Daoists understood the sublime effects of pagodas in the landscape and used them as part of their geomantic system for the creation of a harmony and balance (Boerschmann 1926, 2012). Early spatial analysis found that buildings were conceptualized based on religious, geomantic, and philosophical principles. The ancient pagodas for example were rooted in *Buddhism* but how they were placed and the meaning the placement had, beyond being a container for relics, was based in the religious geography of the nature with strong relationships to *Daoism* and geomancy. Boerschmann wrote that the ‘ten thousand things’ of the Chinese culture were deeply connected to each other and each religious system tried to use as much of the other as possible, to become or stay attractive to the people. He referred many times to his observations that the pagoda always revealed close interconnections with the given features of the landscape, treating it as a component of the environment (Boerschmann 1925, 2012).

The first manuscript, in classic Chinese literary works, that mentioned the organisation of the built environment was the *Kaogongji*, the Book of Trades. It said to be a written document of versions of long-standing oral traditions, including architecture and urban design, which appeared some time during the second century BC as part of the annals of the Zhou dynasty (11th century BC - 221 BC) (Wu and Gaubatz 2013, 50). The most significant and influential concepts, guidelines, and frameworks which developed over the centuries formed the Chinese building tradition and will be introduced in this part. Apart from the geomancy-influenced environmental philosophy of *feng-shui* (described
above), another significant manifest for the built environment is the so called yingzao fashi.

Aspects of Confucianism in the Chinese building tradition

During the Han dynasty (206 BCE-220 CE), the founding era of the Chinese culture, the Ministry of Works responsible for construction and cities ranked perhaps the lowest among the imperial administrative structure. The philosophical concepts were expressed in daily activities and rituals, such as Confucian rites have been central to Chinese governance and primarily shaped the approach to the creation of space. This 'imperial Confucianism' (Fairbank and Goldman 2006, 62) monopolized the aesthetic realm in Chinese life, creating the rules for the physical manifestations of rites. The Ministry of Rites conceptualised the core moral and aesthetic values through its defining role in the formulation of Confucian rituals and the examination system. The Song dynasty (960-1279) brought an enormously important development to this imperial Confucianism through extensive re-establishment of ancient rites, the building document of the Ministry of Works of this era, the yingzao fashi compiled by Li Jie in 1103, can be seen as a culmination of the materiality of rites. The yingzao fashi determined material and spatial ritual orders in close parallel to the hierarchical ritual orders determined at the Ministry of Rites (S. Li 2014, XIX, S. Li 2003, J. Feng 2012).

Yingzao fashi

The yingzao fashi 營造法式, which can be translated as ‘treatise on architectural methods or state building standards’, is a construction manual that Li Jie 李誡; 1065–1110) is ascribed to have authored (Guo 1998). Its thirty-four chapters set out rules of construction in masonry, structural and non-structural timber, tiles, and painted decorations (S. Li 2003, 470–71; Glahn 1984). The manual itself includes an introduction on preliminary work and construction terms and their sources with extensive drawings in the latter chapters. Li describes in his analysis that earlier construction manuals existed, but the yingzao fashi introduced the crucial idea of a modular unit. The central concept is the 'timber unit' (cai, in chapters 4 and 5), which establishes modular systems for all timber building components (S. Li 2003, 470–71). On this basis, the 'work unit' (gongxian, in chapters 16 to 25) measures the amount of work required for all types of skilled and unskilled construction, and the 'quantity unit' (liaoli, in chapters 26 to 28) measures quantities of materials (Guo 1998). Li Jie was commissioned by the emperor to compile the yingzao fashi, it was completed in 1100, and published in 1103. The book had very different objectives from those of the Ten Books of Architecture by Vitruvius, the only older surviving architectural treatise. While Vitruvius set out to develop a view of architecture as a technical enterprise as well as a means to achieve beauty and intellectual enlightenment, Li Jie wrote about imperial palaces where colours and forms were strictly codified in accordance with hierarchy and power (S. Li 2003, 470–71). Architecture and construction as a profession and a discipline was seen as a matter of manual skills rather than a form of beauty and intellectual inquiry in China. The different understanding of the earliest concepts of architecture as a profession can be seen in the two ancient works of Vitruvius on the one side and Li Jie on the other. What Li Jie provided was a uniquely complete record of building construction of the Song dynasty.
and the modular system central to Chinese construction, information conveyed both in
text and in drawings of orthographical projections of plans, elevations, and sections, as
well as close-to-axonometric views. The yingzao fashi had a revival in the beginning
of the 20th century when it was rediscovered by the politician Zhu Qiqian (1872-1964)
in the era of a new nationalism within the political agenda of Chinese architecture for a
Chinese nation-state. The book of building tradition, yingzao fashi, was highly valued
since it was fundamental in order to be able to focus on traditional building techniques
and Chinese culture in creating physical space (Curdes 1997, 152; S. Li 2003, 472). From
the early 20th century onwards the yingzao fashi was commercially reprinted and gave
way to the establishment of the early schools of Chinese architectural history focused
on understanding the ancient techniques in order to incorporate newest, often imported
from the West, technology and knowledge about architecture and planning. This was
particularly relevant during the time of industrialization in China, when the railway lines
were introduced and foreign, often colonizing nations, imported their technology. In
an era of change (politically and culturally), the yingzao fashi was instrumental for the
endeavour of reconstituting Chinese building tradition and to develop an architectural
profession and discipline (S. Li 2003, 486).13

Principles of traditional spatial creation in China

Some of the elements and principles that have been developed over the centuries
and shaped the characteristics of Chinese building traditions also include a series
of numerical schemes that are grounded in intellectual understanding of the natural
and human worlds. Chinese cities have kept their cultural layers and principles, which
are fundamentally different from the western concepts. Despite the advancement in
technology and urbanisation throughout the centuries and different dynasties, the
traditional Chinese schemes of creating cities have not been displaced. Li Shiqiao
explains in his book Understanding the Chinese city that in conception and substance,
Chinese schemes differ from those found in the Western city fundamentally; the Chinese

12 For accounts on urban life, see Heng Chye Kiang, The Song Cityscape, in Heng, Cities of
Aristocrats and Bureaucrats: The Development of Medieval Chinese Cityscapes (Singapore, 1998), 117-
82; and Jacques Gernet, Daily Life in China at the Eve of the Mongol Invasion, 1250-1276, trans. H. M.
13 During this time the first Chinese architectural students who studied in Europe, North America, and
Japan were returning to China. Three of them drew Zhu Qiqian’s attention: the couple Liang Sicheng (Liang
Ssu-ch'eng, 1901-1972) and Lin Huiyin (Phyllis W. Y. Lin, 1904-1955), who returned from the University of
Pennsylvania in 1928 and Liu Dunzhen (Liu Tun-tseng, 1897-1968), who returned in 1922 from Tokyo after
nine years of study.
(numerical) schemes - yin and yang⁴, five elements⁵, sixty-four hexagrams⁶ - are often used in combination, which is very different from the notion of a singular numerical order - the One, duality, trinity, dialectics, harmonic proportions - espoused in Western thinking (S. Li 2014, 5–6). Cities and buildings were designed in relation to a form of number symbolism with the aim to organize the built environment in harmony with nature, often by determining symbolically auspicious directions. The application of feng-shui – an ancient art form that deals with the placement of buildings or other structures so as to attain the most auspicious location, of which the fundamental element is the five spirit or energy (qi/breath) circulating in the physical environment that can be captured and contained for the benefit of the inhabitants (Puay-Peng 2009) – undoubtedly brought ancient East Asians peace of mind, for in using it they believed themselves to be in tune with Heaven and Earth (Hwangbo 1999, 196). Chinese cities, as they responded to various external influences throughout their long history, seem to have maintained a series of numerical schemes that are grounded in intellectual understanding of the natural and human worlds. The spatial consequences of this difference in cities and in buildings take shape in response to these numerical schemes. It is clear that Chinese cities today are heavily influenced by rule-based planning and building regulations, but it is also worth emphasizing that the Chinese numerical schemes have not been displaced; they contribute to the character of Chinese cities as they appear and as they are experienced.

Further, there are several other Chinese principles of spatial orientation. In ancient China, but not only there, it was believed that heaven was round and earth square – based on the empirical observation of apparently flat ground and hemispherical sky. Most cities during these ancient dynasties were planned after the square format following the form of earth, and more interestingly, the Altar of Heaven in Beijing is round, symbolizing the form of Heaven (Hwangbo 1999, 192–94). Moreover, architectural artefacts bearing the pattern of change for heaven are found in rafters or roof tiles, while those of earth are found in floor tiles. In summary, the principal concept of feng-shui is to create an order in life and the built environment, which is in sympathy with the supposed order of the cosmic currents running the universe. The resulting harmony, of these principles incorporated into the tradition of building the physical environment, allegedly brings

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⁴ In Chinese philosophy, Yin and Yang (陰陽) describe how seemingly opposite or contrary forces may actually be complementary, interconnected, and interdependent in the natural world, and how they may give rise to each other as they interrelate to one another. Cosmological thinking depicts a cosmos ultimately composed of qi (氣) in processes of constant change, based on the interactions of yin and yang and the five elements (Graham 1986; Raphals 1998, 2013). Moreover, yin and yang may also be used as a way of perceiving east and west in the context of culture. In this system, yin and yang are mutually connected so that they are never found without each other. There is yin within yang and yang within yin; hence, Eastern perspectives are defined by Western and vice versa (Komonmen 2011, p. 372).  
⁵ The Wu Xing five elements, (五行) are Wood (木 mù), Fire (火 huǒ), Earth (土 tǔ), Metal (金 jīn), and Water (水 shuǐ). The concept of Wu Xing came into use after the beginning of the Qin Dynasty (221 BC) and it represents; later the concept was developed into various correlations including directions, sounds, human senses, body parts, and colours (Komonmen 2011, p. 370). The system of five elements was employed in many fields of early Chinese thought, including seemingly disparate fields such as geomancy, astrology, traditional Chinese medicine, music, military strategy, and martial arts (Zai 2015; Bodde 1991). The set of five elements also provides the basis for a spatial classification system, for correlations are made between the five elements and the four cardinal points, with the centre added as a fifth point, i.e., Water for North, Fire for South, Wood for East, Metal for West, and Earth for the centre (Hwangbo 1999, 192).  
⁶ The I Ching book consists of 64 hexagrams. A hexagram is a figure composed of six stacked horizontal lines (爻 yáo), where each line is either Yang (an unbroken, or solid line), or Yin (broken, an open line with a gap in the centre) (Wilhelm 1967, 1st ed. 1950). See also sub-chapter 'Chinese environmental philosophy, feng-shui'.
human well-being, besides visibly fulfilling an ancient symbolism (Hwangbo 1999, 192–94). In addition to that, Steinhardt (1984, 1999) and Wu and Gaubatz identify three fundamental aspects that affect the Chinese built environment, architecture, and urban design: "(1) orientation with the cardinal directions; (2) shape (square, rectangular, rounded, irregular) and symmetry; and (3) relative location" (Wu and Gaubatz 2013, 51). The Chinese urban ideal incorporated aspects of both the process and practice of urban design, planning, and construction and the form of the city that results from that process. The elaborately ritualized form of Chinese cities was already legendary by the time of the Qin dynasty.

Li Shiqiao adds three further imperatives of the formation of the Chinese built space, that are distinctly Chinese and not derived from the ones in the western realms, abundance, prudence, and figuration. The first imperative, abundance, concerns the ideal number of things and people in cities; in Chinese cities, there seems to be a moral and aesthetic demand for abundance and for it to be appropriately displayed. Li Shiqiao calls it the phenomenon of abundance, perhaps the most important feature of the Chinese city in relation to quantities, he states, is that ‘more is more, and less is less’ (S. Li 2014, 5–6). Chinese cities result from quantity control schemes and the moral and aesthetic legitimacy of quantities seems to be distributed across a wide spectrum of numbers, attributing a unique significance to quantities of each order of magnitude. Shao Yong (1011-77), one of the most accomplished scholars of the I Ching, the Book of Changes, allows each number to acquire significance in its own right (Wilhelm 1967, 1st ed. 1950). This foregrounds the moral and aesthetic foundations of the city of maximum quantities, and its accompanying city of labour (S. Li 2014, XIV–XV). If normative urbanism is managerial in relation to classification, possession, distribution, and movement of quantities, and to mediations between different stakeholders in the city, then this concept is about the agreement on quantity regulation before management. It is about the numerical footprints of a culture, and the way in which the city becomes one of the most important material measures of these footprints in the Chinese realm.

The second imperative of Chinese spatial creation stems from the notion of prudence and its resultant corporeal and urban forms. The Chinese way of life, morally and aesthetically codified in the teachings of Confucius from the early stages of its formation, has often been described as ‘sedentary’. The Ming emperor Hongwu (reigned 1368-98), embodied this idea deeply. His vision of a contented peasant empire dedicated to the cultivation of land influenced all his imperial policies that relied heavily on strict hierarchical regulations, such as ‘every family was self-sufficient, with a house to live in, land to cultivate, hills from which to cut firewood, and gardens in which to grow vegetables’ (Brook 1998), 17. It was the idea, that prosperity, stability, and happiness of the Chinese empire would be ensured by this dedication to the cultivation of land. The persistent anxiety of the Chinese government, chaos (luan), came from the incessant assaults by the nomadic tribes on the steppe to the north and west of China, with the mounted archer as their most powerful weapon (S. Li 2014, XV). The body in safety, interior as well as exterior factors taken into account, in the Chinese cultural context can be seen to be actively engaged in pursuit of a large range of preservation regimens, demarcating boundaries around the conserved body, the protected home, and the walled village, defining spaces of intensive and regular care, and formulating dangerous and filthy spaces of non-recognition (S. Li 2014, XV).
The third imperative, *figuration*, concerns the way in which the Chinese writing system - through the strategy of mapping meaning with morphemic figures instead of phonetic alphabets - works as an archetype of human thought. Li Shiqiao investigates the impact of the Chinese writing system on the conception of the Chinese built space and derives the third imperative from this. He approaches the matter by asking the question of what a writing system, like the Chinese, does to the creation of cities, referring to the aesthetic construction of the square words. The imperative of *figuration* characterizes the world of writing in China - against that of speech - as a world of figuration, an endless procession of figures not only as representations but, more crucially, as themselves. The Chinese character or figure has ‘an ontological status’ of its own and this ontologically constructed the ‘empire of figures’ projects a tremendous plastic force to everything in the city; ‘memory without location’ is one of the most intriguing results of the nature of the figure, influencing in crucial ways the use and maintenance of the built heritage in Chinese cities, states Li Shiqiao. The protected home, private gardens, enclosed institutions, and encircled land all become colonies of this plastic power, appearing in their figurated forms to advance the interests of the empire of figures (S. Li 2014, XVI–XVII). Li reminds us that what sets the Chinese philological tradition apart from that of the West is the deeply and widely held belief that canonical texts were sufficient as ‘originals’ only when they became the ‘right texts’ (Li 2014, 173). This is very different from the ‘text as relic’ of the ‘archive’ city, as the western city may be called. In the Chinese city, Li says one encounters the ‘relic as text’; fragments of memory represent a sort of intellectual flaw that must be overcome by a more holistic conception. The fetish of the ruin appears to the Chinese to be an aberration (Li 2014, 175). Ruins are fragments; they exhibit a lack, Li states. Figuratively, therefore, the Chinese see ruins as aesthetic violations; cosmically, they are vitalities awaiting restoration; and mnemonically, they are intellectual disabilities (Li 2014, 175). The durability of the unbroken Confucian tradition must be understood as being inextricably linked to this ‘memory without location’, but it is important to not forget the fact that it is memory without location that has allowed the extraordinary speed of change in Chinese cities in recent decades. Finally, if we imagine the city as a text that we can reread, we can quite happily replace it with a newer, perhaps even better edition (Bracken 2016, pp. 160–161). Due to the extraordinary intensity of the transformation that Chinese cities have been undergoing in the last decades, demolition in the name of urban renewal has universally marked the Chinese urban tissue, including sites that could be deemed worthy of protection – especially from a western perspective. Designating buildings or sites as historical or cultural by the authorities helps preservation but at the same time may be suspected of semi-cynical motivation related to tourist traffic and image (Cody 2009, p. 348).

The West may be said to tend to see the city as its greatest achievement, one that is

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17 The alphabet-based Western languages function effectively as systems of representations rather than images of the ‘external reality’. The Western languages are rooted in crucial formulations of syntax and semantics, the signifier and the signified, the linguistic inside and the realistic outside. In the defining works of scholars such as those of Ferdinand de Saussure, Ludwig Wittgenstein, and Claude Levi-Strauss, the study of the alphabet-based language has served as an extraordinary model for immensely rich intellectual inquiries into meaning in the Western cultural context. It certainly gave rise to a ‘linguistic imagination of the city’ such as those of Kevin Lynch, Christopher C. Alexander, and Bill Hillier and Julienne Hanson; a city can be understood as having a set of parallel syntactic and semantic properties which can serve as the key to understanding (see further in chapter 3). More information on the Chinese writing systems are to be found in the Appendix.
universally desired. The Chinese city, however, is a necessary but subservient element in the pursuit of what is perceived as the 'natural state of things' as signalled by the family and wider society (Bracken 2016, p. 158). This is known as guojia, the Confucian concept of the Big Family or the 'state-family' (Li 2014, 103). Instead of the city, the Chinese are likely to point to writing, calligraphy, painting, and literature, and even the garden as being equal to, if not greater than, cities. Concepts of spatial creation and building traditions existed in ancient Greek, Roman, and Chinese architecture. Aristotle’s stance evidences political subordination of architecture, as is the case in many cultures. The architectural treatise De Architectura, written by Vitruvius, manifests a divinatory dimension (Hwangbo 1999, p. 191). The Chinese, however, in the words of Boerschmann:

created from a logical and simple, while generous and universal, conception of the world, family and state, from a sober, practical sense of a clear type, the structure of the building and the floor plan of the architectural ensemble. Out of metaphysical and religious beliefs, the buildings were given vivid content by resolution of details, by moving lines and surfaces and by overflowing wealth of naturalistic ornamentation. In the intimate relationship with nature, their inspiration and devotion, the constant reference to near and far, the Chinese skilfully integrate all their buildings into the landscape (Kögel 2015, 554; Boerschmann 1930).

The combination of architecture and landscape is a special feature of China and is denoted by philosophical, religious, and geomantic concepts. The harmony with nature – again, not necessarily understood as untouched, virgin landscape – prevented passionate, individual creativity and meant to increase the inner peace and harmony of the buildings.

The consequences of this spatial understanding of the holistic approach to the environment are manifested in a built world quite different from the one that evolved in the western realms. Chinese understanding of space and the approach to the built environment is an interconnected network. Philosophical concepts (from Confucianism and Daoism) and geomantic spatial principles (feng-shui and yingzao fashi) along with spiritual guidelines (Buddhism) form the rich body of traditions, as described in this chapter, from which the approach of the Chinese people to their environment is moulded until today. The focus, unlike in the European traditions, is on what the physical manifestation stands for, and to what ancient concept or idea a particular architectural or planning principle is referring.

The effect and impact of space on the individual who is expecting it is one of the fundamental foci of spatial approach in China. The space itself is less interesting, since it stands for something else, which is the core and most vital aspect of Chinese building traditions as can be seen further in the fourth and fifth chapter of this thesis.

18 Although banned by the communists after 1949 as a “poisonous remnant of the old society”, feng-shui regained popularity quickly after the liberalisation of 1979, particularly in the business community. Academic interest grew and publications began sprouting after 1989, which also marked the beginning of feng-shui’s popularity in the West. It is consistently popular in China to consult a feng-shui expert in matters of furnishing a dwelling, an office, or even factory buildings, which keeps such experts in high demand Puay-Peng 2009, pp. 283–284.
2.3 | Chinese Urbanisation

This subchapter is dedicated to a description of the Chinese urbanisation throughout history, with special attention put at the recent past. Due to the tremendous volume of information that could be provided here, the following is aimed at complementing the knowledge presented earlier, supporting the understanding of the object of the research. The main body of this subchapter consists of a chronological overview of Chinese urbanization. Apart from that, it includes information of general character, such as geographical observations, and of specific character, delivering the economic, political, administrative, or cultural prisms through which the Chinese urbanisation may be viewed. These ‘push-and-pull’ factors are highly interdependent and need to be understood as a complex interconnected system that changes and is impacted as a whole if one of the individual factors undergoes a transformation.

As a short introduction, a couple of matters may be brought to attention. Historically, some fundamental aspects of Chinese urban form have demonstrated a marked consistency, while others were lost or extensively transformed by the early twentieth century (Wu, Gaubatz 2013, p. 48). Deng Xiaoping’s reforms of the 1980s/90s, and particularly land reforms, opened the door to profiting from land-leasing. Local governments could profit by expropriating land from farmers at a low price and then leasing land to developers and enterprises by means of auction, public tender, or open bidding at a high price. Since the mid-1980s, the urban industrial economy has largely been responsible for China’s phenomenal record of economic growth. Cities have become engines of growth in China’s rapid rise in the global marketplace. In a rapidly developing economy such as China’s, cities play a crucial role as spaces of production and consumption. China’s economic growth has been pointed to as one of the driving forces behind its rapid urban development which, in turn, fosters the flourishing economy of the country ((Bracken 2012). 14. (Campanella 2008). 19). The population classified as ‘urban’ in China has doubled since 2000. Since the end of the Mao era, China has been executing an urbanization process that is said to be of unprecedented scale and the biggest one in history (Seo 2013). As one of the results, the country now counts several megacities that are among the largest urban agglomerations in the world. However, it can be said that recently, the central government – through its key authorization function in large projects, such as CBDs, convention and exhibition centers, large urban renewal projects, development zones, and university towns, together with site selection for overseas plants – has had greater impacts on urban land conversion, as well as physical form and social space.

When China opened, urbanisation took off at such an intensity and pace that the Chinese city builders were in dire need for urbanisation references; this was also the case due to the decades of the Mao era and the particular way how city-building tradition, teaching, and development was approached. The majority of these references came from the West – and the most of these, in turn, from North America – so parallel to the growth of the Chinese economy and development of the country, cities tried, at least to certain extent, to follow the western model. This has not happened, however, without a measure of confusion in differentiating between appropriating and copying and adapting ideas and solutions from elsewhere. That, in some variations, continues until today. The impact of globalisation in this matter does not lie in the very phenomenon, as exchange of ideas and approaches is as old as civilisation; scale, pace, and technological advancement
are, however, the difference-makers between the present and the past.

### 2.3.1 Historical overview

A convincing summary of the chronological division of the Chinese history is provided by Wu and Gaubatz, who name the five major epochs of fundamental transformation in China that have given rise to distinct urban forms: an early traditional form that began to evolve more than 3,000 years ago; a late traditional form dating from the Tang dynasty (618-907); transitional forms developed during the years of foreign influence between 1842 and 1949, the socialist city (1949-1978), and the contemporary city that has been developing since China reopened to the world of global trade at the end of 1978 (Wu and Gaubatz 2013, 48).

The same authors bring up research that puts the origins of the Han Chinese among peoples who inhabited the region of the Great Bend in the Yellow River (the southern parts of today’s Shanxi and Hebei provinces, and the northern part of today’s Shaanxi and Henan provinces) 3,000-4,000 years ago. These peoples founded proto-cities: ceremonial centres where priests and artisans lived in compact settlements along the riverbanks (Wu and Gaubatz 2013, 25). The beginning of an urban system in China is linked to a few proto-cities located in the Yellow River area about 1600 BC, which later expanded into an overwhelming, continent-spanning network capable of administering to, supporting, and defending the mighty dominions of Chinese emperors and kings. The growth in this system was spurred by imperial expansion, long-distance and regional trade, and the need to defend far-flung borders (Wu and Gaubatz 2013, 46). It is important to emphasize that ancient Chinese cities were more than just congestions of population or trading hubs and even more than seats of administrators: they were artefacts that reflected the notions of Chinese culture and beliefs. The sites, where cities were to be founded, were chosen with care and in accordance with principles of cosmological concepts and early traditions of settlement set-ups. The functions of housing, trade, governing, and defending were all important but the deeper goal of cities was to maintain and support the Chinese philosophical and spiritual doctrines, such as Confucian or Daoistic, structure of the society. The majority of Chinese cities were built or rebuilt along those same principles from ancient times until the 19th century despite numerous periods of social, cultural, and political unrest. Moreover, if the core city kept the ancient principles, the rest of the city was free to follow other principles, which meant that city sprawl and addition of new structures was tolerated as long as it did not harm the fundamental logic, geomantic principles reflected in the local building traditions, of the city (Wu and Gaubatz 2013, 67). Furthermore, Chinese cities were preconceived, which means that frequently the plan for the eventual city would be laid out with full awareness that initially it would be settled by fewer people than the final design would host. It was not uncommon, particularly in the case of small and medium-sized cities, for the walls and principal grid-patterned streets to be laid out long before there was enough settlement to fill them out. In such cases the first development happened in the centre of the grid and along the main streets, while the undeveloped area served as arable land or pastures (Wu and Gaubatz 2013, 56). That stands in direct connection to another feature of the Chinese urban system that was present through much of the early imperial period, namely the fact that the growth of this system was subject to administrative and military priorities. While villages and smaller towns grew more naturally, in relation to the economic phenomena dictated by the
2.3 | Chinese urbanisation

agriculture, the larger settlements were being founded as results of top-down decisions frequently disconnected from, or just partly motivated by, economic prerogatives (Wu and Gaubatz 2013, 38).

The medieval era, which for China may be understood as the time between 6th and 14th century, has seen the mechanism described above fade and be replaced with a more prominent role of economic circumstances. Not only did the local and regional markets mature and grow, but also the intercontinental trade – in the form of the Silk Route – grew noticeably. This naturally brought commercialisation of cities and towns. "Market towns grew into cities, and existing cities diversified their functions. Increasing numbers of cities were founded or expanded to serve the growing economy (...) The development of a more robust urban system also can be seen in the growing diversity of city types and the increase in the size of cities during this period" (Wu and Gaubatz 2013, 39). Moreover, the population rose to great numbers, and some Chinese cities outgrew their European counterparts significantly. There is still uncertainty concerning this matter, with claims about Chang’an and Luoyang reaching the threshold of a million inhabitants even before the 10th century, however there seems to be some consensus regarding Kaifeng hitting that mark in the 12th century (Wu and Gaubatz 2013, 35). Attempts to characterise the sizes of Chinese cities in the whole empire before the 19th century are also inconsistent, with some studies finding rather good compliance of the Chinese urban system to the rank-size rule and others pointing to a deficit of middle-sized cities resulting in an irregular distribution of city sizes (Wu and Gaubatz 2013, 44).

In the middle of the 19th century, the rise of the Chinese eastern coastal cities began and lasted until the 1940s. This rise was put in motion by the opening of the so-called Treaty Ports. The Qing rulers had been refusing to open the country to trade with western powers, which resulted in two Opium Wars (1840-1842 and 1856-1860) between the Chinese and British empires. As a result, by the end of the 19th century British, French, German, Japanese, American, and some private companies maintained offices in about 80 Chinese cities, mostly in eastern China or in the central part of country along main rivers. Among the cities which grew the most in those hundred years were Shanghai, Tianjin, Xiamen, Guangzhou, Ningbo, Fuzhou, Hankou (today’s Wuhan), and Harbin (Wu and Gaubatz 2013, 44). The economic activity generated by the Treaty Ports generated much development and pull of labour force from rural areas. Consequently, these coastal cities quickly grew in importance, size, and territory. On the whole, then, the Chinese urban system was tipped toward the coast, "toward the nascent coastal mega-cities - a pattern that was to re-emerge in the twenty-first century" (Wu and Gaubatz 2013, 46).

Together with the presence and economic significance of foreigners came other influences, both cultural and technological. To some extent, western order began to be imposed on those cities which were in contact with outside thought and which had to adjust to the requirements of trade. That, in turn, hastened, the demise of traditional urban forms. City walls and some temples and administrative structures fell into disrepair and were either abandoned or used for other purposes (Wu, Gaubatz 2013, p. 46). The foreign approaches challenged the traditional Chinese city-building concepts. The foremost victims were city walls, which were being taken down in order to make room for other functions, for instance tramway tracks or streets. Moreover, ‘gates were enlarged or removed to facilitate traffic flow, neighbourhoods of elite European villas were built
along curving boulevards at odds with the Chinese grid' (Wu, Gaubatz 2013, p. 67).

The changes in the urban character of the Chinese cities under foreign influence, with reference to geographical location, are described, on the example of Shanghai, the most prominent port city, by the following passage:

The cities that arose in this context had complex geographies which both compartmentalized and overlaid widely varying approaches to urban spatial order. In Shanghai, for example, the European settlements were better serviced with electricity, street paving, and other amenities. This physical difference had deep social significance. Much like colonial cities elsewhere around the world, Treaty Port cities also showed a pattern of residential differentiation. There were so-called ‘upper corners’ for well-to-do residents and ‘lower corners’ for the lower classes in the cities, a legacy that seems to have reappeared in these cities since market and housing reforms took hold in the late twentieth century (…). Cities that were not Treaty Ports were far less affected by the arrival of the Europeans, but they, too, experienced change during the early twentieth century (Wu, Gaubatz 2013, pp. 64-65).

The vast majority of Chinese cities that were not Treaty Ports were naturally significantly less affected by the changes stemming from foreign influences, however they, too, experienced change in the hundreds years between mid-19th and mid-20th century. New technologies and means of production had impact throughout the country on economic development (for instance in vicinity of railway stations), transportation, and migrations (from rural areas to cities). ‘Early twentieth-century China was witness to a growing interest in modernity. With the collapse of the Qing empire in 1911, the Chinese experimented with a wide range of new social, political, and economic institutions. In the urban realm, the 1920s saw the rise of experimentation with urban administration and planning’ (Wu, Gaubatz 2013, pp. 65-66). These cities were also experiencing heavy migration. In the early 20th century, newcomers may have accounted for as much as 10-20 per cent of the total population of Shanghai. In that period, there were many cities, especially on the coast, which grew to an extent that was strikingly disproportionate to what they had been in the past. Tianjin and Shanghai, for instance, saw themselves become considered ports of global importance; even more importantly, the manufacturing capability of the country concentrated in about 70 percent in the Treaty Ports (Wu, Gaubatz 2013, p. 45).

The early republican era of the Chinese history brought some experimentation in urban planning and legislation. Still before that, in the late 19th century, despite its poor reputation for solving the country’s problems, administrative initiatives did give cities some impetus for modernisation (Strand 2000).

The late Qing government laid the groundwork for urban reform by establishing national guidelines for chambers of commerce, police, school systems, and local self-government between 1889 and 1911. Later, there were a number of experiments with new forms of urban administration, from the establishment of short-lived City Government Civic Associations to the 1928 publication of the Complete Book of Urban Administration, which laid guidelines for urban planning. Also, the government had an overwhelming influence on large-scale commissions in this period (Cody, Steinhardt, and
Atkin 2011).

Yet the near-continuous political unrest, civil warfare, and the concentrated military incursions of the Japanese generated near-impossible challenges to ordered urban development during the first half of the twentieth century. Moreover, widespread unrest in the countryside generated migrations of refugees into cities, which contributed to the growth of slums and shantytowns at the urban periphery (Wu and Gaubatz 2013, 66).

By early 20th century, the conflict between the modernisers and the traditionalists has already been very well-established. While the former viewed religion and traditional religious relations as obstacles to the introduction of ‘the new’, the latter (for instance feng-shui masters) opposed the laying down of railroad tracks, building factories, or other intrusive spatial structures. Many ancient sites were being either taken down or overshadowed – literally or metaphorically – by new developments. A very telling example of the change was the excavation of mountains and filling of ponds in Guangzhou in 1933 in order to prepare the grounds for new constructions without taking into consideration the old religious principles (Kögel 2015, 505).

Despite the clearly visible and significant changes in cities all over the country, on the eve of the declaration of the People’s Republic of China in 1949, the vast majority of Chinese cities retained their distinctive urban form (Wu and Gaubatz 2013, 67). Mao Zedong (毛泽东) the 1st Chairman of the Central Committee of the Communist Party of China, however, reversed the course: his ideology glorified rural areas and lifestyle while vilifying and distrusting cities. Such an approach was distant from the Soviet communist doctrine, which fully embraced urban and industrial development. Among the examples of the communists’ reformatory efforts were some architectural and urban reconstructions of political centres such as Tiananmen Square in Beijing, People’s Park in Shanghai, and Haizhu Square in Guangzhou into form that better reflected Mao’s vision of mass-line politics (Bracken 2016, 160). Another important development was Mao’s decision to ‘discipline’ intellectuals and artists by having them removed from their occupations and assign them to obligatory physical work in the countryside, demanding that they identify themselves with the working class and submit to the authority of the Party. Moreover, Mao claimed that literature and art cannot be perceived as independent on class issues and that the creative and intellectuals people must now serve the nation with artistic expression that defies the old and the bourgeois. The cultural revolution radically pushed back the traditional Chinese forms as well as the foreign ones, while heavily promoting folk and anti-Japanese forms, which were well received by the local population in rural areas in north-west China (S. Li 2003, 485).

Clearly, the cultural changes brought in by the Mao era served to weaken the position and reputation of metropolises, especially the east coast ones, which were strongly associated with phenomena that never sat well with communist regimes, such as trade, bourgeoisie, foreigners, or capital.

Industrialisation, especially in the form of heavy branches, was of course happening in the Mao era; it was, however, focused on the inland cities. Meanwhile, in line with the ideology, the larger eastern cities, such as Shanghai and Guangzhou, were perceived

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19 It is worth noting that in the post socialist era, these spaces were rebuilt (or re-managed) and adorned with architectural displays that combine symbolic as well as pragmatic purposes as a result of putting into life new manifestations of the power of the state and the Party (Bracken 2016, 160).
as having played an unduly large role in the national economy during the Treaty Port era. In fact, in 1949 about 70 percent of China’s industrial capacity was located in the large coastal cities. To counter this, growth was encouraged in inland cities, through allocation of central government investment in heavy industries there. Fundamental infrastructural developments were undertaken throughout the communist era that contributed to the expansion of the urban system, such as expansion of railroad infrastructure, coal mining, exploitation of petroleum reserves, and hydroelectric development. All of these were linked to a steady drive to increase China’s industrial production, which has remained a constant priority throughout the history of the People’s Republic of China (Wu and Gaubatz 2013, 79). Large coastal cities, in contrast, experienced substantial disinvestment and were used as net revenue contributors. The overall pace of urbanization was rapid as the total number of officially designated ‘cities’ grew from 120 in 1949 to 176 by 1958 (Wu, Gaubatz 2013, p. 80). On top of that, the population grew fast due to the high birth rate (baby boom), supported by the state, and the rate of urban population rose from 11 to 20 per cent during the first decade of the communist era. In all, under state socialism, national development and urbanisation policies played a dominant role in the character of growth of the Chinese urban system: ‘first, discouraging the growth of very large cities and promoting medium and small cities; second, developing industrial and urban centres away from coastal areas; and third, using a variety of administrative measures to control the general growth and distribution of cities’ (Wu, Gaubatz 2013, pp. 78–79).

This can be illustrated by the growth of provincial capitals: 10 out of 25 of them more than doubled their populations between 1953 and 1970; five tripled their populations (four of the five - Urumqi, Hohhot, Lanzhou, and Xining - are located in China’s inland west).

The period of over two decades of isolation of China under Mao’s leadership was brought to an end by Deng Xiaoping (邓小平) and his many reforms of the 1980s, which altogether opened the country to economic and intellectual exchange with the rest of the world. The spread of market reform also brought industry and the urban sector to the forefront.

2.3.2 | Factors influencing the Chinese urban system

The following sections of this sub-chapter aim to present the most significant topics that improve the understanding of Chinese urbanisation during the last decades since the opening through Deng Xiaoping and his far-reaching market-economy reforms. Unlike the historical overview above, the sections below go into more detail in each issue and cover the time since the Chinese opening of the 1980s mentioned in the last paragraph.

Geographical and ecological factors

This section is dedicated to the geographical and ecological factors influencing the process of urbanisation, with the former serving as a base to understand the genesis of the Chinese urban system better and the latter as a crucial notion demanding increasing attention due to its impact in the last decades on urban development. China faces severe environment-related challenges that include air pollution, water crises, floods, droughts, earthquakes, epidemics, deforestation, and even potential shortage of arable land. These factors have, in turn, a growing influence on the way Chinese urban development is conceptualized and the narratives that come along with it.
A fundamental observation that needs to be made is that a country of China's size inevitably occupies territory that includes a wide variety of geographical phenomena; and, indeed, China is one of the most geographically and climatically diverse countries of the world. The physical conditions of nature influence human life greatly, providing for a broad spectrum of peoples, cultures, and economic patterns. In a very basic perspective, most of the Chinese population (see fig. 8), economic activity, and industry is concentrated in the east, with urban centres densely populated; in the west, in turn, there are swaths of uninhabited, arid land that is, however, rich in natural resources, and cities in that part of the country are significantly fewer and less crowded.

To continue outlining basic but incrementally important facts concerning the geography of China, it must be remembered that rivers occupy a special place in China's urban development. Not only are China's great rivers markers of vast differences in environmental systems, but they also have great significance culturally as fundamental elements in how the Chinese view space and territory, as each has come to define a large cultural and economic region. The three rivers - the Yellow River in the north, the Yangtze River in Central China, and the Pearl River (Xi River) system in southeastern China - are integrally tied to China's urban development. Each has served for centuries as the focus for concentrated and dense population growth; each has given rise to great cities which have survived China's long history (Wu and Gaubatz 2013, 13). A proper understanding of these information contributes to a better understanding of China's current urbanization and development state. With great geographical and climatic diversity, coupled with outstanding population, comes, however, great risk of natural catastrophes and environmental threats. These matters have been concisely summed up by Lu and Mi:
China's ecological woes make up a long list: massive earthquakes, epidemics of SARS and bird flu; periodic sandstorms; air, water, and soil pollution; desertification; flooding and drought; deforestation; the loss of land to urban sprawl; and numerous coalmine accidents. China, like the rest of the world, is now facing the age of global warming as well, a worldwide phenomenon to which China itself has become a major contributor. The temperature in Chinese cities has risen steadily over the years. As icebergs thin and melt away in the North Pole, so do the glaciers of the Himalayas and the Tibetan Plateau. Ice from the Himalayas is the source of water for China's mightiest arteries — Yangtze River and Yellow River (Lu and Mi 2009, 1–2).

The water crisis has affected China most severely. (...) China faces water shortages, water pollution, and a deterioration in water quality: four hundred out of six hundred cities are facing water shortages to varying degrees, including thirty of the thirty-two largest cities (Lu and Mi 2009, 18).

Chinese authorities have recently opened a new chapter in the country's history by officially acknowledging the human contribution to global warming and joining the international efforts in reducing the Earth's temperature increase. China has signed the 2015 Paris agreement committing itself to share the responsibility in

(a) holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5 °C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change; (b) Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production; (c) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate resilient development (United Nations 2015, 21).

This needs to be viewed as an important indicator of how Chinese urbanisation is going to be governed and where it is going to be directed towards. It remains to be seen how quickly changes progress and deeply they run, however it is justified to expect environmental concerns to impact the Chinese city-building in numerous ways, for instance in the realms of transportation policies, construction standards, or industry location and management.

A useful commentary on this topic may be made with the help of the phenomenon known as Jevons's Paradox (or the Jevons's effect or rebound effect). It occurs when technological progress increases the efficiency with which a resource is used (reducing the amount necessary for any given use), but the rate of consumption of that resource rises because of increasing demand. Jevons's paradox is one of the most widely known paradoxes in environmental economics. However, governments and environmentalists frequently assume that efficiency gains will lower resource consumption, ignoring the possibility of the paradox arising. The issue has been re-examined by modern economists studying consumption rebound effects from improved energy efficiency. In addition to reducing the amount needed for a given use, improved efficiency also lowers the relative cost of using a resource, which increases the quantity demanded. This counteracts (to some extent) the reduction in use from improved efficiency.
Additionally, improved efficiency accelerates economic growth, further increasing the demand for resources. Jevons’s paradox occurs when the effect from increased demand predominates, and better efficiency leads to more resources being used. The paradox, described as early as 1865 how innovation and innovative processes do not solve economic challenges alone. It is based on the observation made in the 19th century that technological efficiency gains—specifically the more economical use of coal in engines doing mechanical work—actually increased the overall consumption of coal, iron, and other resources, rather than saving them. This law points to the overlooking of an increase in demand which is caused by a drop in price of fuels and resources that has been cause, in turn, by an increase in efficiency of their usage. The resulting phenomenon might be, then, that increasing efficiency in resource usage in pursuit of sustainability might even backfire by allowing an increased global use of resources. If that is so, then ‘efficiency policies are counter-productive, and business-as-usual efficiency gains must be compensated for with physical caps like quotas or rationing’ (Alcott 2005, p. 9). Jevons himself noted in his original work that ‘coal itself is limited in quantity (...) [and] a vague but inevitable limit (...) will stop our progress’ (Alcott 2005, p. 15). It can also be said that ‘the presence of strong rebound or even backfire does not mean that efficiency-enhancing policies are irrelevant; rather it suggests that such policies operating alone are insufficient to generate environmental improvements. The implication is that a coordinated portfolio of energy policies is required’ (Hanley et al. 2009, p. 692). Turning the attention more specifically to Asia and to the fact that its economic and population growth over the last three decades has been unprecedented, one cannot fail to notice that the economic growth has been followed by deteriorating environment quality and extensive resource use. It has been observed there is no consistent evidence that, in the last three decades, micro-level efficiency gains have led to economies-wide reductions in resource use and positive influences on the environment; rather, instead of improving the environmental situation, the rapid growth has damaged it and endangered the future availability of natural resources (Tharakan, Kroeger, and Hall 2001, 331). It is advisable to see keeping the Asian and especially Chinese economies growing as contingent on ensuring a more efficient use of natural resources, while simultaneously striving to reduce environmental impacts (Tharakan, Kroeger, and Hall 2001, 319).

Cultural and societal factors

A concise overview of the ethnography of China might be a valuable element in the effort to understand the context of the Chinese urbanisation and the specific elements influencing this process. China is an ethnically rich, multicultural country with 56 distinct peoples (minzu) officially recognized by the government. 92 per cent of the country’s population is constituted by the Han people, while the domination of this ethnic group is even more clear in the eastern provinces, where that ratio stays between 94 and 99 per cent; slightly larger diversity is to be found in northern, western and southern provinces. Wu and Gaubatz offer a brief summary of some further information:

The broadest generalization of China’s cultural geography assigns the peoples into four groups: the Han, the Islamic peoples, the Lamaist peoples, and the peoples of southwestern China. The Han Chinese are united by many common traditions and beliefs, as well as a common written language and shared history. Traditional Chinese religious practice is a syncretic mix
of traditional Chinese worship of ancestors and place-associated deities (such as the City God), Daoism, Confucianism, and Buddhism. There is also considerable regional variation among the Chinese in cultural practices such as settlement patterns, subsistence patterns, and spoken dialects. The common written language has been particularly important over the course of Chinese history in unifying peoples with otherwise quite different dialects, such as Mandarin (the dialect of north China) and Cantonese (the dialect of Guangdong and Hong Kong) (Wu and Gaubatz 2013, 25).

The above information become more clearly connected to a discussion on Chinese urbanisation when looked at in the context of the ways urban residents grouped themselves in cities. Migration from rural areas to cities is a phenomenon that may be considered continuous; the remarkable urbanisation periods could then be looked at as particular intensifications of such a flow. In China, throughout history basically until the communist revolution, many urban residents would organise themselves under place-of-origin guilds. These had their roots in Chinese religions and spiritual and philosophical beliefs, in which the veneration of clan ancestors associates people strongly with their clan homes; proper veneration of the ancestors, in turn, requires access to clan shrines, which often formed the core of these associations. “In China, urban residents often continued to identify their home place as the place of their clan headquarters, even though they as individuals may never have lived in that place. Because it was not uncommon for most of the migrants to a city from a given place to ply the same trade, guilds became associated with both place of origin and occupation. The place of origin in some cases also represented regional dialects, so that migrants might be speaking local dialects with other members of the guild in the city that is located far away from the region of that dialect, further strengthening the interpersonal bonds within these institutions. It was not uncommon for guilds to control tracts of property within the cities, and to steer their trades toward those neighbourhoods they controlled (Wu and Gaubatz 2013, 63; Rowe 2005). This goes to show that culture, exemplified in fundamental beliefs (here: cult of ancestors), has had a fundamental impact on cities in the form of steering urbanites to settle in certain areas of cities or to visit them, if living there was not possible. That phenomenon is worthy of knowing as one that has been true for older neighbourhoods of Chinese cities but has become more complicated in the contemporary phase of urbanisation. Today, urban residents still sometimes form communities based on place of origin, however that happens less often; instead, communities based on economic criteria have begun to appear, or, what may be viewed as the most modern phenomenon, in some cases neighbourhoods represent pattern or grouping of residents according to income as well as ethnic backgrounds, as can be witnessed in cities across the world.

To bind the information on ethnography with the previously presented historical overview, it is interesting to look at the Chinese approach to cities and at the long and tumultuous modernisation of China from a less archival and more cultural and philosophical perspectives. Wu and Gaubatz point out that it was Max Weber’s assertion comparison that Chinese urbanites did not have the scope of autonomy and rights that Europeans burgthers did and that this space was filled by strong familial ties, which also reached back to rural homelands. Further, Weber thought that Chinese cities played a different civilizational role than European ones did, with a dominant administrative role and
suppressed commercial and trade roles. Weber’s position influenced western scholars to dedicate very little attention to Chinese cities in the following decades (Weber 1915 (1951)). The Chinese civilisation has perceived urban settlements differently than the West: seeing a lesser importance in them, it has not developed a clearly identified, autonomous, and powerful urban social class as we know it from the Western realm – despite there being so many and so large cities throughout the history of China. Under Mao’s regime, of course, there was also no drive to change this perception. There are studies, however, along with scholarly debates on critically revisiting these assessments, which underline the essential role that cities have played in the construction and maintenance of power in the Chinese empires through their administrative, economic, and military importance (Wu and Gaubatz 2013, 29–30).

Strand presents the ways in which cities in pre-revolutionary China influenced each other and argues that they were not only centres of commerce or administration but also transmitted ideas, information, and trends in fashion, cuisine, and lifestyle. These influences were reciprocal rather than unidirectional, and unpredictable rather than tightly planned. Internally, cities did become objects of reflection on the nature of urban and social life, as has been proved by the emergence of municipal studies as a scholarly and administrative discourse (Strand 2000).

As has been mentioned earlier, both in the last decades of the Empire as well as during the Republic years, there was a struggle between those in favour of radical modernisation modelled after the West and traditionalists who opposed change altogether; on top of that, there were those who postulated moderate solutions. The modernisation faction was supported not only by domestic thinkers but also by scholars coming back to China after their education and work in the West, most notably from Paris²⁰, London, and American cities (S. Li 2003; Strand 2000). Pro-urban intellectuals brought to attention a variety of arguments, among them the necessity to move beyond the traditional agricultural economy and society, supported by a negative example of India with the claim that a country which relies on agriculture too heavily cannot advance and be strong. In turn, cities were highlighted as hubs, pillars of any economy, able to generate wealth with incomparably lesser dependency on geography than rural areas. Critics of the countryside also went to say that the Chinese village has not seen any improvements since the ancient times. A more rational, economic argument came in the form of the claim that economic growth spurred by cities and industry would surely benefit the agriculture as well due to increasing the demand and purchasing power of urban residents, therefore raising the prices for agricultural goods. Furthermore, those in favour of the urban focus argued that Chinese cities are not urban enough, pointing out that many city dwellers have not really broken up with the rural customs and naming civil passiveness and disorganisation as symptoms of such state, while calling for the opposite – political involvement or respect for law – as the new attitude. These scholars would bind the ‘rural air’ with irresponsibility and argue that as long as Chinese cities breath that air, they would not be able to follow the discipline of modernity (Strand 2000).

The notion of ‘alternative modernity’ was used by the moderate modernisers to anchor

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²⁰ An example of strong influence of foreign thought: “when China began to establish its formal education for architects, the Beaux-Arts was the only model to follow” (Cody, Steinhardt, and Atkin 2011, 81).
the changes. The conception was first employed to interpret Western technologies as useful knowledge complementary with the Confucian tradition (S. Li 2003, 473). The balance of reforms and introduction of new technology and innovation with Chinese-ness and tradition was already in the turn of the last century a key concept; the idea was to use the intellectual achievements of the European Enlightenment as the foundation for a modern Chinese nation-state (S. Li 2003, 474). In the last 30 years, 'alternative modernity' has been seen through the prism of capitalism. Hon (2014) notes that 'a case in point is the discussion of "Confucian capitalism" in the 1980s and 1990s when Chinese intellectuals adopted the Weberian question to look for the cultural roots of capitalism (...) Similarly, the recent discussion of "the rise of China" also draws on such Confucian concepts as "harmony", "reciprocity", and "all under heaven"' (Hon 2014, p. 226). In each of the discussed periods, the demand for 'alternative modernity' emerged in improved situation of the country's economy as well as its foreign relations. These two fragments of recent Chinese history show that when the Chinese find it beneficial to adopt 'Western measures to produce wealth and power', the search for a non-West-centred path to modernity gains momentum. This finding is significant for the present research is such a way that if, thus, the Chinese interest is dependent on its economic and political well-being, then provided China continues to grow, it will remain interested in finding its own – local, contextualised – ways to modernise.

It is also worth to shortly address the understanding of environmental design as it is frequently viewed as an activity that is disconnected from culture or politics. To refute that claim in regard to all urban policy-making, it should be brought to attention that environmental design and planning as a part of it is directly a result of the culture of decision-making, as well as of the way culture is reflected in organisation of state and local institutions and the execution of their power; planning may even be described as 'a subset of [the] political, institutional, or ideological interests'. These fundamental dependencies shape the way environmental design professions are conceived and converted into law, which then becomes spatial reality. If that was not so, then architects, landscape architects, urban designers, and planners in various places around the world would work, act, and communicate quite similarly and that clearly is not the case; therefore, a claim must be made that there are multiple planning cultures that are inseparable from their local cultural and political contexts. This conversation is another aspect important for this dissertation because ideas, approaches, and planners and designers themselves travel between these diverse planning cultures, that is one of the fundamental arguments supporting the importance of sensitivity towards local context in urban design, architecture, and city-building (Booth 2011, 16–17).

This connects to certain observations concerning the Chinese society’s preferences in the urban realm that cannot be fully understood without enough information on cultural and political circumstances. For instance, a personal vehicle is both a necessary and a natural choice for these Chinese citizens who are able to afford one. Necessary because most urban projects that are away from the centres of cities were not connected to sustainable public transportation due to the haste with which they were commissioned and built; and natural due to it being a status symbol (Bosker 2013, 121). From a different angle, a diagnosis can be made that the position of the middle class in China is weak due to not only the state’s wide control over the political and economic life of

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21 See for further details chapter 2.2 "cultural phenomena in the creation of space".
the country but also to its recent ‘alliance’ with big business. Bracken follows Liang in saying that the freshly emerging identity of urban homeowners has been suppressed by having to be negotiated between elite state actors and weaker groups, which is, in turn, reflected in the relatively universal for Chinese cities spatial exclusion, as well as in fluidity in housing production. With the strain on the country’s social security system that has already begun, many people are looking to ownership for future security, frequently turning themselves into ‘property slaves’ who spend a painfully large proportion of their income on mortgage payments (Bracken 2016, 161). Striving for ownership of real estate, coupled with certain cultural notions concerning the public and the family spheres, finds its manifestations in the popularity of Western-style gated communities among the Chinese. Bracken, as well as (S. Li 2014) are pointing to the importance of the family as an archetype for Chinese society that has its reflection in an old urban form (hutong) and a new one (gated community). The family priority is also closely connected to a pursuit of safety or prudence. What needs to be noted is that among the consequences of the omnipresence of walls in a Chinese city are the carelessness for the public space and the estrangement of a random person.

In the Chinese city, webs of social connections protect the family (and its derivatives), and these exclude the stranger because the stranger has no legitimate place in Chinese society. People must integrate themselves into a multitude of (often overlapping) social circles. It is this notion of the care of the stranger that is perhaps the biggest difference between Western and Chinese cities (Bracken 2016, 162).

Another facet of recent urbanisation in China is one that provides the alleged opportunity to ‘live abroad without leaving home’ and [in] the comforts of the developed world within an emerging nation (Bosker 2013, 118), which refers to the large-scale development projects which recreate foreign environments. Shanghai, for example, decided to develop a concept called ‘one city nine towns’ with nine differently themed urban areas around shanghai. This development combined a series of development components including industry, a university town (an enormous walled compound ‘campus’ enclosing seven universities), and a huge amount of real estate. The nine smaller themed towns - Italian, German, Dutch, French, American, local waterway towns - are parts of an enormous web of urbanization. This development, which is now imitated in many other cities in China and in retrospect critically discussed among scholars and practitioners, achieved a much higher level of financial success than both the inner city re-development and the industry-based ‘development zones’ in the 1990s (S. Li 2014, 47). Vast resources have been allocated to such projects by developers with the help of the state. The inhabitants of such districts take part in a unique experiment as many of developments of that kind, staying true to the original, include human-scale public spaces, meeting points, and other urban design solutions unseen in generic large-block estates that are mainstays of the Chinese urbanisation. That applies to most of such projects but not to all, however, as some of the foreign-looking estates still are designed as gated communities. Interestingly, the selection of models that those projects follow is limited in a certain way: only ‘touristically attractive’ environments are copied and ones that send a clear and immediate message about the high quality of living; there seem to be no developments modelled on American-style suburbs, for example (Bosker 2013, 119).22

22 For further explanation see chapter 2.5 “Perception of the environment and Cognitive biases”.
Famous (St-)architect David Chipperfield talks about the loss of aesthetics as a result of monetarily driven urban development (in the European context), the economically focused, projects and design approaches. The design and process of creation, with all its facets (context, user, etc.) gets lost. He sees this development in London and projects that London slowly develops into a ‘Shanghai’ where this is already everyday practice. Conflict between architects and their approach to a project and the investor’s agenda and the need for profit is often conflicting each other. Chipperfield elaborates how architects and designers of the built environment lose the ideals that all city builders and architects should have: to make the world a better place through their design contribution. It is endangered when architects only think about the profit, designing a building is a child game (that easy) it becomes a challenge and professionally interesting and vital to incorporate the society’s, and people’s need into the design. He explains the feel of powerlessness of urban inhabitants. One of the problems why there is so little interaction between and participation by the public with urban development projects and the design teams and investors. This leads ultimately to a design that can only be less contextual and less rooted in its setting. Architecture, the built environment, does not just happen to people and their environment, however, that is how people feel. There is too much invisibility of the responsible for the common people to feel able to address their discomfort (Michelsen, September 30, 2015).

In order to transition towards topics that refer more to everyday administrative and legal practice of the Chinese state, local authorities, and planners, it is worth to examine the matter of population data in China. As is well documented, the root of most uncertainty in regard to the actual number of inhabitants in a given city is the hukou registration system. In the case of almost all major cities, the hukou population number is lower than the actual number, for instance, in Shenzhen the registered population is in 1.45 proportion to actual population (1.8 to 8.1 mln) (Chan 2010). In the scale of the country as a whole, this matter remains. Around 50 per cent of China’s inhabitants now live in urban areas, while the urbanisation process will be slowing down, along with the Chinese economy, Chan argues that the notion of the urbanisation phase to stop should be dismissed (Chan 2010).

The difficulties in establishing the true city population sizes in China stem from the great complexity of the data, which, in turn, is the result from the fact that administrative borders of large Chinese cities in most cases include not only the high-density “real” city but also a number of its satellites plus rural areas. These demarcations may sometimes encompass surprisingly vast areas: the municipality of Chongqing covers territory the size of Austria. From this junction arise the two main ways of defining urban areas in China: according to administrative boundaries based on “city districts” or to objective criteria such as the density of population and buildings (called “urban statistical areas”) (Chan 2010). At first glance, the first method seems more viable thanks to the value of measurability and administrative accuracy; the second one, however, has gained justification in the recent years due to the expansion of municipality borders to outlying areas in search for new development grounds. An example of a situation where land for expansion has already become scarce is Shanghai, for which the urbanisation ratio

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23 Note: The author is of the belief that urbanisation as a process indeed changes and takes on different forms, from rapid growth to transformationary phases, however, it hardly ever ceases to change. Cities and the urban environment are under a constant process of change along with the citizens inhabiting the urban texture, feeding the reciprocal process of change.
has reached near 90%, and population increased to 23 million in 2012. By this time, the available land for city annexation allowed by the master plan have been almost used up, with the main transportation networks of motorways, railway, and metro lines and the city-town system have been mostly laid out; it could be said that an overall territorial layout of the city of Shanghai has become fixed. This means that Shanghai has come to the beginning of an era of improving and refining its urban functions in ways that help the quality of life and economic functioning – there is simply no more room left for the enormous scale of some of urban projects that Chinese cities have carried out. In other words, Shanghai will again be a frontrunner in China as it is the first city in such circumstance and it will need to find new paths of its urban transformation and urban life (Sha et al. 2014).

The discrepancy in the available figures concerning the number of residents of various Chinese cities and agglomerations – referring to both the confusion with hukou and with the administrative borders – is visualised in the form of figure 9. The year 2000 is significant as it was then when census counted rural-to-urban migrants for the first time (Wu and Gaubatz 2013, 72).

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<th>Rank</th>
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<th>2000</th>
<th>2005</th>
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<td>1</td>
<td>Shanghai</td>
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<td>Guangzhou</td>
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<td>4</td>
<td>Wuhan</td>
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<td>5</td>
<td>Tianjin</td>
<td>9.85</td>
<td>7.50</td>
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<td>Shenzhen</td>
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<td>7</td>
<td>Chongqing</td>
<td>30.51</td>
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**Figure 9: Population Statistics of China's largest cities, 2000 and 2005 (Chan 2010)**

### Political and administrative factors

The following part of this sub-chapter concentrates on political, administrative, and economic factors that have been shaping the Chinese urbanisation. On the most general level, it can be said that the GDP, population, FDI, and transportation factors are understood as key drivers of urban growth in China (Zhang et al. 2014, 487). It is also clear that the country's economy has been becoming increasingly global, urban-centred, and technologically advanced. However, it cannot be forgotten that the real base of the Chinese long-standing economic growth was the extraction of natural resources as well as agriculture. These were used to lay down the fundamentals for a more sophisticated that we have come to see in the recent years (Wu and Gaubatz
A significant information from the perspective of urban research is that the Chinese urban residents now hold around 70 per cent of the country’s wealth and earn on average around three times more than people in the countryside; and of course, cities are the dominant market for consumer goods (which is related with the status symbols mentioned earlier) (Wu and Gaubatz 2013, 111). Moreover, the accumulation of wealth in cities is also connected to the aforementioned difficult situation of public welfare, including public housing, which pushes the Chinese to purchase properties: private housing development now occupies around 70 per cent of the real estate market (S. Li 2014, 47).

China’s economic transformation did not follow a grand ideology, however, but rather was an adjustment to the challenges the country was facing economically and politically. The criteria for success were determined by experiment rather than by ideology. The doctrine here was incrementalism, which is applied when ‘instead of announcing and implementing a national program, typically, an idea is implemented locally or in a particular economic sector, and if successful it is gradually adopted throughout the nation’ (Wu and Gaubatz 2013, 112). Further, it is important to mention the role of the Special Economic Zones (SEZs) for a gradual liberalisation of trade and investment, the growth of export, and an increase in knowledge-based branches of economy and industry. Within the SEZs operation, global companies are the key actors, and Chinese cities compete between each other to bring them in (Wu and Gaubatz 2013, 111). They had, therefore, a strong spatial impact on the urban development in China. Since resources (primarily capital) were limited and certain policies or solutions needed to be tested before a potential nation-wide implementation (caution was surely advisable to some extent due to the 30-year isolation of the Chinese economy), the cities which were chosen to host the SEZs had the chance to increase their wealth the soonest. After the SEZ-tested approaches have been accepted, inland enterprises could learn and adopt them (Wu and Gaubatz 2013, 112).

The most important matter, however, that must be addressed in a discussion about political and economic factors that influence the Chinese urbanisation is the opening of the real estate market together with the continuous leading role of state in shaping the way this market works. The change commenced with the 1988 amendment to the Chinese Constitution. As a result of the changes, long-term land use rights could circulate freely in the market. Local governments could earn profits through expropriating land from farmers at a low price and then leasing land to developers and enterprises by means of auction, public tender, or open bidding at a high price (Zhang et al. 2014, 494). In the words of Li,

[before the reforms] the Constitution (Article 10) and the Land Management Law stated that all urban land belongs to the state; and that land in the countryside and in suburban areas is under collective ownership. The amendment, without abandoning this principle, allowed the transfer of land-use rights. On paper, this momentous change effectively put China under a similar condition as prevailed in Hong Kong: the government owns the land and creates the opportunity to profit from its development. In practice, it unleashed enormous uncertainties and created numerous unforeseen consequences. This was part of several important changes that include a shift from planned economy to market economy, and decentralization from
central government to local government. (…) The landscape of power in China has decisively shifted because of this change, more importantly, it has shifted in the form of city building. During the thirty years between 1978 and 2008, the urbanization rate in China rose from 18 per cent to 45 per cent; this meant that 357 million farmers either moved to cities or transformed their villages into towns. The number of cities in China, over these thirty years, increased from 193 to 655 (S. Li 2014, 46).

The local governments in China believe land conversion is indispensable to sustain growth (J. Xu and A. Yeh 2009, 566). The 'on-ground footprint' of neighbourhoods and districts created in this mode represents a quite inefficient use of land, since they displace farmers from vast areas of arable land (Bosker 2013, 122). The reforms in question, having introduced some decentralisation of governance and public finance, have resulted in local authorities assuming the roles of land developers. They began to use their position of being in control of the primary land allocation in order to boost economic growth but also to meet their financial obligations (Lichtenberg and Ding 2009, 58). The profitability of such approach lies in the land rent ratio, which should be understood as the ratio between agricultural land rent and urban land rent in a given administrative unit in a given year (Jiang, Deng, and Seto 2012, 134).

It is a crucial factor in regard to administrative and financial functioning of China that the urban growth is driven by powerful economic and fiscal incentives for local governments, as well as political incentives of local leaders (Zhang et al. 2014, 487). Efforts to understand the relationship between fiscal transfers and cultivated-to-urban land conversion are essential for understanding the space-shaping powers of the local authorities and the central governments (Zhang et al. 2014, 488). In the years 1999-2004, the national regional development priorities were revealed by the per capita totals and net fiscal transfers, which were higher for Beijing, the Pearl River Delta, and the Yangtze River Delta than those for the other eastern counties (Zhang et al. 2014, 489). In reference to the land rent ratio, converting land to urban uses is understandably less attractive if the returns on agricultural uses are high; therefore, a potential way of limiting the conversion and protecting cultivated land would be raising the returns on it (Zhang et al. 2014, 493). Naturally, how much land counties convert from agricultural to built-up use is a function of their dependency on fiscal transfers from the central government: the lesser the reliance on such transfers, the higher the inclination to pursue land conversion. Leasing or selling land to developers is a universal tactic for acquiring off-budgetary revenue. Research shows that in the period between 2000 and 2005, the profitability of land conversion was higher that between 1995 and 2000; that is proof for the increase of the power of that trend despite the central government's attempt to curb it down by introducing policies increasing the transparency of the real estate market and by trying to regain some power in land management (Zhang et al. 2014, 493). Another phenomenon that needs to be mentioned despite being rather expectable is the fact that counties located closer to provincial capitals are the sites of more land conversion; the reasons for that lie in them being more attractive due to the proximity to the administrative, economic, demographic, and transportation centre of a province, which creates advantages in terms of transportation, infrastructure, and labour market. Additional factors drawing investors, including foreign ones, to a location that may be pointed out are the area being flat, dry, and relatively warm (Zhang et al. 2014, 493).
Land conversion is for some counties a truly significant source of income that can reach up to 40 per cent of a unit's budget, that can be driven further up by collecting taxes from enterprises, land developers, and commodity consumers (Zhang et al. 2014, 494). To round up the description of the power that local authorities wield over spatial transformation in should be highlighted that there exist political incentives for local officials to undertake urban development. Since the turn of 1980s and 1990s, after the reforms have come into force, top officials of provinces and cities, such as city mayors and local party higher-ups, have been promoted in the central hierarchy or rotated to attractive position elsewhere. This, along with the standard term being 4 or 5 years, provides a fertile ground for rapid expansion of urbanisation (Zhang et al. 2014, 494). In all, local authorities control both the ownership and the development rights of urban space thanks to two legal acts: the 1998 Land Administration Law that gave the property rights of urban land and the 1989 City Planning Act which equipped them with development permits; local authorities play a key role in the way the Chinese urbanisation is driven because they control the flow of capital, land, and labour, which are all absolutely fundamental forces in the Chinese economy (Zhang et al. 2014, 494).

The role of the central government in shaping space on the local level cannot be underestimated, however. Despite all the competencies acquired by local authorities in the last 30 years, the top-down structure of decision-making and power allocation remains. In theory – and increasingly in practice – the task of the central government is promoting effective land use and preserving sustainability regarding farmlands by putting in place a functioning, fully-fledged real estate market (which included a crisis) and thus bringing down the rapidity of urban expansion (Zhang et al. 2014, 494). The central government sets the priorities and strategies that are binding for lower-level authorities; it also approves regional planning and promotes successful cases from local experiments (Zhang et al. 2014, 494). However, the most important developments are still subject to the decision of either the central or the provincial governments and not in the jurisdiction of municipalities. The central government, through its key authorization function in large projects, such as CBDs, convention and exhibition centres, large urban renewal projects, development zones and university towns, together with site selection for overseas plants, have had greater impacts on urban land conversion, as well as physical form and social space (Zhang et al. 2014, 494).

It also remains a crucial competence of the central authorities to upgrade settlements in their ranks (e.g. nominate towns) and designate the sites for key investments. Finally, the competencies of the authorities on the central and local levels are not static: they interact with each other. Because of the hierarchical, top-down organisation of the country, the local officials always have an incentive to compete with each other in pursuit of one of the administrative, political, or financial gains. Cities such as Shanghai, Beijing and Zhengzhou have already seen firings of top officials due to their ignoring of instructions coming from the centre (Zhang et al. 2014, 495). However, this complicated structure of power seems to be tipped in favour of local authorities due to such factors as economic, fiscal, and political incentives as well as because of local governments' control and management of capital, land, and labour; and the power structure seems to be not perfectly suited for strict implementation of state land management policy (Zhang et al. 2014, 495).
2.3.3 The development and expansion of the Chinese railway system

This sub-chapter is dedicated to the brief introduction of the Chinese railway system. The significant impact of the development of the railway system on urbanisation and urban development phases on the one hand, and the research focus on railway stations (city halls and central business districts) as a spatial element of analysis on the other, provides the need to present the enormous system of railway networks in China.

Nearly all rail operations are handled by the China Railway Corporation, a state-owned company created in March 2013 after the dissolution of the Ministry of Railways. Within the Ministry of Railways, the rail network is organised into 14 regional rail administrations or bureaus (OECD 2003, 9). As of 2015, the country had 121,000 km (fig. 10) of railways, the second longest network in the world, including 19,000 kilometres of high-speed rail (HSR), the longest HSR network in the world. China’s railways are among the busiest in the world. In 2014, railways in China delivered 2.357 billion passenger trips, generating 1,160.48 billion passenger-kilometres and carried 3.813 billion tons of freight, generating 2,753 billion cargo ton-kilometres. Driven by the need to increase

<table>
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<th>Region</th>
<th>Length of Railways in Operation</th>
<th>Lengths of Navigable River Networks</th>
<th>Total Length of Railways</th>
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<th>First Class</th>
<th>Second Class</th>
<th>Highways Below Class IV</th>
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Figure 10: Length of transportation routes 2015 (National Bureau of Statistics of China 2016)
freight capacity, the railway network expanded with the country budgeting $130.4 billion for railway investment in 2014, and has a long-term plan to expand the network to 274,000 km by 2050. China built 9,000 km of new railway in 2015 alone (Qi and Yang 2013).

**Historic overview of the Chinese railway system**

The first railways in China were built during the Qing Dynasty in the late 19th century, after extensive railway networks were already in place in Europe, North America, India, and Japan. The reason for the late introduction of railways in China was due to both the lack of industrialization and sceptical attitude of the Qing government. Although diverse and prominent persons called for the building of railways in China in the mid-19th century, the conservative Qing court looked at steam engines as ‘clever but useless’ inventions and denied the idea support; the rulers claimed railroad would hurt the defensive capacity of the empire, harm farming, and disturb *feng-shui* (see chapter 2). Consequently, the first railway track on Chinese soil was a 600-metre fragment built by a British merchant as a showcase; due to the lack of interest of the authorities it was dismantled. The first commercial railway was the 14-kilometre track from Shanghai to Woosung (between the outskirts of the American Concession in the modern town’s Zhabei District and Wusong in Baoshan District) built in 1876 without permission from the Qing administration. It operated for less than a year before it was purchased and dismantled by the Qing government; this unfathomable, from a western perspective, decision was internationally seen as one of the symbols for the Qing dynasty’s backwardness and insularity (Osnos 2014). The first major railway to be successfully built in China, the 'Beijing-Mukden line', had its beginnings in the 13-mile 'T'angshan-Hsükechuang' coal line, built in 1882 to transport coal from the K'aip'ing mines (Sun 1955, p. 180). The government began granting rail concession to foreigners more readily in 1895, after the defeat during the First Sino-Japanese War, and permitted direct connection to the capital Beijing. Sun describes this period in the following way:

> Many of the first major lines originated with foreign demands for railway rights that reached a climax in the ‘battle for concessions’ in 1898. The locations of these lines in China Proper indicate that the principal objective in the building of these railroads was the further development of trade between commercially well developed points. The two north-south trunk lines were the Peking-Hankow-Canton [Hankou is now part of the city Wuhan] system and the Tientsin-Pukou Railway, the former linking the capital with the central and south China trading centers, and the latter running between the entrepot of Tientsin and the lower Yangtse area.

> [...] one of the first lines to be completed was the Shanghai-Nanking Railway, which lies within the Yangtse delta. Built with British capital and under British supervision, it was opened to traffic in 1908, and roused great hopes among its promoters of gaining commercial advantages. The Shanghai-Hangchow-Ningpo Railway likewise presented ‘sound commercial possibilities’. (Sun 1955, p. 180)

By 1911, there were about 9,000 km of railroads in China, mostly designed, built, owned and operated by foreign companies. The first piece of railway designed and constructed by the Chinese was the Beijing-Zhangjiakou Railway built between 1905 and 1909,
which was a difficult task due to the mountainous terrain. The chief engineer of this railway was Zhan Tianyou, who is known as the Father of China’s Railway (Boorman and C. Richard Howard 1967, 12); (Gao, R. H. Xu, and Qin Luo 2009, 425–26).

In the Republic of China period, investment in railway slowed down due to civil wars and the Second Sino-Japanese War. One of the few exceptions was in Northeastern China (Manchuria), where several railway lines were built between 1912 and 1931. The distribution of the regular customs preceding the appearance of railway shows that the lower Yangtse and the metropolitan regions were the areas of concentration of goods. Thus, the railways in China were first built in areas of the greatest economic activity, in other words between points of commercial significance (E.-T. Zen Sun 1955, 181). Before the founding of the People’s Republic of China in 1949, most railroad development had taken a colonial form. Through joint projects of foreign governments, international corporations, and the Chinese government, most railroad lines were constructed in the northeast and along the eastern seaboard, and the system was designed toward movement of goods in and out of port cities (Wu and Gaubatz 2013, 79). The pre-revolution period of railway development in China had to overcome both domestic and foreign obstacles such as the slow pace of industrial development, restrictions and disadvantages coming from the heavy reliance on foreign loans, and political instability. As a result, in mid-twentieth century railway construction was still a major task (E.-T. Zen Sun 1955, 198).

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**Figure 11**: Chinese Railways in 1953 (E.-T. Zen Sun 1955, 199)
After the Cultural Revolution, Mao Zedong invested heavily in the railway network, however in the first decade those efforts were concentrated on repairing the war damages. Nearly half of the over 17,000 miles of railway functioning in China in 1952, was reported to be in Manchuria (E.-T. Zen Sun 1955, 195). From the 1950s to the 70s, lines were expanded, especially in western China (see fig. 11). One example is the 1900 km railway from Lanzhou to Ürümqi, which was built between 1952 and 1962. In the south-west of China, characterised by difficult terrain, several mountain railways were constructed, such as the Baoji–Chengdu Railway, built in the 1950s, and the Chengkun Railway, built in the 1970s. The railway to Tibet, one of the highest in the world, was under construction for a long time and was eventually completed in 2006. Today, every province-level entity of the country, except for Macau, is connected to the railway network. This is the result of the railroads’ significant impact on urbanization. Whereas traditional urbanization had for the most part, been concentrated along waterways and coasts, the railroads linked the drainage basins and thus provided opportunities for new patterns of development and urbanization (Wu and Gaubatz 2013, 79).

To briefly look at the technical side of the matter, it is worth noting that before the 1980s, most of the railways were powered by steam, due to low labour costs and cheap coal prices. However, the first diesel locomotive, the Dongfeng, was introduced in 1959. During the 1980s and 90s, diesel and electric locomotives gradually replaced the steam engines on main lines. However, steam locomotives did not retire from some provincial railways until as late as December 2005, when the world’s last regular revenue mainline steam train finished its journey on the Jitong railway, thus marking the end of the steam era. Nevertheless, there are still some steam locomotives used on the industrial railways in China.

Naturally, the general growth of the railroad system and the technological improvement has made cargo transportation more efficient. Freight volumes have increased rapidly over the last two decades, reaching 1.4 trillion tonnes in 2000 (OECD 2003, 9–11), as visualised on figure 12.

\[ \begin{align*} \text{Figure 12: Freight Transportation: Growth 1978–2000 (OECD 2003, 11)} \end{align*} \]

Since 1997, the average train speed has increased sixfold. The top speed of express trains increased from 120 km to 200 km per hour, and passenger trains can reach
maximum speed of 350 km per hour on some sections of the arterial railways. In 2003, the OECD was reporting on the state of the Chinese railway system:

other modes of transportation, such as expressways and civil aviation, are developing at speeds that have outstripped that of railway transport. In long-distance transportation, in particular, expressways and airlines are threatening to replace traditional railway transport (…) The density of traffic on the Chinese rail system is the highest in the world. The traffic density is twice as high as the next-most dense rail network (Russia) and about ten times higher than rail systems in Western Europe (OECD 2003, 13).

The above-mentioned observations were made shortly before the development of the high-speed railway system in China, and are additionally illustrated by figures 13 and 14.

Figure 13: Passenger traffic flow density (excludes intra-zonal traffic) (OECD 2003, 10)
High-Speed Railway System

High-speed rail was first introduced to China in 2007. In the beginning of its operation, 237,000 people daily travelled on high-speed trains; today, this figure is over 2.5 million travellers every day. On top of the 19,000 km existing so far, another 19,000 km are planned to be built in the coming years. These plans make it one of the most expensive mega-projects worldwide and may have China equipped with as much as or more high-speed rail than all other countries combined. The 1,318 km Beijing-Shanghai high speed railway line – the country’s most prominent high speed rail project – commenced construction in April 2008 and was opened in June 2011. Trains take that route with the speed of up to 350km per hour. It has 23 stops, going through three provincial municipalities (Beijing, Tianjin and Shanghai) and four provinces (Hebei, Shandong, Anhui and Jiangsu). The line transported 52.6 million passengers in the first year of operation (Jin 2012).

In order to create and maintain such growth in railway infrastructure (which is represented in figure 15), the Ministry of Railways of the People’s Republic of China (中华人民共和国铁道部) has grown to an amount of employees as large as the number of all civilians working for the entire US Government (above 2.6 million people), equipped with instruments such as its own police force and judiciary system.

The ministry was headed by Liu Zhijun (刘志军) during the time of expansion (2003-2011). In order to achieve the fast construction of country wide high speed railway expansion, he lead with a strong hand; the following quote illustrates his approach to the great leap in railway infrastructure: To achieve a great leap, a generation must be sacrificed (Osnos 2014). This was referring to his workers, however, in 2011, there was
a severe accident on a viaduct, high above a valley, with a highspeed train, caused by poorly functioning signaling system, leaving 40 dead and over 100 injured. The director was surrounded by reports, critique, and tense coverage revolving around concerns regarding safety and quality, as well as corruption. Authorities also struggled after being criticized how they handled the accident. Liu was expelled from the Chinese Communist Party in May 2011 for ‘severe violations of discipline’ and ‘primary leadership responsibilities for the serious corruption problem within the railway system’. The Chinese state press alleged that Liu took an illegal 4% commission on railway deals, and that he had accumulated over two hundred and fifty million dollars in bribes. The CCP later accused him of ‘sexual misconduct’. A full, public government investigation led to the announcement of its findings in December 2011, which it acknowledged and blamed the disaster on ‘serious design flaws’, ‘a neglect of safety management’, and flaws in the bidding and testing processes used to acquire materials. The report publicly blamed fifty-four private and government figures for the disaster, the most prominent of which was Liu Zhijun (Osnos 2014). Zhijun was sentenced to death for corruption (BBC July 8th 2013).

In March 2013, the Ministry of Railways was dissolved and its safety and regulation duties were taken up by the Ministry of Transport, inspection duties by the State Railway Administration and construction and management by the China Railway Corporation (CR). In all, the high speed railway system has boomed and flourished and is considered by now one of the safest modes of transportation around the world. It is also
the worldwide leader in single annual ridership and has the longest single service (400 km from Harbin to Wuhan) and one of the fastest commercially operated trains (above 400 km/h). After having the system introduced successfully in China, it is now being exported around the world (Turkey, Saudi Arabia, South America, and Africa). High speed rail is key to urbanisation, since it significantly enlarges the radius for commuters travelling from home to work twice daily or a couple of times a week, especially around the big agglomerations and mega cities. High-speed railway coverage is likely to lead to more super-size cities. It therefore strengthens even further the likelihood that China will remain among the top countries with the largest cities.

Railway is a fundamental means of both passenger and cargo transportation in China. Passenger flow reaches its peak during the annual Chinese New Year season. The average trip distance is 503 km, which shows that train travel is primarily used for long-distance trips; in Germany, meanwhile, this average is only about 40 km. The difference lies in the hardly existing commuter train systems (perhaps the only example is the Beijing Suburban Railway). The high-speed trains may bring a Chinese variation to that, however, with commuting at large distances.

The difference may be explained by the near-absence of traditional commuter rail systems (low cost, frequent service, frequent stops) in China; the incipient Beijing Suburban Railway may perhaps be their only specimen in the country. However, a number of high-speed intercity railways have been opened since 2005, and many more are under construction; they may attract an increasing share of short-distance trips.

To close this sub-chapter, the train stations must be brought to attention as they are the element of the railway system that is being examined in this research. In 2008, China had 5470 railway passenger stations distributed throughout the country (Song, Ying Wang, and X. Li 2016, 2), which are divided into six classes according to their handling capacities; in 2008, those included 50 special class stations, 236 first-class stations, 362 second-class stations and 936 third-class stations. A handful of factors make them significant. First, the operating hours of these stations are usually longer than other common public buildings; as such, the air-conditioning may operate for substantially longer periods of time. Second, these stations are typically large spaces in semi-open buildings with a high ratio of windows and walls, and with many other openings connecting to the outside. Third, the flow of people in these stations is larger and more complex than other common public buildings (Song, Ying Wang, and X. Li 2016, 1). Finally – but most importantly for this research – the railway stations also carry a representative function. The expansion of transportation systems has tremendous influence on urbanisation and this has been no different in China. The ‘strings’ of tracks and the massive buildings located along them are one of the most important elements of the urban tissue in general. Train stations are visited by great crowds every day and that, too, adds to their prominence.

### 2.3.4 Urban transformation and (re-)innovation

In the current era of radical, fast change, the development of two processes may be called the most abrupt and may seem unstoppable: urbanisation and digitalisation. Both influence all functional aspects of life: the physical world around is shaped and governed by how we build our cities; and so much of our everyday life is dependent
on and made possible by digital technology. Importantly, these two increasingly go together, be it in the form of modern transportation, energy and water provision, emergency services, financial services, information supply, etc. (Kraft 2014, 13). Both are also closely connected to innovation. To outline the construction of this section, it may be said that it investigates the location of innovation research in an urban context. This section, similarly to the last one on factors influencing the Chinese urbanisation, concentrates on the contemporary developments, writings, and phenomena concerning innovation, while the previous sections have covered the outlook of this topic in the past. Moreover, this work does not attempt to recapitulate all possible and valid definitions of innovation.

Cities have always been centres of innovation and the driving force of development, throughout all epochs and cultures (Kraft 2014, 12). Also, the tendency for innovation to cluster in large metropolitan areas is a widespread and well-established phenomenon; such areas are often regarded as ‘centres of creativity’ and have recently been referred to as ‘islands of innovation’ (Capello 2001, 181). Typically, an urban innovation ‘engine’, as Dvir and Pasher refer to it, is a complex – and nearly always urban – system that encompasses people, relationships, values, processes, tools, and technological, physical and financial infrastructure, and involves exchange between the elements and the actors; it is this exchange that serves as the fertile soil for innovation (Dvir and Pasher 2004, 16). Jane Jacobs has highlighted the role that diversified metropolitan areas played in fostering innovation as a key issue in urban development (Jacobs 1970). New products and approaches are developed in diversified cities, where there is opportunity to experiment with processes borrowed from different activities (Duranton and Puga 2001, 1454). Saskia Sassen claims that ‘the city tells us what works. The city is one window into understanding successful technological innovations for urban systems and urban life. The city is a powerful “hacker” of technologies: it alters the original design, adjust it to urban users’ (Sassen).

All these observations provoke the conclusion that innovation research is naturally embedded within urban studies. Architecture, spatial planning, and urban design professionals and scholars may be attributed with spearheading innovative thinking throughout the history of civilisation. It needs to be noted that innovative thought in one aspect of life encourages and supports such thought in other aspects; a technological breakthrough may influence creativity and forward-thinking in city-building and an innovative space may foster cutting edge in science or art. This view is also held by Forsyth, who, after Thompson-Fawcett and Mumford, points out that architecture and urban design has a long tradition of innovation coming from practice (Forsyth 2007, 463). The same author further claims that the aforementioned professions have long contributed to importing new, or newly revised, urban design ‘styles’ or urban ‘types’ and elaborates on how environmental design is innovation when it is performed in practice through specific projects and how certain pairs of personality traits displayed by creative individuals – e.g. imagination coupled with discipline, and high levels of innovation.
‘divergent’ or creative thinking coupled with a high capacity for ‘convergent’ or logical thinking – support the emergence of innovative thought; she also identifies six ‘domains’ of urban design innovation, namely in style, project types, process and engagement, functional and formal analysis and representation, ethical, social, and cultural critiques and evaluations, and finally innovation in collaboration with other fields as a broad idea of interdisciplinary work (Forsyth 2007, p. 462). The resulting ‘product’ of these innovation processes in environmental design is the urban physical environment that shapes the cities. However, it can be said that urban matters may also be tackled in an innovative way by persons not directly involved in disciplines regarding city-building, which is exemplified by the work of Jane Jacobs, who has used journalistic methods with beneficial and novel results (Forsyth 2007, p. 468).

Dvir and Pasher state that innovation processes are not only important for the economy but also for the society and cultural life, therefore the creation of urban space that fosters these innovation processes is vital. In this, the authors address urban researchers as well as practitioners leading all forms of organisations in the cities - be it business organizations, cities, regions, non-governmental organizations etc. (Dvir and Pasher 2004, 17). It can also be argued that there needs to be a distinction between a novelty or an innovation to an individual and to the discipline (Forsyth 2007, 463); novelty, in turn, may be understood as a relative indicator for innovation. To understand it better, we can follow Forsyth, who calls on the planning historian Stephen V. Ward (2002, 4), who in turn finds help by partially referring to Joseph Schumpeter, the economic historian, to point to this characteristic of innovation:

The first, and most fundamental, is invention, meaning the discovery of new ideas with far-reaching potential (...) The second is innovation proper, whereby new ideas are adapted, packaged and applied in practical ways” (Forsyth 2007, 463). This falls in line with the words of Levi-Strauss, who postulated that “the improvement lies not in an alleged progress of man’s conscience, but in the discovery of new things to which it may apply its unchangeable abilities (Levi-Strauss 1955, 444),

and Francis Bacon’s words implying that innovation has to keep up with the time to not become obsolete (Bacon 1597 (1985)). A problem that is sometimes encountered is that many of the most innovative and avantgarde designs in the urban context are unlikely to be built on a large scale due to the fact that most of them are rather interesting than sustainable (Forsyth 2007, 467).

It is perhaps the interdisciplinarity of the field of urban design that makes its representatives more apt to look at the innovation processes that are nowadays observable in East Asian cities. By nature, those coming from the field of urban design are trained to look at processes from many different angles. With East Asian cities now being the largest-ever concentrations of urbanisation in the world, research on this topic increased in the past few years. These cities are central zones for innovative practices not just at an economic level, but also at cultural, political, and spatial levels. The context is also important for judging innovation because often an innovation in one field is in part a translation of knowledge from another, what matters is it is new to the audience and their intellectual and professional world and that it transforms the new field’ (Symes, Pauwels 2007, 99; Forsyth 2007, p. 463). Importantly, Symes, Pauwels and Forsyth also point
out that innovation happens in the new (re-)built or refined urban environment. This is therefore the reflection and manifestation of innovation – or re-innovation – processes in urban design. In order to research these processes of innovation we have to analyse the physical environment with the help of the right methods and tools (Forsyth 2007, p. 464).

Generally it is important to distinguish between the innovation reflected in the built environment firstly due to technological innovation or innovative approaches of the creators of the environment on the one hand; secondly the space that is built, designed, and meant to foster innovation; and thirdly the kind of innovation, re-innovation as well as transformation that takes place over the years and decades a built component of a city has been in use and inhabited by the user. The latter aspect includes the innovation processes that might be less reckoned by innovation research projects, however, it shapes the urban reality distinctly.

Overall, the spatial analysis of this dissertation, focused on codes present in the built environment, may be used as evidence of the times and as particles in examination of the features of a time and the reflection of innovation, re-innovation, and redevelopment processes happening within the urban space. This research, thus, offers an analysis of codes that are to be found in a certain set of urban elements from the seven largest Chinese cities.
2.4 | Contextual features of physical space

In a globalised world of today, not only experts travel between countries, but concepts, doctrines, imaginaries, and biases do as well. There still seems to be a shortage of sensitivity towards the fact that not all ideas are applicable in all places in the world. Experiences of western professionals in China and the challenges faced by them show how important the question of contextuality, and therefore the factor of cultural sustainability in planning and city building, has become for successful long-term urban development. They also prove how little the non-Chinese still know about it, although the Chinese market has been explored quite successfully by architects, urban designers, and city planners within the Chinese rapid process of urbanisation. Given the different philosophical, spiritual, geomantic and emotional basis of understanding the environment in China and Europe, as described in the chapters 2.1 and 2.2, it is not surprising that misunderstandings and misreading of space happen when cultural borders are crossed.

In regard to globalisation, Kommonen (2011) names three paradigms that happen simultaneously, sometimes contradicting each other. The first concerns the global homogenization or convergence theory, which suggests that cross-cultural differences erode in the midst of globalization; this research corpus often equalizes globalization with Westernization or Americanization, sometimes remaining observant to the less-obvious phenomena like 'Japanization', 'Russianization' and 'Indianization' that are of concern in some geographical areas. The second mentioned paradigm is the hybridization theory, which suggests that global and local cultures create new, amalgam cultures; sometimes referred to as creolization, this research trend is interested in how global phenomena, products, and brands are given culturally specific meanings. Thirdly, an emerging research stream has taken a post-postcolonial stance, observing how some non-Western countries, and the so-called Asian 'tigers' in particular, actively and powerfully participate in global economy, culture, and politics (Kommonen 2011, p. 368).

In order to truly understand the built environment of a cultural realm that is different from the one being familiar with, the context in which the physical world has been created needs to be looked at first. This context is the base that allows to consciously pose questions, choose approaches to analyse, draw connections, and conclusions of what is being analysed. Architecture and urbanism are expressions of non-material phenomena, and the built environment can be seen as the materialization of all kinds of realities (Mekking, Roose, and Huang 2009). Analysing the built environment in China with the aim of understanding the distinct layers, realities, and mechanisms that city-building follows, it is key to focus on the understanding of its uniqueness and intrinsic logic25 (Löw 2008), the particular context of the analysed space, in order to reach this goal. This sub-chapter explains in more detail what the author, as well as research scholars and practitioners understand under the term of contextuality. In brief, it can be summed up to the deeply rooted – over a period of centuries - traditionally and culturally defined approaches, building traditions and understanding of creating physical space and inhabiting it. These facets of contextuality differ between not only cultural realms but are even noticeable and relevant on a smaller scale of local regional differences.

25 The term comes from the German "Eigenlogik der Städte" coined by the German urban sociologist Martina Löw and her team.
2.4 | Contextual features of physical space

Addressing the facet of contextuality of a spatial situation that is being analysed is particularly significant in the light of rapid urbanisation, globalisation\(^{26}\) - global markets, global cities, global research - and the question of the level of distinctiveness as well as (cultural) sustainability of the specific analysed component of the urban environment. Research approaches, like this project, cross boundaries to analyse the local-ness, the Chinese-ness in cities and urban fabric exactly because of the fact that professionals (from research and practice) engage in foreign environment enabled by the many opportunities of the globalised world.\(^{27}\)

Before the term and the meaning of contextuality are introduced in this segment, it is important to understand why this subject is of particular interest within the concept of this research. Investigating the question of what makes the Chinese urban environment different from the non-Chinese ones leads inevitably to the aspects of context and how much of that 'otherness', in the Chinese realm, is still remaining in the global and rapid Chinese urban transformation. Scholars hold different views on how much of a role context still plays in today's urban development, where some scholars as well as practitioners understand globalisation as the era of global, in the worst-case universal, design approaches. Looking at it from a different angle, one could also claim that considering the different realities, factors of influence, and specificities of a particular site – its context – belongs to a holistic and sustainable creation of urban texture. In turn, irritations, discomfort, and dissatisfaction, by the society and inhabitants, with the result of created urban spatial situation might be caused by the neglect of the aspects of context (spirit of the place). This seems to be of severe importance in the era of globalisation – especially concerning the Chinese urban development - both on the level of technological advancement and its exchange as much as on the level of exchange of ideas, approaches, and concepts. A particular question often follows quickly: 'how much local-ness and context is 'remaining' when globalisation and rapid development take their tolls and has China lost its 'Chinese-ness' or local cultural context?'\(^{28}\) which is one of the main questions that this dissertation seeks to investigate. Research on how cities transformed within their cultural context while striving for global importance started from an early age across disciplines. After the Industrial era, scholars started to acknowledge the role cities play in global economic growth and for the first time the city and city life became objects of study. Urban research on city building processes can be roughly divided into two fields: those that focus on people and those that focus rather on the built environment. This division is usually noticeable between disciplines, when, in the realm of traditional research approaches, attempts were made of cross-, or interdisciplinary research projects. However, if a research project is supposed to not add to the existing complexity of cities but rather contribute to the understanding of the layers that form this complexity, the author is convinced that it is indeed necessary to expand the traditional borders of one's discipline in order to understand the relation of the multitude of aspects that meet in the city. For this reason, the understanding

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26 `Globalisation`, a currently fashionable term, does not mean that we are all becoming identical, but rather that we become different in ways that are not as they were in earlier times (Eriksen 2001, 297).

27 However, experts crossing cultural borders and nation states is of course not a new phenomenon. It has existed since centuries and colonization has enabled that transfer – mostly one-sided – in its own way. The particularity about the today's era of globalization is its scale and the diminishing administrative and logistical obstacles that come along with practicing a profession in other cultural realms.

28 See chapter 1.2 "Research framework", where the primary and additional Research questions have been introduced.
of contextuality is yet another crucial factor to break down the complexity of urban development and existing city structures. But first it is necessary to have a closer look for what the term contextuality stands.

In the realm of philosophy, contextualism describes a collection of views which emphasize the context in which an action, utterance, or expression occurs, and argues that the action, utterance, or expression can only be understood relative to that context (Price 2008). Some philosophers (Feldman 1999) hold that context-dependence may lead to relativism; however, contextualist views are increasingly popular within philosophy (Price 2008). Contextualism is a theory of design and architecture wherein the creation of the built space is harmonized with urban forms usual to a traditional city (Jencks 2002). Some architectural theorists, like Jencks, draw a line between buildings and components of cities being created while consciously considering the contextual factors of the particular environment on the one hand, and those designs that seem to not take into account the context, as ascribed to the era of architectural modernism, on the other (Jencks 2002). Contextuality refers here to the compatibility and harmony between a building, as a part, and its surrounding built environment, as a whole. Valid urban context refers to the urban context that achieves Contextuality. This approach, however, only pays attention to the stakeholders being involved and responsible for the process of designing, conceptualising and creating the built space, whereas the long-lasting process of inhabiting and using the created space is being overlooked in this understanding of contextuality. The author approaches the matter of contextuality by including the process of initial creation of built environment as well as the process of inhabiting and usage of space, since the combination of both provides a more holistic picture of the existing physical reality one is confronted with while analysing cities and their texture. Saskia Sassen stated in an interview in 2007 that cities, neighbourhoods, and urban districts provide the canvas to transform and be transformed. This proves happens over time, by being inhabited by different generations of a society and the changes coming along with it, but also by the active participation of the inhabitants of spaces (Meyhöfer 2007, 159). Hoffmann-Riem (et al.) even argues that by neglecting the user’s needs as well as the contextual conditions, harm is caused to the urban texture.

Serious harm has been caused by ignoring the uncertainty of scientific knowledge, by neglecting the users’ knowledge, and by failing to consider contextual conditions of applications (Hoffmann-Riem et al. 2008, 4).

Aldo Rossi describes the interconnectedness of humans with their environment as an important facet of the cities in which we live.

the environment influences the individual and the collective and further he states the we defined the city as a human thing par excellence (Rossi 1982, 112).

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29 In his work *The Language of Post-Modern Architecture* (1977), Jencks discussed his theories of postmodern architecture which ran to seven editions. Jencks analysed and discussed the paradigm shift from modern to postmodern architecture, claiming that modern architecture concentrates on universal forms such as right angles and square buildings. However, in his view, postmodern architecture focuses on forms derived from the mind, body, city context, and nature. In 2007, he published 'Critical Modernism,' the fifth edition of his "What is Post-Modernism?"
The cycle of action, reaction, which triggers action again, are defined and determined in their expression within the particular context that spans across and influences every aspect of the built environment and human lives. The creation, transformation, and re-innovation of the existing physical environment, which is shaped not only by experts and professionals but also by its users and inhabitants, is a response to and a reflection of its contextual setting, manifested in the built urban form. Therefore, contextuality is formed by a multitude of influences, which include historical, cultural, societal, philosophical and spiritual, geographical, topographical, technological, and climatic factors, to name just a few. Contextuality is influenced by these factors, which are described in more detail earlier in this chapter\textsuperscript{30}, and formulate the greater picture of all the facets that are relevant to consider when the context of a place is analysed.

The traditions of creating and approaching cities and the urban components play a significant role in the definition and discussion of contextuality. Since every building tradition is locally rooted, it is vital to include this in the understanding of contextuality. The questions of how cities, temples, dwellings, and palaces have been built centuries ago, what materials and construction techniques have been used can be answered by looking at the local building tradition. Built places have always had a strong cultural imprint, most of the time their structure have had a stronger connection and relation to the history of a place than to the presence (Curdes 1997, 153).

Architects, urban designers, and planners play an important, perhaps even the most vital role in the matter of creating space, in the sense of considering or not considering contextuality as an important and obvious part of this process. Environmental design professionals, educated in a practice-oriented discipline, come from the background of apprentice-like professional training, where design solutions are being developed to solve specific spatial challenges (Forsyth 2007, 462). David Chipperfield distinguishes, in an interview from 2015, between two types of creators of the built environment: the ones that design to stand out by creating solitaires that are disconnected from the surrounding they are built in and those who design in a way that the creation melts, merges, and almost dissolves with its context and surrounding (Michelsen, September 30, 2015).\textsuperscript{31} The purpose of architecture is not to create art but to create space that answers people's needs and demands. However, Chipperfield goes as far as to state that individual disconnected and 'context-less' architecture has less of an impact and can be tolerated, even be absorbed under the condition of a well-planned city that embraces and remedy the unsuccessful design (Michelsen 2015). To formulate it even more drastically, the built environment and its elements are not supposed to reflect the identity of the designer but to respond to the needs and demands of the user and take into account the context. Environmental design practitioners are trained and educated to find tailor-made, locally rooted, contextualised solutions for specific design tasks and projects. Due to the increasing complexity, it is impossible to achieve this without, firstly, working in interdisciplinary teams and, secondly, with the knowledge of local cultural specifics. Typically, the discipline of urban design involves teams from multiple

\textsuperscript{30} See chapters 2.1, 2.2, and 2.3 for further details.

\textsuperscript{31} David Chipperfield: "Es gibt bei Architekten zwei Mentalitäten. Die einen wollen ein Spektakel schaffen und entwerfen einen Solitär, der so fremd in der Umgebung steht wie ein Raumschiff, das gerade gelandet ist. Die anderen wollen ihren Bau auf so selbstverständliche Weise mit der Umgebung verschmelzen, dass er fast unsichtbar wird." (Michelsen, September 30, 2015).
professions and is essentially interdisciplinary (Moudon 1992; Schurch 1999; Lang 2005; Noennig, Hentschel 2011; Borgmann 2014). However, this is mostly done and understood as absolutely necessary in the 'old world', where architecture and design schools teach their students how to approach a project and find the solution by taking these factors of context (and genius loci) into account (Forsyth 2007, p. 465). Challenges may arise, however, when these designers travel, equipped with approaches and concepts, across their cultural realms, because then sometimes suddenly the limits of understanding and sensitivity for the context of the specific project overwhelm them. Since contextuality is crucial and essential for successful urban design projects, the transfer of one innovative approach to another situation is difficult and without the right context perhaps even impossible (Forsyth 2007, 462).

The contextualisation of Chinese urban experiences in relation to familiar landmarks and ancient practices have become, rather than obstacles to change, effective strategies of adaptation under radically new terms. The urban planning failures stemming from neglecting the relevance of contextuality often serve, however, as drivers of improvement in urban development. This thesis aims, in the fourth chapter, to highlight in what ways local contextuality is to be found in the selected case studies (city components) and thus to show that despite rapid urbanization and technological advancement as well as striving for high quality of life for the inhabitants - while profit oriented real estate developments are being realised - this local context is indeed to be found. This research approach is applied against the backdrop of claims made by critics of the Chinese urbanization claiming that in the process of Chinese urban development and globalization the local characteristics of places cease to exist.

2.5] Perception of the environment and Cognitive Biases

In ancient Greek philosophy, the understanding of truth, beauty, and goodness was closely connected and belonged to the highest values: beauty is truth, truth is beauty. This understanding has been present in the European cultural realm and survived until today. In the Chinese cultural realm, however, beauty is closely connected to harmony and harmony is one of the highest values of the Chinese culture. Balancing one force with another to create harmony is an overarching and superordinate goal in the Chinese realm in all aspects of life, and it enables beauty. Beauty, harmony, and the aesthetically pleasing is – to a certain extent – perceived differently across the world. The aspects of the aesthetically pleasing to which individuals are exposed shape their perception and definition of beauty. This phenomenon is not only connected to but also affecting significantly the way foreign spatial situations are perceived, processed, and evaluated.

This subchapter is dedicated to the phenomenon of cognitive biases in the realm of perceiving the built environment. The questions that this section follows are how an outsider looks at a foreign city (here: a non-Chinese at a Chinese city) and how being exposed to built environments across cultural realms impacts one’s sensitivity in evaluating physical space. Furthermore, the subchapter looks into the topic of the perception of the self and the other, and how our own emboishment and conditioning forms
the approach and understanding we have about unfamiliar environments. Explaining and analysing these phenomena of cognitive biases helps to better understand how urban space is perceived and evaluated by experts and visitors and how this, in turn, has an effect on how urban space is built, read, and decoded in different cultural realms. Firstly, the term 'perception' needs to be introduced.

Perception is the process of understanding the environment through visual, olfactory, and acoustic information. The human brain is continually predicting, simplifying, associating, and comparing what the various senses transmit, taking into account not only the actual physical world but also personal preferences, emotions, and memories. For this reason, evaluating perceived values of places and landscapes remains a challenging task. Yet, it is important to know how the public perceives the environment, particularly in architecture, planning, management, and design (Groot et al. 2010; Dunkel 2015, p. 173). Despite the fact that significant advances have been made in studying the perceptual and cognitive abilities of individuals (as will be explained further in this subchapter), only limited knowledge is available on the 'generalized mental picture' (Lynch 1960, 4) formed by many people. The perceptions of the environment and the experiences and assessments of the perceived vary between individuals depending on their backgrounds, however, the variations between individuals from different cultural backgrounds are even more drastic and so far have not been research as much in depth.

The main discovery and research on cognitive biases is ascribed to three main research scholars of the field of cognitive psychology and behavioural economics: Amos Tversky, Daniel Kahneman and Vernon L. Smith (the latter two were awarded in 2002 with the Nobel Memorial Prize in Economic Sciences (Nobelpri...32.

There are different kinds of cognitive biases, in total more than 180 scientifically studied ones. These cognitive biases are grouped in three categories: category 1: 'Decision-making, belief, and behavioural biases' (these biases affect belief formation, business and economic decisions, and human behaviour in general; they arise as a replicable result to a specific condition. When confronted with a specific situation, the deviation from what is normally expected can be characterized by the respected biases of this category), category 2: 'Social biases' (most of these biases are labelled as attributional biases), and category 3: 'Memory errors and biases' (in psychology and cognitive science, a memory bias is a cognitive bias that either enhances or impairs the recall of a memory or that alters the content of a reported memory).

Biases and thinking errors that cognitive psychologists have been studying since decades now, affect – in one form or another - every human being, which naturally includes experts from practice and research of environmental design professions. The analysis and understanding of human behaviour and perception through cognitive psychology has influenced a multitude of professions that seemingly have not much to do with these aspects. However, the fact alone that research projects are done by human beings brings us back to cognitive psychology and the possibility of altered perceptions due to cognitive biases and thinking errors. In order to get a more detailed

32 They were awarded for "having integrated insights from psychological research into economic science, especially concerning human judgment and decision-making under uncertainty" and "Integrated economic analysis with fundamental insights from cognitive psychology, in particular regarding behaviour under uncertainty, thereby laying the foundation for a new field of research." Nobelpri...
understanding of the cognitive biases that are relevant for this dissertation project the following list provides an overview the biases that we need to keep in mind when we discuss the perception of space and how humans approach space that is different to the one that we are familiar with, especially if we already have an idea or a vague opinion about a particular spatial situation (perhaps without having first-hand experiences)\textsuperscript{33}.

- \textit{Confirmation Bias}: The tendency to search for, interpret, focus on and remember information in a way that confirms one's preconceptions (Oswald and Grosjean 2008).
- \textit{Anchoring Bias}: The tendency to rely too heavily, or 'anchor', on one trait or piece of information when making decisions (usually the first piece of information acquired on that subject) (Iverson, Brooks, and Holdnack 2008).
- \textit{Believe Bias}: An effect where someone's evaluation of the logical strength of an argument is biased by the believability of the conclusion (Klaucer, Musch, and Naumer 2000).
- \textit{Base rate fallacy} or \textit{Base rate neglect}: The tendency to ignore base rate information (generic, general information) and focus on specific information (information only pertaining to a certain case) (Baron 1994).
- \textit{Bias blind spot}: The tendency to see oneself as less biased than other people, or to be able to identify more cognitive biases in others than in oneself (Pronin and Kugler 2007).
- \textit{Clustering illusion}: The tendency to overestimate the importance of small clusters in large samples of random data (e.g. seeing phantom patterns) (Iverson, Brooks, and Holdnack 2008).
- \textit{Selective perception}: The tendency for expectations to affect perception.
- \textit{Subjective validation}: Perception that something is true if a subject's belief demands it to be true. Also assigns perceived connections between coincidences
- \textit{Observer-expectancy effect}: When a researcher expects a given result and therefore unconsciously manipulates an experiment or misinterprets data in order to find it (see also subject-expectancy effect).
- \textit{Conservatism} (\textit{belief revision}): The tendency to revise one's belief insufficiently when presented with new evidence (Hilbert 2012, DuCharme 1970).
- \textit{Continued influence effect}: The tendency to believe previously learned misinformation even after it has been corrected. Misinformation can still influence inferences one generates after a correction has occurred, cf. Backfire effect (Johnson and Seifert 1994).
- \textit{Empathy gap}: The tendency to underestimate the influence or strength of feelings, in either oneself or others.
- \textit{Exaggerated expectation}: Based on the estimates, real-world evidence turns out to be less extreme than our expectations (conditionally inverse of the conservatism bias) (Hilbert 2012, Wagenaar and Keren 1985).
- \textit{Focusing effect}: The tendency to place too much importance on one aspect of an event (Kahneman et al. 2006).
- \textit{Mere exposure effect}: The tendency to express undue liking/dislike for things merely because of familiarity/unfamiliarity with them (Bornstein and Crave-Lemley 2008).

\textsuperscript{33} Especially in the era of high technology, easy and very quick access to information; the likelihood that we already have – consciously or subconsciously – an opinion or a “feeling” about a place is very high. This very fact will, however, influences heavily the approach to that subject once confronted. The different cognitive biases help to understand the mechanisms behind this phenomenon, for instance why it is difficult to assess a situation (e.g. a city in China) objectively, or why one has difficulties changing the first impression or assessment.
Looking at the Chinese narratives and assessments of Western cities and urban

2.5 | Perception of the environment and Cognitive Biases

- **Not invented here (NIH)**: Aversion to contact with or use of products, research, standards, or knowledge developed outside a group.

- **Observer-expectancy effect**: When a researcher expects a given result and therefore unconsciously manipulates an experiment or misinterprets data in order to find it (see also subject-expectancy effect).

- **Pro-innovation bias**: The tendency to have an excessive optimism towards an invention or innovation’s usefulness throughout society, while often failing to identify its limitations and weaknesses.

- **Semmelweis reflex**: The tendency to reject new evidence that contradicts a paradigm (W. Edwards 1968).

The sometimes pre-set narratives of the spatial conditions encountered in China by non-Chinese, or any other foreign environment, are difficult to revisit, especially if it means to recalibrate one’s thinking due to some of the above-mentioned biases that might be at work. This can then further lead to disappointment of the encountered due to not being able to confirm the expectations that one had. It is crucial, therefore, to re-visit the impressions that are made when facing foreign environments and critically self-reflect on the narratives, prejudices, and expectations one might have had involuntarily. This applies particularly strongly to those experts, scholars and practitioners who travel across cultural borders in order to engage in the process of supporting the creation of cities and urban texture. In some cases, it might be difficult to live up to the expectations being had by those facing the Chinese urban reality. In other cases, expectations of non-Chinese visitors and experts to find ‘global’ cities in China might be the main point of focus and if the self-assessment and self-reflection does not take place, the confirmation bias will have them find exactly that, without questioning what is actually found. However, this can lead to situations were foreign visitors and expatriates do not spend the effort due to biases and the lack of time to understand the Chinese physical environment in more detail in order to obtain a deeper impression.

**The perception and evaluation of foreign space**

The above-mentioned phenomena are not supposed to illustrate that a critical assessment of the physical reality is showing that cognitive biases are at work. In fact, the assessment and critical evaluation of urban realities can sometimes be done by foreigners much better than by those familiar and professionally as well as emotionally engaged to the object of research. The author is of the opinion that the collaborative approach offers insights to facets and elements that could otherwise be missed. Apart from the rapidly growing body of differentiated and in-depth research about Chinese cities, there are also differently coloured assessments to be found among peers.

Looking at the Chinese narratives and assessments of Western cities and urban

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34 This phenomenon applies to both overly optimistic and pessimistic expectations that are not fulfilled when confronted with the spatial reality in situ. An example of this could be the disappointment over the fact that most of today’s Chinese cities do not look like ancient images of tourism advertisement or scenes from movies and in turn, European cities are not as advertised medieval maze of alleys and streets, as Chinese narratives sometimes sums up to. These phenomena can be explained with several biases being at work, such as the Exaggerated expectation bias, the Conservatism (belief revision) bias, the Mere exposure effect bias, and of course the Selective perception bias (the tendency for expectations to affect perception).
textures presents us with another facet of the phenomenon. For example, the choice of architectural Western paradigms used and incorporated into the Chinese realm, says a great deal about what China wants to avoid. Bosker finds it telling that there are no Texas-themed developments, no Chicago Town, Eugene Town, or New Orleans Town. Only Cities with a tourist ‘personality’ and a distinct connection to fine living have succeeded in capturing the Chinese imagination (Bosker 2013, 119). As described earlier, the narratives and perception of a place or space in cultural realms foreign to oneself do not represent the reality of what can be found when being on site. It rather nurtures and shows the expectations and images that exist about these places. However, in the case of China incorporating particular Western ideas, this might change in the future since more and more Chinese take the opportunity to visit these places and over time, the consumers of the current copycat communities in China may even view the European and American ‘simulacrascapes’ (Bosker 2013, 124) as critically as many Western and Chinese intellectuals do today (Bracken 2016, 164).

Chipperfield, for example, refers to the buildings, built by Western designers during the 18th and 19th century, across the city and at the Bund (waitan 外灘) in Shanghai as great architecture in dialogue with the local culture and traditions, whereas today the lack of interest in good architecture is noticeable as well as the financially driven incentives of Western architects building in China (Michelsen, September 30, 2015). This assessment can be challenged, e.g. in respect to the aspect of a dialogue under the influence of colonialization and its impact on the traditional urban texture in Shanghai as well as in respect of the assessment of the lack ‘good’ architecture. The follow-up question to this statement could be to question who is determining ‘good’ or ‘bad’ architecture, which could quickly lead to a rather aesthetic, moral, and philosophical discussion, which would certainly go beyond the scope of this thesis.

Kevin Lynch discusses interpretations of feng-shui as referring to them as multiple and complex. He describes it as an endlessly expanding field which experts are exploring in every direction. However, Lynch calls feng-shui a pseudo-science, divorced from reality, yet with interesting features: first, that it is an open-ended analysis of the environment: new meanings, new poetry, further developments are always possible; second, it leads to the use and control of outside forms and their influences: it emphasizes that man’s foresight and energy rule the universe and can change it (Lynch 1960, 138). The general perception of feng-shui in the Western realms seems to be positive and has gained popularity over the past decades. However, it seems not to reflect a genuine understanding of that ancient concept, but rather a naïve taste for the exotic. Taste, however, is neither arbitrary nor trivial: it reflects the network of current social prejudices. According to Bourdieu, cultural practices such as museum visits or concert going, and preferences in those genres such as painting or music, are conditioned by educational level and social origin. Thus, taste functions as a marker of classes (Bourdieu 2010). The growing popularity of feng-shui may also be a counter movement of high a living pace and related to parallel growth in new religions (Hwangbo 1999, 196–97), and

2.5 | Perception of the environment and Cognitive Biases

perhaps the post-modern crisis about the lack of ultimate truth has inflamed this kind of transitional phenomenon.

Assessments and statements shown as examples in the section above are not chosen in order to scrutinize neither one of them. The selection was rather made to combine the opinions of both sides, practice and academia. What these two examples also show is that the fact that Chipperfield as well as Lynch have very well-known reputations, which exposes them to quite a large audience of peers and young practitioners and scholars listening and reading about their views (including this dissertation). However, if not looked at critically, these statements could be amplified and adopted by a much larger realm. To conclude and emphasize, it can be said that cognitive biases and perception can lead to misinterpretations of the spatial reality. This applies especially when facts seem to lead to one particular interpretation and assessment of a situation, however, cognitive psychology has illustrated that one must be careful. This also includes the author, who belongs to the group of Westerners commenting on matters that are inherently Chinese. We must constantly be on guard to remind ourselves that we have to situate our thinking as carefully as we can; traps are easy to fall into when investigating other cultures.

More importantly, it is also something that underpins what is perhaps the most important of these three books, Li Shiqiao’s Understanding the Chinese City, because, as he himself says, the Chinese city’s insistence on its intellectual conceptions, despite dramatic changes, offers not an alternative future but a whole new thinking space for strategies of urban renovation. After a century of ceaseless reform, Li sees the features of the traditional Chinese city not as obstacles to change but as elements that have simply taken time to reformulate themselves into effective strategies under radically different geopolitical conditions (Bracken 2016, p. 164).

2.6 | Synopsis

The goal of this chapter was to lay out the core information that constitute the background of the research.

The chapter has gone through a concise selection of both tangible and intangible factors and processes that have given the Chinese urbanisation its characteristics. These information included discussions on the Chinese philosophy and Asian environmental philosophy, within which the major religions of that part of the world have been examined through the prism of notions influencing the creation of physical space. Further, the chapter has presented knowledge on the geomantic concepts forming the fundament on which the Chinese building traditions have grown. Next, the Chinese urbanisation has been examined through several of thematic lenses: historical, geographical, cultural, societal, administrative, political, and economic (see figure 16).

The last two sub-chapters have been centred on the issues of contextuality in physical space and the matters of the perception of the environment as well as to cognitive

36 Of course, it needs to be added that there are different realities existing at the same time, especially when it comes to the experience of urban space. Different social or age groups experiencing the reality in different ways.
The two most important pieces of output of this chapter was learning about the aspects that, for more than three millennia, have been shaping the Chinese culture and environment, rich in traditions and different to the ones in the western realm. The basis of this is described in this chapter: the Chinese philosophy, spirituality, geomancy, and ancient (building) traditions, which led to the understanding that cities are, irrationally as it may sound, not the goal of building cities in China; the city is not an achievement in its own right. Instead, the city is an element in the struggle to build harmony, balancing the facets and frameworks that enable everyone to pursue their individual way (dao) while staying not only connected but in harmony with nature and philosophical and spiritual scopes of life. The implications of such an approach for the construction of space are massive and therefore justify the investigation of the tangible and intangible factors that have their representation in the built environment. That three-millennia-old tradition is truly alive today: it is taught in schools, it is present in popular culture, and, most importantly, the Cultural Revolution era did not erase it. This culture stands for a concept that is much broader and holistic than the single elements and symbols that may be found in architecture or art. The material representations of traditional Chinese codes have existed in people’s minds for generations and the concepts have survived from ancient times until today not as static dogmas but as evolving references that have stayed true to their origins. These codes exist very naturally in a multitude of aspects of Chinese life. Children grow up learning to decode pictograms – the Chinese characters that form the language – where not only one character stands for and represents a word but it also embodies stories and has a history of changing its appearance, evolving until it became what it is and how it is used today. These individual characters, the Chinese philological tradition of representing stories or images, shape the way children see and learn to decode the world. It is imperative and self-evident to not only take a character, a code, a symbol, an image for its literal message but also to search for the story behind it. Consequently, these cultural elements (codes) are not self-sufficient, autonomous units manifested in urban design on architectural or city scale: they are parts of a superordinate concept. A combination of such codes, if followed correctly, together with the human element, may allow for harmony.
For instance, the phenomenon of 'memory without location'\textsuperscript{37} directly affects how Chinese cities are shaped and is a prime example of a source of misunderstanding on the side of non-Chinese observers, especially westerners, because not sharing this fundamental approach causes a severe dissonance in perception of the built environment. Furthermore, for a non-Chinese person it might be difficult to understand the idea of implementing ‘the unbuildable’ into physical space, as it naturally poses a paradox. This, also, may be seen as a version of Alexander’s ‘quality that cannot be named’\textsuperscript{38} which space can create, invoke, represent, or to which it can refer. Moreover, the Chinese codes do not create a linear path of denotations and connotations or one-to-one pairings; in China, it is an interconnected network of meanings that form a whole that leads to beauty and harmony. The way to achieve this is the dao, through which everyone tries to contribute to achieve this greater whole by creating beauty in what they do.

To recapitulate, the chapter encapsulates aspects of Chinese cities, which need to be taken into account in order to be able to understand the Chinese-ness of cities in China, the very elements that differentiates the Chinese urban environment from the ones elsewhere in the world. On the level of physical space, these have included natural and anthropogenic factors. To the former category belong geographical, climatic, and environmental matters; the latter category consists of notions of philosophy, history, society, economy, spirituality, religion, rituals, and individual space.

The information that have been presented in this chapter serve as a background for the main research, the goal of which is to examine the presence of culture-specific codes in the Chinese built environment. With the aforementioned information having been provided, the research part of the thesis is equipped with rich resources for reference and the reader with the ability to follow the findings of the research more easily.

\textsuperscript{37} See chapter 2.2.1 for further details.
\textsuperscript{38} See chapter 2 for further details.
3 | Methodology and theory: How the cultural layer of built space can be read

Identifying and analysing the architectural and urban codes as a means to get a more detailed understanding of the importance of local context in the built environment is not an entirely novel approach. Researching and understanding the deeper – cultural - meaning of the architecture and urban space surrounding us has a long tradition, especially in the Central European realm. Laws and rules guiding the creation of space that include not only material issues but also non-material ones have been developed since centuries – not just in Asia. The treatise on architecture *De Architectura* written by the Roman architect and military engineer Marcus Vitruvius Pollio and dedicated to the emperor Caesar Augustus, as a guide for building projects was probably written between 30 and 15 BC, and has survived from antiquity until today, known in the Western realm as the first book on architectural theory. In his manifest to the emperor and the community of building professionals Vitruvius states (Vitruvius 1st century BC [1914], Book 1, Chapter 1:3):

In all matters, but particularly in architecture, there are these two points:—the thing signified, and that which gives it its significance. That which is signified is the subject of which we may be speaking; and that which gives significance is a demonstration on scientific principles. It appears, then, that one who professes himself an architect should be well versed in both directions. He ought, therefore, to be both naturally gifted and amenable to instruction. Neither natural ability without instruction nor instruction without natural ability can make the perfect artist. Let him be educated, skilful with the pencil, instructed in geometry, know much history, have followed the philosophers with attention, understand music, have some knowledge of medicine, know the opinions of the jurists, and be acquainted with astronomy and the theory of the heavens.

Against the backdrop of the above excerpt of Vitruvius manifest, the previous chapter served as a more detailed introduction to aspects of China that are relevant (history, philosophy, and geomancy) to provide a steady ground based on which this research is carried out. Around 2000 years after Vitruvius had noted his thoughts on the signified and significance of architecture, urban research has focused on the aspects of the cultural, social, political, or economic meaning of the built environment and developed methods, influenced and shaped by a multitude of disciplines and experts, with which these meanings, in the form of architectural and urban codes, signs, and symbols, can be researched.

Human beings are ‘sign-using animals’ in search of patterns that provide meaning and sense in a system of chaos (urban chaos) and complexity. Considering that the man-made environment is created by a variety of stakeholders based on (political) regulations, (social and economic) agreements, and (spiritual and geomantic) laws over time that spans much longer than one or even two generations, scholars have become interested in analysing the patterns, codes, symbols, and signs that resulted. In the
present chapter, not only the development of the (urban) hermeneutic approach of reading and interpreting the meaning of the environment will be discussed but also how this approach developed and has been applied, foremost in Western cultural realms, and has been revisited in order to understand the Chinese spatial codes of the urban texture and its complexity in a more holistic and inclusive way. Since the difference in the approach to space (man-made and natural) between the West and China, as indicated earlier in this text, is primarily to be found on the spiritual and philosophical levels (this is not to say that there are no other differences, e.g. topographical and climatic, economic, and political), the research methods need to be adjusted in a way that enables extracting information on these levels. Such information is expected to include the afore-mentioned notions of ‘memory without location’, 'unnamed qualities', in short the intangible meanings coded in the Chinese built environment. Considering the research questions as a core driver to select the appropriate research method and having in mind the task to be able to answer the posed questions not only to a satisfying level but much rather to a level that it provides insights and creates knowledge that helps us to deconstruct parts of the urban complexity that the Chinese cities pose to an untrained observer and visitor, decoding the signifiers and the signified of the Chinese built environment may be seen as a well-established method to generate insights on how much local context remains in the built form in China. The research is centred around the challenge of uncovering the layers of Chinese-ness, of contextuality, and cultural specifics manifested in the Chinese built environment. In order to be able to analyse exactly this, the urban environment must be looked at empirically and systemically with methods that allow identifying the significant characteristics that are created through all the factors that in combination formulate the Chinese-ness, as discussed in the previous chapter. Importantly, a contextually sensitive visual explanation needs to accompany the analyses. Many aspects of Chinese culture have oscillated at the focus of interest for both scholars and managers; however, the various visual manifestations of Chinese values are only vaguely comprehended. ‘The cultural construction of social life currently stresses the centrality of the visual, the seen, and the observable (…) There is a general perception that both what is seen and how it is seen are culturally constructed, (…) even amidst globalization’ (Kommonen 2011, p. 367). The present research strives to be sensitive to other aspects, not only ones that influence the built environment directly (such as political decision-making chain) but also indirectly. Especially the latter require a careful insight because they are likely to be more difficult to comprehend for non-Chinese persons: for instance, for the Chinese, colours manifest cultural values and are highly emotional, which renders a visual translation of communication necessary.

This chapter presents and explains the methods applied in this dissertation that are capable of identifying the cultural layer manifested in the Chinese built environment to carry out the research. This introductory superordinate section serves as an introduction to the more detailed descriptions that follow.

This section reiterates the need of an interdisciplinary approach and of contextual sensitivity by arguing that analysing the urban environment with the aim of looking for answers, the existence or absence of global uniformity in the Chinese built environment,

\[40\] Has China lost its “Chinese-ness” or local cultural context due to rapid urbanisation and globalisation in the past decades? For further details regarding the introduction of the research questions and hypothesis see Chapter 1 “Introduction”.

and ‘recurring’ phenomena is an approach that will help to understand today’s urban complexity only to a limited extent. In order to analyse and understand the level of local contextuality existing in the Chinese urban transformation, decoding the selected case studies will serve to find answers. This chapter looks at how the decoding approach combined with interviews conducted with Chinese environmental design experts from practice and academia is applied and on what scales – from the macro, and meso to the micro – of the built environment (the respective case studies form the data pool) the research analysis is carried out.

3.1 Patterns, codes, and signs of the environment

Human interaction and the way we express ourselves and interact with our environment is consciously and subconsciously accompanied by being able to interpret not only each other’s words, mimics and gestures, but also the sign posts (literal and metaphorical) surrounding us in our daily lives. These are codes and symbols surrounding us in such a natural and self-evident way that we can assess, interpret, and understand the meaning, the message they carry, without much hesitation or effort. In fact, the better we know other people, the more proficient we grow in interpreting and extracting messages and meanings from even the smallest sign, sound, or hint of a gesture. In general, codes are representations or placeholders of something that is either not possible to describe or express otherwise; or of messages that are intentionally expressed directly. In other words, codes are used to convey meaning in a subtle way and frequently employed due to sensitivity of the matter or of decorum. Codes can also be understood as representative entities, metaphors of concepts. In the perspective of this research, the (Chinese) built environment in China has certain ideas and thoughts embedded, therefore the codes of the built environment are not to be viewed as direct and literal but rather much more as holistic transmissions of meaning. This phenomenon, of constant decoding and extraction of meaning of our environment and the interaction with it, has been a subject of study of a multitude of disciplines and since generations of research scholars. The process of being able to assign meaning to tangible and intangible symbols and codes, becomes even more interesting when the socio-cultural context is taken into consideration. What meaning does a particular gesture carry in one cultural setting compared to another one?

A significant thought in this regard has been proposed by Alexander and Smith, who wrote:

> because meanings are arbitrary and are generated from within [their] sign system, they enjoy a certain autonomy from social determination, just as the language of a country cannot be predicted from the knowledge that it is capitalist or socialist, industrial or agrarian. Culture now becomes a structure as objective as any more material social fact (J. Alexander and Smith 2006 (2001), 146).

Many and various schools of thought and thinkers have been preoccupied with the notions of signs and codes and their products, mainly focusing on the behaviour of people and the creations of people. Initially, studies revolved predominantly around
language and the arts, with architecture and city-building joining the palette later. The following section of this sub-chapter offers a brief overview of intellectual trends spanning the most of the 20th century (with the period of intense development coming in the post-WWII decades) and their representatives that were investigating the matters central to this thesis.

The discipline of symbolic anthropology, represented by Clifford Geertz, offers a framework which gives prime attention to the role of symbols in constructing public meaning. In his seminal work, The Interpretation of Cultures (1973), Geertz outlined culture as ‘a system of inherited conceptions expressed in symbolic forms by means of which men communicate, perpetuate, and develop their knowledge about and attitudes toward life’ (p. 89) and described the role of anthropologists as try interpret the guiding symbols of each culture. He was one of the proponents of the value of insights provided by common language, philosophy and literary analysis as an explanatory force in social sciences. Geertz developed the approach of ‘thick description’, the essence of which was to explain not just a given behaviour but also its context in such a way that that behaviour would become meaningful to an outsider. The ‘thick description’ is seen by some as an antidote to technocratic, mechanistic ways of carrying out studies of cultures, organisations, and historical settings. Geertz asserted that culture was essentially semiotic in nature. Geertz argued that to interpret a culture together with its symbols, investigators must isolate its elements and specify the internal relationships between these elements; next, they should develop an overview of the system in a way that is general and adheres to the core symbols around which it is organised, the underpinning structures of which the culture is an expression, or the ideology upon which it rests. According to Geertz, systems of meaning produce culture because such systems are the collective property of societies (Geertz 1973).

**Semiotics. Signs and codes of language**

Semiotics, also called Semiology, the study of signs and sign-using behaviour. It was defined by one of its founders, the Swiss linguist Ferdinand de Saussure, as the study of ‘the life of signs within society’. Although the word was used in this sense in the 17th century by the English philosopher John Locke, the idea of semiotics as an interdisciplinary mode for examining phenomena in different fields emerged only in the late 19th and early 20th centuries with the independent work of Saussure and of the American philosopher Charles Sanders Peirce. Peirce defines a sign as ‘something which stands to somebody for something’, and distinguishes between three types of signs. First, iconic signs, if the relationship between sign and meaning is based on similarity⁴¹; second, indicative signs, if the relationship between sign and meaning is based on cause and effect⁴²; and third, symbolic signs⁴³, if the relationship between sign and meaning seems arbitrary. Hassenpflug asserts that this typology is relevant for signs

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⁴¹ An example for an icon can be the little square on the computer screen with a picture of a printer which functions as an icon for the print function.
⁴² An index sign is smoke that can be seen and smelled that correlates with and implies that there is fire, dark clouds on the sky are an index of rain.
⁴³ Symbols, according to Pierce’s, can be non-word symbols such as a cross symbolizing Christianity, a bald eagle for the USA, or a font symbolizing a specific product. Symbols can also be words referring to a meaning that is clearly different from index, such can be unicorn, ghost, or dragon, words that are disconnected from existing or experienced objects or things. Symbols, according to Pierce, get meaning primarily from mental association with other symbols and secondarily from correlation with environmental patterns. For more, see the Appendix.
within an urban context as well (Hassenpflug 2010, p. 17). Peirce also demonstrated that a sign can never have a definite meaning, for the meaning must be continuously qualified. Saussure treated language as a sign-system, and his work in linguistics has supplied the concepts and methods that semioticians apply to sign-systems other than language. One such basic semiotic concept is Saussure’s distinction between the two inseparable components of a sign: the signifier, which in language is a set of speech sounds or their mental representations, or marks on a page, and the signified, which is the concept or idea behind the sign. The Encyclopedia Britannica (2002) explains that Saussure distinguished parole, or actual individual utterances, from langue, the underlying system of conventions that makes such utterances understandable. Further, it states that it is this underlying langue that interests semioticians the most. Peirce and Saussure’s principles have been applied by modern semioticians to a variety of fields, including aesthetics, anthropology, psychoanalysis, communications, and semantics. The French scholars Claude Lévi-Strauss, Jacques Lacan, Michel Foucault, Jacques Derrida, Roland Barthes, and Julia Kristeva belong to the most influential of these thinkers (Hoiberg 2002b).

Semiotics. Signs and codes of the environment

This interest in the structure behind the use of particular signs links semiotics with the methods of structuralism, which seeks to analyse these relations. Saussure’s theories are thus also considered fundamental to structuralism (especially structural linguistics) and to post-structuralism. Structuralism may be described as an interdisciplinary school of thought that tried to transcend the limitations of ad hoc interpretation by grounding analysis in universal systems. Leach, Adorno (1998) put the spotlight on the words of Foucault, who defined structuralism as an ‘attempt to establish between elements that may have been split over the course of time, a set of relationships that juxtapose them, set them in opposition or link them together, so as to create a sort of shape’ (Leach, Adorno 1998, pp. 177–178). Importantly, langue is not limited to written and spoken words; all cultural forms may be analysed by analogy with language and can thus be ‘read’. De Saussure saw the relationship between the ‘signified’ and ‘signifier’ as arbitrary, where the set of sounds composing a word does not relate in any true way to the element of reality it stands for.

Structuralism has found abundant application in architectural theory and critique through the discipline of semiology – the science of signs – which offers ways to ‘read’ and ‘decode’ the built environment. The limitations of earlier architectural critics in ‘reading’ the city (for instance Kevin Lynch’s, who focused strongly on the legibility of architectural features rather than on their semantic understanding) have been exposed by the semiotic approach (e.g. by Eco and Barthes). Structuralism’s own limitations, in turn, include rigidity, which is displayed by a certain insensitivity to a specific time and space; Barthes himself concluded as much by pointing out that readings are always only provisional and will change with time. Undoubtedly, however, this school of thought contributed significantly to revealing the semantic potential of architecture (Leach and Adorno 1998, 177–78). Barthes’s work is also influential in regard to poststructuralism, as he stressed the need for an increase not in functional studies of the city but in readings of the city. The world becomes treated as ‘text’ to be read inter-textually (Leach and Adorno 1998).
1998, 289). In the words of Elizabeth Struthers Malbon, structuralism and hermeneutics may be regarded as "approaches to meaning, as ways of investigating the significance of 'things' – from individual texts to whole cultures and the significance of significance" (Struthers Malbon 1983). Jeffrey Alexander, a sociologist, advocated what he called 'the strong program' in cultural theory whose objective is to demarginalize the role of 'meaning' as a dependent variable that can be "read off" determining, independent variables such as 'social structural forces of a material type'. Instead, he called for a 'structural hermeneutics' from which 'we can reconstruct the meanings that are central to social life' (Alexander, 2005).

Another prominent representative of semiotics was Umberto Eco, who may be described as taking a middle ground with regard to language, which means not seeing language as either univocal or deferring to infinite meaning. Eco's semiotic theory is based on codes. He distinguished between specific and general codes, where the former refer to codes found in particular languages, and the latter to general linguistic phenomena; simultaneously, he uses this distinction to underline the necessity to view codes in their cultural contexts (Leach and Adorno 1998, 194). His essay Function and Sign: Semiotics of Architecture presents the author's application of his general semiotic theory to the question of architecture and the built environment (Eco 1998). He states that there is a system of codes (such as in a verbal language), which could generate a countless number of different messages (Eco 1998, 185). The author labels architecture as a particular challenge to semiotics primarily by pointing to the fact that architectural creations – buildings and other physical objects – unlike the creations of language – speech and written texts – are most of all supposed to function and not communicate. Nonetheless, architecture does function as a form of mass communication. Therefore Eco acknowledges that the first question a semiotic analysis of architecture needs to face, 'is whether it is possible to interpret functions as having something to do with communication, and the point of it is that seeing functions from the semiotic point of view might permit one to understand and define them better, precisely as functions, and thereby to discover other types of functionality, which are just as essential but which a straight functionalist interpretation keeps one from perceiving' (Eco 1998, 174).

Eco draws the distinction between the denotative and the connotative, but notes that sign vehicles (objects which may carry signs) in architecture are able to transmit meaning both by denotation and by connotation (see fig. 17). As a result, a differentiation is made between the primary function—architecture as functional object—and the secondary function—architecture as symbolic object (Eco 1998, 175–76). Roland Barthes (1976) researched in regard to the architectural signifiers Eco, however, differentiates between denotative and connotative messages. Primary functions or meanings are denoted, and secondary (subordinate) functions or meanings are connotated. In regard to 'urban semiotics' (Marc Gottardiener 1994), this function-oriented interpretation needs to be generalized. According to this viewpoint, the essential or substantial meaning, corresponding to the 'nature' of the signifier, is denoted (Hassenpflug 2010, 18).

Architectural denotation can be described as the primary sense of the existence of an architectural physical object – its function. Eco states more loosely that 'the first meaning of a building is what one must do in order to inhabit it—the architectural object denotes a “form of inhabitation”'. Further, Eco postulates that in order for a building to denote its function conventionally it must, apart from making the function possible,
Methodology and theory: How the cultural layer of built space can be read

<table>
<thead>
<tr>
<th>SIGN</th>
<th>cross</th>
<th>a vertical and horizontal rectangle intersecting each other in the centre</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIGN &amp; SYMBOL</td>
<td>cross inside a house</td>
<td>a cross inside a gabled roofed house</td>
</tr>
<tr>
<td>SYMBOL &amp; CODE</td>
<td>cross on top of a house</td>
<td>a cross on the centre top of a gabled roofed house</td>
</tr>
<tr>
<td>DENOTATION</td>
<td>(central, primary functions and meaning)</td>
<td></td>
</tr>
<tr>
<td>CONNATION</td>
<td>(additional, secondary - culturally embedded, social, historical - function and meaning)</td>
<td></td>
</tr>
<tr>
<td>SIGN</td>
<td>medicine, first aid</td>
<td></td>
</tr>
<tr>
<td>SYMBOL</td>
<td>hospital, medical aid facility</td>
<td></td>
</tr>
<tr>
<td>CODE</td>
<td>church, spiritual, or Christian facility, wedding chapel, facility with function from 'the West'</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 17. Connotation and denotation: an example.**

denote it clearly enough for it to be practicable and desirable. This thought is completed by the observation that ‘all the ingenuity of an architect or designer cannot make a new form functional (and cannot give form to a new function) without the support of existing processes of codification’ (Eco 1998, pp. 176–178). Architectural connotation, in turn, is the potential of conveying an ideology of the function of a building. In the built environment, it can be simply explained for instance by speaking about a roof or a window: they denote purely technical functions – providing shelter from rain and the access of light – but the forms they may take on may connote additional meanings, such as wealth or power or openness. Moreover, connotation may be subservient to the denotation or may, in special cases, even be more important. Among the examples used by Eco, there is one of the throne: physically it is a chair, whose primary function (denotation) is thus to seat a person; that particular chair, however, is special because it is open for one person only and symbolises that person’s power (Eco 1998, pp. 178–179).

According to Eco, architecture and the user or inhabitant or observer communicate. The communication happens through the codes and symbols manifested in the architecture but their message is only understandable and communication only possible if the codes and symbols and their meanings are understood (Eco 1998, 174). He puts architecture at a prominent spot:

> If semiotics, beyond being the science of recognized systems of signs, is really to be a science studying all cultural phenomena as if they were systems of signs—on the hypothesis that all cultural phenomena are, in reality, systems of signs, or that culture can be understood as communication—then one of the fields in which it will undoubtedly find itself most challenged is that of architecture (Eco 1998, 173–74; italics from the original).

Eco has also attempted to establish whether architectural codes are able to form a metalanguage:

> Admittedly such analytic possibilities might have to be explored if one had to compare architectural phenomena with phenomena belonging to
some other 'language', and thus had to find a metalanguage capable of
describing them in the same terms—for instance, one might wish to 'code'
a certain landscape in such a way as to be able to compare it with certain
proposed architectural solutions, to determine what architectural artifacts
to insert in the context of that landscape, and if one resorted to elements of
the code of solid geometry (pyramid, cone, etc.) in defining the structure of
the landscape, then it would make sense to describe the architecture in the
light of that geometric code, taken as a metalanguage (...). But the fact that
architecture can be described in terms of geometry does not indicate that
architecture as such is founded on a geometric code (Eco 1998, 184; italics
from the original).

Eco classifies three different variants of codes to be found in the built environment:
technical codes, syntactic codes, and semantic codes: 1. technical codes, 2. syntactic

To summarise, in verbal communication the notion is clear – there exists a language of
codes and it is equipped in a set of connotative sub-codes. In carrying out an overview
of visual codes, however, it shows that a list must made of levels of codification, which,
consequently, requires various clarifications of the concept of code and the different
types of articulation that codes realise. ‘This should be kept in mind when considering
codes in architecture, for one might be tempted to attribute to an architectural code
articulations that belong really to some code, either more analytic or more synthetic,

Phenomenology and the environment

The ideas of phenomenology and hermeneutics should also be mentioned. The shortest
definition of phenomenology states that it is the study of how phenomena appear.
Leach (1998) points out, however, that a receptivity to the full ontological potential
of human experience is a requirement to carry out a phenomenological analysis and
that it ought not happen at a shallow, superficial level of reception; instead, it should
entail a deeper, interpretative dimension in the form of hermeneutics. Engaging with
architecture should involve not only the sensory perception but also an openness to the
potential to discover some truth; hermeneutics is the tool allowing for an understanding
of that truth. The works of various thinkers (including Heidegger, Gadamer, Lefèvre)
have been concerned with exploring the ontological significance of architecture; they
saw space not as an abstract, neutral space, but as the arena of lived experience, and
thus to oppose what they saw as a tendency to perceive space as abstract and remote

Symbols and narratives of the environment

Simon Parker brings attention to the notion that the narrative field of symbolic power
gives shape and variety to the urban experience. Pierre Bourdieu wrote about the function
of symbolic power, saying that 'symbols are the instruments par excellence of "social
integration"; as instruments of knowledge and communication (...), they make it possible
for there to be a consensus on the meaning of the social world, (...) which contributes
fundamentally to the reproduction of the social order' (Bourdieu 1991). Furthermore,
'the city provides both the context and the constituency for the material configuration of
these "images of man" in the built landscape, in the production of space, the distribution
of population and resources, and in its external relations with its hinterland and other cities' (Parker 2013, p. 535). Gurr and Butler, discussing the ways in which inhabitants of cities deal with the set, specific urban environments and the tactics they employ for that purpose, bring up the words of Lefebvre, saying that in order to cope with 'representations of space', understood as 'conceptualised space, the space of scholars, planners, urbanists, technocratic sub-dividers, and social engineers', urban dwellers make symbolic use of its [the space's] objects via forms of performative or imaginary cultural practices. From there, the concept of urban culture is derived, which describes it as a particular set of practices related to culture that are both conditioned by the space where they take place and able to shape that space. (Gurr, Butler 2012). Parker also pays attention to Lefebvre, who observed that representational spaces have their sources in history (of both a society and individual people) and that social scientists too frequently fail to set representational spaces 'alongside those representations of space which coexist, concord or interfere with them; they even more frequently ignore social practice' (Parker 2013, p. 538). Moreover, the city is not a passive object of study but it also 'talks back'. This point of view is reflected in Zygmunt Bauman’s argument in the context of hermeneutical sociology that describes the task of urban theory as to 'be permanently engaged in discourse with its own object'—or at the very least to recognize that the city is not a passive object of study but an interlocutor that also 'talks back' (Bauman, 1978, p. 246, in Parker 2013, p. 539). Finally, it can be posited that if the urban theorist is in some sense a critic of urbanism, then it is useful to conceptualize the city as a multi-authored work whose socioeconomic functionality, while important, cannot be seen as determinant of its polymorphous form (Parker 2013, p. 532).

The city also further reproduces society. Parker follows Ricoeur in agreeing with the premise that what we call 'metropolis' is a space that concentrates networks of organisation and administration as well as social institutions that reproduce society more widely. Moreover, the collective image people hold of their city is a part of what may be called the 'city-phenomenon', which Ricoeur calls as important as the reality of the situation; essentially, it means that the city always has an image in the minds of its society or community. Parker also states that Ricoeur’s 'insistence on the reflexive ontology of the city is central to the urban philosophy of Walter Benjamin and Henri Lefebvre' (Parker 2013, p. 533). Perhaps an interesting take on this is can be offered by a work of fiction that has as its object not a city but a defensive structure. Leach brings up a story by Franz Kafka, The Great Wall of China. In it, the wall is presented as an ineffective defensive device built by people from the south searching for protection from the people from the north, the story points out that the creators of the wall have no real knowledge about the northerners, whom they depict as 'savages with great pointed teeth' and that probably the best protection from such an invasion is the distance that separates the two peoples. In the story, thus, the wall is built on suspicion, and its role, instead of keeping out 'the other', is actually to bond those circled by it. The very construction of the wall unites the people into a 'ring' of brothers and admirers of the emperor (Leach, Adorno 1998, p. 18).

After introducing the phenomena of symbols and codes abundantly present in the realms of human experience, from personal interaction to the built environment, as well as their many facets such as narratives, the next stage of discussion outlines the ways and methods of reading, decoding, and interpreting the socio-cultural codes and
3.2| Decoding and analysing the built space

The man-made environment follows certain rules – some of which are also man-made and some are objective, physical, and natural – and therefore patterns and codes can be found in it. In this regard, it is similar to languages and various products of language. Moreover, the built environment is a product of culture and of characteristics of societies. As a result, the built environment is equipped with an abundant layer of symbolic – codified – meanings. Cultural processes, identity, context are all reflected to some extent in the man-made space. Architecture and urbanism are expressions of non-material phenomena, and the built environment can be seen as the materialization of all kinds of realities (Mekking, Roose, and Huang 2009). How, then, is the architectural data and environment ‘scanned’, ‘read’, and ‘decoded’? It could be argued that every observer has a ‘right’ way of their own of reading and interpreting the physical environment.

Urban pattern and space syntax approach

Over the past decades, numerous renowned scholars from various disciplines have picked up the topic of the codes of the built environment. The following serves as a general introduction of the different methods used to analyse the built environment (in different scales, periods, and areas of the globe); it offers an introduction to some well-established methods that have been used so far in analysing the built environment with the aim of identifying patterns and codes, that – by analysing them – help to reduce the complexity of the spatial urban environment.

A more user- and human-centric, quantitative research approach can be found in the work of the architect and urban morphologist Bill Hillier, *Space is the machine: A configurational theory of architecture*, which examines urban phenomena with the space syntax method by analysing people’s movements in specific urban spatial settings. The Bartlett Space Syntax Laboratory in London uses the method in regard to spatial implications resulting from quantifiable data on observed function and social network analysis so that metric properties of space can be analysed in relation to social and economic measures (Hillier 1998; Batty 2013; Raheja, Borgmann, and Pillai 2015). One of the arguments to apply the space syntax method is to measure the effects of spatial interventions on aspects of social, organisational and economic performance in existing built environments and new urban areas.

Another significant method focused on analysing codes in the built and natural world that deserves description is Christopher Alexander’s pattern language. The author, reasoning that users are more sensitive to their needs than any architect could be, produced and validated a ‘pattern language’ to empower designing and building at any scale. In his book, *A Pattern Language*, Alexander argues that all design, architectural and urban, good and bad, is done using a pattern language, and each design has its individual pattern language; in it, he lists 253 patterns for towns, buildings, and construction (Alexander 1977). After the initial attempt to formulate the principles that lead to a good built environment as patterns, or recurring design solutions, Alexander has come to believe that patterns themselves are not enough, and that one needs a ‘morphogenetic’ understanding of the formation of the built environment. In order to
contribute to the larger and more sustainable understanding of how cities evolve and transform, and how the urban physical environment undergoes processes of innovation and re-innovation, it is necessary to understand the fundamental urban patterns and the city's 'DNA'. The mostly static patterns from 'A Pattern Language' has been later amended by more dynamic sequences, which describe how to work towards patterns (which can roughly be seen as the end result of sequences). Sequences, like patterns, promise to be tools of wider scope than building (just as his theory of space goes beyond architecture) (Alexander 2002a). He identified fifteen geometric properties which tend to accompany the presence of life in nature, and also in the buildings and cities we make (Alexander 2002b). In his own summary of his work, he stated that,

I do not, directly, blame all the architects who have made these buildings in so many places on earth. I believe it is inappropriate to feel anger towards them ... Rather, I believe that we must acknowledge that the architects (often our own colleagues) who drew these buildings, and then had them built by methods and processes far from their control, deserve our sympathy for being placed in an impossible position. What has caused the new tradition of structure-destroying forms of this era, are mainly the machine-like processes of planning, conceiving, budgeting, developing, construction contracting, construction labour, and so forth. The architects who fully accepted the modern machine have hardly been more than pawns in the game which is much larger than they are (C. Alexander 2004).

The method of space syntax as well as pattern language systematically analyse spatial phenomena and the effect that spatial elements have on the environment and human interaction. While focused on patterns and codes of the built space, these two presented methods do not touch upon aspects and facets of cultural implications. In the following, the permeation of the interdisciplinary method of semiotics into the disciplines responsible of creating the built space is described. This, however, is closely related to the schools of thought mentioned in the previous sub-chapter, most prominently semiotics.

Semiotics. Decoding the built space

The research presented in this dissertation, however, lays the strongest emphasis on semiotics. Different narratives exist on how space could be interpreted and read. There are no 'right' or 'wrong' ways of decoding and interpreting space. One has to have 'access' to the contextual layer and cultural influences in order to read it within the context in which the buildings have been created and 'loaded' with respective codes. Based on the understanding that the physical environment carries meaning (that urban space is composed of elements of the signifier and signified), analysing the urban codes, or semiotics is an interdisciplinary approach to better understand the physical environment and its change.

Urban semiotics, also called the semiotics of the built environment, is the 'method of spatial signs of cultural origin', in which fields of history, linguistics, cultural geography, urban design, landscape architecture, and architecture meet. This method, as described in the previous sub-chapter, is based on the understanding that the codes of the physical environment are formed by and created within their cultural context and are therefore universal phenomena. Looking at the built environment in order to
understand the various processes of development and increasing complexity requires
the researchers to be able to read and therefore decode it first, which then enables them
to understand the respective urban environment to a much deeper extent. This research
method was first introduced in relation to the physical environment by scholars such as
the French philosopher and sociologist Henri Lefèbvre (1972; 1991), who focused on
the spatial situations of European cities, as well as the Italian philosopher, semiotician,
and literary scholar Umberto Eco (1976; 1988). It has been developed further by urban
sociologists such as Mark Gottdiener (1966, 2008, 2011). Umberto Eco contributes, as
one of the first, to the idea that spatial artefacts most of all transmit iconic messages
(1979, 1988). Hassenpflug postulates that ‘from the viewpoint of semiotics, elements of
urban space become carriers of meaning or sense (signifiers) that refer to meaning or
sense (signified)’ (Hassenpflug 2010, p. 18) and further argues that:

As method, the semiotics of urban space (or urban semiotics) might be a
helpful instrument. According to this research method, prominently
represented by scientists such as Roland Barthes, Henri Lefèbvre, Umberto
Eco, and Mark Gottdiener, not only street and traffic signs, light signals,
advertisement, facade decoration, etc., but also elements of the built urban
environment, such as buildings, places, streets, dwellings, city centers,
etc., can be interpreted as signs – and thus compared with the medium
of language. By doing so, the functional and aesthetic understanding of
space is complemented by a further dimension, the semiotic, which seeks
to understand spatial phenomena as signs and thus as carriers of meaning
or sense. These three dimensions merge, overlap, and influence each other
reciprocally (Hassenpflug 2010, 17).

Decoding the physical urban environment by looking at semiotics (as introduced by
Eco) present in it and at the codes of the built urban space had its peak in the 1970s
and 1980s, it lost its significance after that time but is now being rediscovered in the
search for means of coping with the increasing complexity of cities in the realm of
globalisation and abrupt urban development.

Gottdiener and Lagopoulos (1986) define urban semiotics as the study of meaning in
urban form as generated by signs, symbols, and their social connotations. Most urban
semiotic theory is based on social semiotics, which considers social connotations,
including meanings related to ideology and power structures. Urban semiotics
focuses on material objects of the built environment, such as streets, squares, parks,
and buildings, but also unbuilt cultural products such as building codes, planning
documents, unbuilt designs, real estate advertising, and popular discourse about the
city, such as architectural criticism and real estate press. Urban semiotics frequently
puts itself in opposition to behavioural geography (criticized for too strong a focus on
the denotive level of communication) and architectural semiotics (perceived to be
overly attached to linguistic models of semiosis and thus unable to adequately consider
the social connotations of signs (Mark Gottdiener and Lagopoulos 1986). Gottdiener
further says:

Urban semiotics concerns the articulation of ideology with settlement space
[where that space is a city]. This branch of semiotics possesses several
objects of analysis, including the material structure of the built environment,
the image of its inhabitants, the codes of meaning found articulating with
space, and the discourse of urban planners, analysts, and academicians
(Mark Gottdiener 1983).

He describes urban semiotics as dealing with a better understanding of already existing
architecture and urban fabric; and as aiming at reading and comprehending the built
environment in an effort to enhance the socio-cultural and intercultural understanding
of planning and urban design. Fundamentally, urban semiotics postulates that elements
of urban space are carriers of meaning or sense (and are referred to with the use of
the linguistic term signifiers) that contribute to meaning or sense (signified). Drawing
on Barthes and Eco, Hassenpflug explains that primary functions or meanings
are denoted, while secondary (subordinate) functions or meanings are connoted:
for instance, a chair denotes sitting, while it may connote backache. The important
matter is that denoted meanings, however being partly subject to the observer’s
perception, claim inter-subjective validity and may be considered universally valid.
Connoted meanings, however, are subjectively assigned to the signifier, which evokes
associations or projections. Connotations may become denotations when a dominant
enough majority of observers ascribes to them the same messages, which then gives
them inter-subjectivity (Hassenpflug 2012, 165, 167). Further explanation is offered by
Barthes (1998):

The semiological approach addresses how architecture can be read
semantically. In so doing it opens up a domain often either not fully
appreciated by architects, or overlooked entirely. Indeed architects have
tended to stress the functional aspects of architecture to the detriment of any
semantic dimension. Yet, as Barthes observes, humankind has the capacity
to attach meaning to even the most technological of artefacts (Leach and

Barthes explains his refraining from touching on the matter of methodology of carrying
out a semiology of the city by calling the best approach as ‘a certain ingenuity on
the part of the reader’. He calls to not multiply surveys or functional studies of cities
but to instead turn attention to readings of cities. With this as a starting point, Barthes
speculates that reconstructions of languages or codes of cities could be made and
then, consequently, a more scientific approach might follow: definitions of units and
syntax of such urban languages. Finally, Barthes issues a warning against seeking fixed
and rigid signify of the discovered units ‘because, historically, these signifyed are
always extremely vague, dubious and unmanageable’ (Barthes 1998).

Lefebvre calls the tendency to reduce space ‘to parcels, to images, to façades that are
made to be seen and to be seen from (thus reinforcing “pure” visual space)’, present in
the designing phase of an architectural development, a tendency that degrades space;
he refers to the façade as a measure of social standing and prestige. From this premise,
Lefebvre goes on to say that architectural discourse too often imitates or caricatures
the discourse of power and that it suffers ‘from the delusion that “objective” knowledge
of “reality” can be attained by means of graphic representations’. Importantly for the
discussion in the Chinese context – because (Lefebvre 1998, pp. 137–138) speaks
about the Western realm; therefore it remains open for examination whether his claim
holds for the Chinese built space – he states that the architectural discourse too easily
becomes 'a moral discourse on straight lines, on right angles and straightness in general, combining a figurative appeal to nature (water, air, sunshine) with the worst kind of abstraction (plane geometry, modules, etc)' (138).

3.3 Decoding and analysing the Chinese built space: Hassenpflug’s The Urban Code of China

The layers that compose the city and the facets that create the specific atmosphere of a city as well as the stakeholders involved in the process of shaping the cities can be described as consisting of architects, politicians, planners, historians, economists, philosophers, engineers, theorists, ecologists, biologists, geographers, as well as activists and feminists - the list is potentially without end. Cities are organisms shaped individually by their environments and inhabitants as well as all other mentioned factors of influence. China and the Chinese cities have undergone a different historical process than European and traditional western cities. The urban research scholar Li Shiqiao, among others, already raised the question of possible boundaries that the research methods and categories of knowledge - well-rehearsed in the Greek thought and systematically practised in Western academia, developed in and for the Western realm – face when applied crossing cultural borders. These approaches and canons of knowledge, constructed in a specific cultural context and language, were not primary nor representative in the formation of a large number of cities in the world (Li 2014, XIV). Perhaps, different measures are needed and the application of methods traditionally used to investigate and analyse cities might need rethinking. European philosophies, theories, and approaches do not seem to be applicable without adjustment and re-contextualisation in the context of Chinese cities; they quickly reach their limits when these well-established existing methods are adopted without having the specific different environment in mind.

The awareness of differences in connotations of codes due to cultural specifics surrounds us even without travelling across borders with significant cultural differences. Information accessible digitally and around the world uses the everyday codes prominently in a particular cultural setting, such as the different colour-coding of the stock exchange markets of the eastern hemisphere compared to the western. As shown in figures 18 and 19, on the displays of the stock exchange in China the colour red is used with a clear, even literal, connotation of positivity, as all positive numbers are displayed in red, whereas the negative numbers are presented and colour-coded in green. The reverse is the case in western cultural realms, as visible on the photographs of the stock exchange in New York, figures 20 and 21. In this case, the understanding, reading, interpretation, and connotation of colours is the reverse in these different cultural settings: positive numbers on the one hand represented in green, understood as a symbol of hope, and calmness in the western realms, and on the other hand, at the Chinese stock exchange market displayed in red, which traditionally stands for happiness and joy and historically use by the emperor and close relatives only.
Artists, such as Wang Wei (2012), have used the awareness of these basic but fundamental differences in interpreting the codes and symbols of other cultural realms in their works that is displayed internationally. Architecture and the urban built environment, unlike art, are created, shaped, and transformed not by individual creative minds but much rather by a multitude of experts, decision-makers, and sometimes several generations of users and inhabitants, working together in concert to create the urban environment.

On the one hand, this multitude of involved stakeholders makes it more complex, but on the other hand, analysing the cultural layers of these physical manifestations makes it even more interesting and meaningful in the realm of answering the question of existence or absence of global uniformity in the Chinese built environment and the level of local contextuality existent in the Chinese urban texture. The thick layers that compose the Chinese environment have their own intrinsic laws, stemming from the rich tradition and history developed over centuries. Trying to analyse and understand them, especially as an outsider, means trying to understand the centuries-old traditions and history first. Before being able to draw comparisons and parallels to other rich cultural realms around the world, the Chinese environment needs to be looked at independently and systematically, especially when the aim is to decode and therefore identify and explain the cultural symbols manifested in the Chinese environment. The study of

(Wang Wei 2012)’s mosaic art *Natural History IV* displayed at an exhibition in Berlin, Germany, as well as several installations at the Gertrude Contemporary Gallery, Melbourne, Australia 2012, show a pattern from Dongguan in Guangdong province. Wei has created a large mural, inspired by a mosaic pattern, playing with the observer and the different messages received by different audiences, depending on their access to the cultural symbols and codes used in the art work. Although to Western eyes the mosaic art merely seems to be an abstract pattern, it is actually a cultural marker in China with very particular connotations. Presenting such historical or cultural references in the context of an exhibition opens up mental spaces for the beholder who, as Wang Wei says, first completes the artwork.
semiotics is the study of signs and symbols and their use or interpretation based on their context. Only when the context of the symbols and codes is given an interpretation and a possible explanation of their meaning, is an understanding of their social and cultural connotations is possible.

Taking into account the rapid development of Chinese cities in an extraordinary time span, the body of research analysing the urban environment in China, especially addressing a non-Chinese audience, has only been growing in recent years. Dieter Hassenpflug, an urban sociology scholar with a background in economics and philosophy, pioneered with his approach of analysing and identifying the cultural layer of Chinese cities by decoding the signs and messages manifested in the built urban environment. His book is dedicated mostly to architects, urban planners and designers, urbanists, or urban researchers, such as urban sociologists, urban semioticians, urban geographers, i.e. everybody who has any kind of professional interest in the basic structure of the Chinese city as a socio-cultural spatial phenomenon. In his research, published in the book *The Urban Code of China* (Hassenpflug 2013 (2009)), first issued in German and due to its success translated to English and Chinese, Hassenpflug uses the method of decoding the Chinese urban language, by adjusting the 'reading' of the built environmental codes China's to observe them within their historical and cultural backgrounds.

**Research approach and Hassenpflug's objective**

Hassenpflug's objective is to understand how the Chinese city is different in its composition, structure, and texture compared to the cities with which a European observer is familiar. His research of reading the city does not primarily focus on Beijing, Shanghai, Xi'an, Shenzhen, Harbin, or other specific Chinese cities; the interest lies in the genuinely Chinese nature of these cities, their generic characteristics, with focusing on those characteristics that all Chinese cities, more or less, share. Hassenpflug states that in order to understand the Chinese city, its spatial code must be known. If not, the danger exists of transforming it into a 'screen' for both subjective and merely superficial Western projection. It is possible to read the city because urban space offers a socio-cultural 'syntagma': a system that is, in principle, open towards the art of structural interpretation of meaning. The purpose of this type of hermeneutics, for which Hassenpflug employs the technique of superposition (Hassenpflug 2011, 54; 2006), is to reveal the immanent interior relationships between urban spatial signs and socio-cultural messages. Other urban research scholars such as Gurr (2015) have discussed Walter Benjamin's superposition from different angles, referring to the "interpenetration and superposed transparency" of different times in a given space as the "perception of space [unique to] the flâneur" (Benjamin 1999, 546): "Thanks to this phenomenon, anything that ever potentially happened in a space is perceived simultaneously. Space winks at the flâneur: ‘Well whatever might have happened here?’." (Gurr 2015, 30). In summary, one can argue that Hassenpflug understands superposition as a technique that is voluntarily and consciously applied to perceive and understand space, while

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46 Der urbane Code Chinas (Hassenpflug 2009).
47 For further explanation, see urban language in the glossary.
48 Hassenpflug uses the term urban and architectural 'sign' from the German word 'Zeichen' ('architektonisches Zeichen', 'urbanes Zeichen' und 'Zeichensystem') Hassenpflug 2013 (2009).
other scholars interpret Benjamin’s superposition as involuntary; as something that happens to an observer who wanders in the urban environment.

The city displays characteristics similar to text consisting of letters, syllables, and words. To comprehend it requires knowledge of the language in which it is written in order to improve and deepen our knowledge of China’s spatial language – with the goal of enabling us to separate the essential from the accidental (Hassenpflug 2010, p. 19). Hassenpflug refers to Umberto Eco’s observation of languages (Italian and Chinese) having common grounds and as Eco states that they follow certain codes, however, a code found in one language can not be expected to be present in another language (as different as Chinese and Italian are). This can be transferred to the built environment, where codes are existent across the world as a mirror of culture and society, where they take different shapes, forms, and expressions in different areas of the world.

[...] both Chinese and words articulated in the phonemes of the Italian language can be seen as a matter of amplitudes, frequencies, wave forms, etc., in radio acoustics or when converted into grooves on a disk does not indicate that Chinese and Italian rest on one and the same code; it simply shows that the languages admit of that type of analysis, that for certain purposes they can be reduced to a common system of transcription “[...] but that does not lead us to believe that the Mona Lisa should be analysed with the same instruments used in analysing a mineral specimen (Eco 1998, p. 184).

According to Hassenpflug, urban signs do not permit, as in Umberto Eco’s example of the chair (as signifier) and sitting (as primary function), an easy assignment of convincing messages. In urban semiotics, particular knowledge is required in order to trigger the process of abduction⁴⁹ and begin salvaging the supply of meaning

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⁴⁹ See abduction in the glossary.

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Figure 22: Signifier and signified (Hassenpflug 2010, 18)
incorporated in urban signs. This knowledge is provided by the history and culture of Chinese society. With Walter Benjamin's 'superposition', i.e. 'remembering the new', Hassenpflug finds something akin to an epistemological 'key' that permits accessing the signifiers and the meanings hidden in their signals (see fig. 22) (Hassenpflug 2010, p. 140). The approach to the Chinese city is as follows: only a structural hermeneutics of its typical (idiosyncratic or specific) shapes and forms is capable of achieving a morphological integration of identified meanings that allows the researcher to recognize their 'sinicity'. Hassenpflug explains further that it is necessary to embed separate interpretations within a system of socio-cultural knowledge in a way that is coherent, rational, and transcends particularistic decodings. We have to complement this with a syntagmatical explanation of the interrelation of the signifieds' content (the structure) (Hassenpflug 2012, p. 168).

A reading of city elements, as illustrated in figure 22, that focuses on the morphological dimension of the Chinese city and thus aims to break the socio-cultural code of the city only with a sporadic identification of urban signs and related meanings is, however, not to Hassenpflug's satisfaction; nor is the abductive identification of an individual element (such as the hypothesis of an introverted concept of space in residential compounds) as expression of Chinese traditions as such sufficient to serve as proof for the 'sinicity' of urban spatial production in contemporary China. An example for his claim is given in the following way: "We need a framework that allows us to organize the particular elements according to their respective degree of affiliation or proximity to what we describe as "sinicity"" (Hassenpflug 2010, pp. 140–141).

The body of knowledge that Hassenpflug uses to approach the task of finding the urban code of Chinese cities is composed of social sciences and cultural studies on the one hand, and Chinese history (cultural history in particular) on the other hand. He refers to the requirement of an interdisciplinary body of knowledge of China's history, its traditions, its society, its way of thinking, its actions. Only if referred to this vast body of knowledge is it possible to decipher the messages offered by China's built urban environment in an informed way. Hassenpflug reinforces the mode of perception informed by semiotics for observing spatial phenomena with an integrative, holistic body of knowledge on the particular characteristics of Chinese history and culture. Hassenpflug discusses the Challenges of objectively reading the urban language in China, while Lefèbvre describes this challenge of reading and decoding symbols (tangible and intangible) with the following words: 'a white sheet of paper, the poorest of texts' is the one that can be read best (Lefèbvre 2006 (1996), p. 192).

**Hassenpflug’s approach on Chinese-ness**

Only when the urban signified are detected according to their respective degree of affiliation or proximity to what Hassenpflug describes as 'sinicity', as a result of a 'cultural construction' can the process of semiosis be considered as completed. It is Hassenpflug's objective to venture past the uniqueness of each individual urbanistic phenomenon, straight to the heart of the Chinese city, its syntax, its code, he searches, with empirical observations, to illustrate what is common to individual Chinese cities – and not what sets them apart. The author describes these shared characteristics

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50 More on this term is included in the section 'Hassenpflug’s approach on Chinese-ness' shortly below.
as the ‘sinicity’, its interior structure, of the Chinese city (Hassenpflug 2010, p. 155). The neologism ‘sinicity’, that is used by Hassenpflug to describe the Chinese layer of the urban texture was created by Roland Barthes and in his use characterizes a term composed of ‘rickshaws, ringing bells, smoking opium’ etc., at that time, also reflecting the view that the ‘French petty bourgeoisie’ had of China (Hassenpflug 2010, p. 161). Hassenpflug, however, uses the term in today's Chinese context, including latest Chinese typical fashion and status symbols (e.g. European-branded handbags and cars), as well as the imported and 'sinicized' fast food retail (Hassenpflug 2010).

**Hassenpflug's conclusions**

Hassenpflug's analysis of Chinese urban spatial phenomena is focused on 'empty urban space', 'closed and open urban space', residential typology, which he refers to as 'swinging lines and dancing dots', 'urban fictions' (the newly built satellite cities), as well as 'the compact city', which includes a variety of spatial structures and scales (vertical urban blocks, urban villages, hyper-growth, and river-jumping). After analysing and decoding the above mentioned spatial elements in respect of finding the overarching and common 'sinicity' of Chinese cities, their code, Hassenpflug concludes with two main and several subordinate results. Firstly, Hassenpflug provides a list of 19 main urban codes developed based on his research (see fig. 23) and secondly, these Chinese urban codes are accompanied by the following assessment of the Chinese city, its 'sinicity', regarding the processes of westernisation:

China is in the process of reinventing the city as such for its own purposes – and is willing to explore unusual means to achieve this goal. On the other hand, we can assume that the idea of the city in China possesses a certain resilience, where a more or less unchangeable set of traditions, social patterns, and cultural rules are effective that significantly limit the flexibility of the idea of the city. Thus, China's common desire of orienting itself on the West in urbanistic terms always reaches its limits in the inertia rooted deeply within its culture. We have again and again encountered this inertia, these forces of gravity, in our analysis of cities and spaces. But this not only helps us to understand China's urban present, it also indicates that China, despite all changes, will remain faithful to itself, in dimensions both surprising and tremendous. (Hassenpflug 2010, p. 22)

Hassenpflug finds both situations present in the Chinese urban environment, one that is generally and inherently Chinese, despite the vast influences of foreign influences on all levels of daily life as well as creation of space, and the other where spatial situations have lost or not yet found their context and have become 'heterotopian' places.
a dualism of open and closed space that emphatically determines the basic structure of the Chinese city;

a preference for private or community-related spaces compared with public or also society-related spaces;

the common practice of designing residential space as exclusive, closed spaces or ‘urban villages’;

an equally clear and creative adherence to the introverted spatial traditions of China in the diverse forms of neighborhood courtyards;

the logical combination of linear and perimeter block structures in the type of the closed neighborhood with a commercial ‘frame’ (‘bracket’) structure;

the integration of commercial, retail and service related functions into orientation-free perimeter block structures, especially for provision on neighborhood level (Nahversorgung);

an adherence to the tradition of southern orientation in residential architecture, determined by climate, yet imbued with social status;

the creative advancement of modern linear structures into ‘swinging lines and dancing dots’, into tiered setback arrangements (cascades, grandstands) and picturesque residential landscapes;

a relatively high degree of coverage of neighborhood courtyards, private and public parks, continuing the tradition of the Chinese garden of harmonizing the artificial and the natural;

the social programming and thus valorization, through its commercialization and communization (Vergemeinschaftung), of purely functionally determined, otherwise meaningless open space (residual space);

complementing noble and commercial urban open places with public community places, a type tending towards civic space with societal connotations;

the development of the both compact and car-friendly basic structure of ‘great street and vertical block’;

the utilization of roof symbols, light sculptures, auspicious names and numbers, facade decorations, and increasingly also architectural languages for the creation of distinct neighborhood brand identities;

a certain inability or unwillingness to recognize and utilize the aesthetic potential of facades, surprising from a European point of view, yet rooted in introverted traditions;

the creative transformation of urban sceneries comprising functionally determined building facades, bridges, streets, and sidewalks into urban media landscapes (media facades) transmitting messages in both a rich as well as redundant manner;

a combination of the luxurious and the serial in numerous neighborhoods of the upper class, hardly imaginable and generally unacceptable from the view of an enlightened Western individualism;

the excessive (though transient) use of urban and architectural fictions for the dramatization of open urban theater stages that can be interpreted as means for social distinction and iconic representation of the new China;

an urban development paradigm that is oriented on urban design utopias and fashions, lost in imagery, and unhampered by discussions on identity;

initial steps towards a reconstruction of linear urban centrality with hierarchically structured spatial sequences against the background of a currently still weakly developed conceptualization of centrality, oscillating between linear and nodal forms on the one hand, and formlessness on the other.

Figure 23: Elements of the urban code of China (Hassenpflug 2010, 158)
3.4 | Discussion of the previously presented methods of decoding built space

Analysing signs and symbols as a means to understand the message they are sending is sometimes unsuccessful if the observer does not have the tools to decipher the code. These tools of decoding are inevitably interwoven with the context within the symbols and signs, which are created and loaded with meaning. The cultural layer of space leads inevitably to the methods of semiotics of urban and architectural space developed in the 1960s. Analysing the built space with the aim of identifying reoccurring patterns and codes can be executed with a variety of methods, as described earlier, such as the qualitative approach of pattern language developed by Christopher Alexander or the quantitative method of space syntax analysis. These approaches, however, do not allow the analysis of cultural specifics and context of the spatial environment to the extent the urban hermeneutic method of semiotic analysis does. Reading and deciphering the built environment to access the meaning, the connotation, of existing codes and symbols, however, also has its boundaries.

Semiotics

Lefèbvre finds the codifying approach of semiology, which seeks to classify representations, impressions, and evocations, unable to cover all facets of the monumental (one of his interests of spatial phenomena was ‘monumentality’), because ‘it is the residual, the irreducible – whatever cannot be classified or codified according to categories devised subsequent to production – which is (…) the most precious and the most essential (…)’. To explain, he uses the example of a cathedral, where the use of the monumental space is designed to supply answers to all the questions posed in the minds of its visitors. Inside the cathedral, they listen to the noises, the singing, they smell the incense, step into ‘a particular world, that of sin and redemption’, take part in an ideology, and finally contemplate and decipher the symbols around them – all that means to Lefebvre that the ‘users’ of the cathedral will ‘experience a total being in a total space’. To punctuate the argument, Lefèbvre points out that monuments and monumental spaces are most likely to be targeted by conquerors or revolutionaries in the desire to destroy them or to redirect them towards a different ideology. This critique, however, is limited. Lefebvre emphasises that, in defining monumental space properly, he calls for restraining of semiological categorisation (codifying) and symbolic explanations – but not for the refusal or rejection of them. He concedes that the monument is an outcome of a signifying practice or of a particular way of proposing a meaning, but postulates that it can be reduced neither to a language or discourse nor to the categories and concepts developed for the study of language. The backing of that postulate is the observation that a spatial work displays a complexity significantly different from that of a text; and Lefebvre’s concern in the realm of the built environment is not text but texture. Further, he claims, a monumental work, like a musical one, does not have a ‘signified’ but rather ‘a horizon of meaning’, a multiplicity of meanings, in which the main one can change depending on the perception of a moment (Lefèbvre 1998, pp. 133–134). Lefebvre’s criticism, however, does not touch upon the challenges faced when this method is applied across cultural borders, since the focus not only by him but also by scholars such as Umberto Eco or later Marc Gotttiener did not face this challenge.

Tracing the evolution and transformation of certain ideas is extremely difficult. When those ideas take on physical forms, however, the process becomes more visible and
palpable. We know that man-made space is an expression of society and a reflection of its dominant ideologies (Lefebvre 1974). With the right tools, urban codes can be read, similarly to a text. This seems to be aligned with the observations of Foucault and Lefebvre: 'space is never empty space, but, as Foucault observes, it is always "saturated with qualities."' Nor is the eye of the architect, as Lefebvre reminds us, ever innocent. The world of blueprints remains a reduced, abstracted world. Once the full ontological potential of space is understood, architects might begin to incorporate such considerations into their design processes' (Leach, Adorno 1998, p. 14). Ann Forsyth emphasises that the city structure is exposed to processes, such as copying and modifications of precedents, and to codified systems of design, patterns, recipes, metaphors, and analogies – the so-called urban design codes (2007, 465). Using the method of reading and decoding the urban texture of cities, as a way of analysing the innovation processes taking place in the built environment, enables urban researchers to understand it from a different perspective and thus more deeply. Design approaches include copying and modifications of precedents as well as using codified systems, patterns, recipes, metaphors, and analogies – the so-called urban design codes.

**Hassenpflug’s approach**

Dieter Hassenpflug, though, is one of the first scholars to have applied this method outside of the European or largely western cultural realm. His research contribution illustrates the importance of the awareness that the denotations and connotations of the built environment can only be understood if the sufficient background knowledge is obtained about the socio-cultural context of the analysed built elements. Hassenpflug, as a non-Chinese observer of the urbanisation processes in a foreign, Chinese setting is presented with both challenges and chances stemming from his foreignness. The background in urban sociology makes Hassenpflug particularly qualified to observe and analyse human interaction within the spatial setting that is analysed and decode the symbols found in this particular aspect (Hassenpflug 2010).

The interaction of humans with their spatial surrounding, in particular their involvement in shaping the built environment and the cities they live in, differs significantly between Europe and China. This is an aspect that should find consideration and mention in a research framework such as the one Hassenpflug presents. Drawing conclusions, or suggesting general implications, from observing human interaction in spatial setting (i.e. based on the choice of roof sculptures, chapter 'roof and light sculptures' [2010]), might be challenging if the aspect of the power dynamics and involved stakeholders (or the uninvolved, such as the general Chinese public in nearly all cases) in shaping and creating the built urban space is neglected. The inferences regarding the Chinese society need to be drawn carefully, since most of the design decisions, and therefore the application of architectural symbols such as ornamental roofs or European-branded satellite cities (Hassenpflug 2010), is taken by a small group of stakeholders.

Hassenpflug’s expertise on interpreting the urban citizens' interactions with the city on the one hand is paired with shortcomings in regard to background knowledge of an environmental design expert on the other. This fact limits to some extent the scope of the analysis when it comes to reading, contextualising, and interpreting the built codes of Chinese cities (knowledge of how urban development has been approached and executed in China, historically as well as today). This can be seen i.e. in Hassenpflug’s
observations and resulting assumptions on ‘urban villages’ (in this case urban villages of Shenzhen) where he neglects to mention the aspect that this urban typology is in many cases a relic of the older urban fabric that has been mostly erased in order to provide space for new urban developments.

Moreover, Hassenpflug fails to explain and elaborate on the vast body of knowledge about Chinese cultural specifics; an observer has to obtain prior to reading and analysing built space with the discussed methods, especially when it comes to built space that is foreign to the observer. Urban researchers diving into the quest of analysing the cultural specifics and decoding the symbols of built space have to already know about the different readings and interpretations of spatial symbols in order to be able to identify, interpret, and decode the urban codes in the analysis process. Therefore, a reading of the Chinese city is possible, as Hassenpflug has demonstrated in The Urban Code of China, under the condition of having a vast body of specific knowledge and even then some symbols, interpretations, and meanings might stay hidden for a non-Chinese observer. Furthermore, Hassenpflug offers a limited insight to: a) the reasoning behind and justification of his case study selection, and b) the derivation and background of the urban codes he found in his study. The scientific structure of the analysis provided in The Urban Code of China is unfortunately less systematic than one might expect and the conclusions and evaluations of Chinese cities and their urban codes seem at times to have fallen victim to generalisation and homogenization; simplifying the findings by differentiating too little between fundamental Chinese urban concepts found across China and specific local spatial characteristics.

The enthusiastic quest of searching for the urban codes in Chinese cities addresses a wide range of interested readers, from the professional city-builder to the generally interested observer of the Chinese built environment. This approach provides the unique opportunity to create more sensitivity for the aspects of socio-cultural differences between the Chinese and the European cities. This would explain the approach of providing rather elaborate explanations for the detected Chinese spatial and cultural phenomena in relation to their European equivalents (without clearly aiming at a comparative research approach) and generally not elaborating much on his research framework (i.e. the selection criteria for the provided case studies) but nevertheless providing detailed information on the applied methodology of reading urban space:

Readers who feel that Chapters 1 and 8, which are dedicated to the methods and theories of reading the city as well as the language of the city, are theory-laden detours and prefer to skip them, may do so without any difficulty: people who like yoghurt don’t need to know the yoghurt cup’s value chain in order to enjoy the taste of its content (Hassenpflug 2010, p. 11).

The success of Hassenpflug’s The urban code of China shows not only the author’s talent of balancing the entertaining anecdotes with background information, but perhaps also the demand of closing a (research) gap of cross-cultural reading and interpretation of space. Hassenpflug’s pioneering, interesting, and colourful journey across China, provides knowledgeable and illustrious insights into the transfer and specifics of social and cultural norms as well as the interpretation of codes of the Chinese cities to a broad audience.
3.5 | Decoding and analysing the Chinese built space: Enhanced spatial-cultural analysis

On a more general note, it is necessary to discuss the challenges of abductive reasoning that the method of semiotics provides. By reasoning from a part to a whole, from the particular to the general, results are not obtained in the form of absolute research conclusions but rather in plausible assumptions. This, however, does not conclude in diminishing the method of interpreting spatial symbols and codes, it much rather creates the need for researchers that are aware of these pitfalls and possible biased conclusions that might occur by interpreting subjective rather than meaning into the analysed case studies.

The rapid urbanization and the existence of the East Asian megacities demand that researchers from urban studies reinvent and cultivate the methods of their studies of cultural phenomena and their manifestations in the city across cultural borders. Precisely what makes these cities so interesting is also what makes them so challenging to study. The astounding size of these cities, as well as their density on multiple levels, can easily become an overwhelming aspect to tackle. How does one analyse the relation between people and the space they inhabit when it comes to millions of people and hundreds of square kilometres of urban space? This challenge is described in the following subchapter, which introduces the contribution of the above discussed methods as a way of dealing with the complexity of reading and decoding the Chinese cities.

3.5 | Decoding and analysing the Chinese built space: Enhanced spatial-cultural analysis

The introduced method of semiotics, as a means to read and decode spatial symbols and codes, serves as the backbone of this research approach. The main research question, whether Chinese cities have lost their Chinese-ness or local cultural context, as well as the subordinate questions posed within this dissertation, require a research framework and methodology that particularly focuses on the scope of analysing phenomena representing cultural and contextual elements. The challenges and pitfalls that accompany not only the mere use of the urban hermeneutics approach of reading and decoding spatial elements, but also the application of it in a foreign cultural setting, are consciously reflected upon by the author and an attempt is made to conquer them by reducing these challenges to a minimum beforehand in several ways. Before diving into the details on how the research analysis is supported and designed for this work, it is crucial to first have a look at the process of reading the spatial codes in order to draw assumptions with highest possible plausibility. The following figure 24, ‘how to decode the cultural layer of built space’, illustrates the procedure of interpretation and assigning

<table>
<thead>
<tr>
<th>PHYSICAL ELEMENT OF THE CITY code</th>
<th>PHYSICAL ELEMENT OF THE CITY carrier of meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>signal → abduction → construction of meaning by decoding the contextual layer</td>
<td></td>
</tr>
</tbody>
</table>

Figure 24: how to decode the cultural layer of the built space
meaning to the analysed case.

In order to arrive from the denotative meaning to the connotative one, a vast body of culture-specific knowledge need to be at disposal. This applies in particular to an observer not native to the analysed setting, as discussed in the earlier subchapter on decoding the Chinese environment. The body of knowledge that an observer needs to obtain can be combined with other means in order to create a solid basis that allows researchers to reach interpretations of spatial symbols and codes that are not only probable but also justifiable and sustainable.

Metaphorically speaking, to carry out the spatial-cultural analysis, the observer puts on glasses with ‘semiotic lenses’ through which they look for codes and symbols in the built environment and, most importantly, arrive at assumptions of their meaning (i.e. interpret them).

The semiotic method, constituting the backbone of the research, assists in producing the desired meaning or sense. As highlighted by Hassenpflug, only through the assignment of sense (i.e. the process of semiosis) can the urban signs be transformed into meaningful messages, that is into understanding (Hassenpflug 2010, p. 20). However, an important task that the reader of space faces there is to stay neutral (unbiased) and not fall for the traps that may come in the process of interpretation, such as producing simple projections or arbitrary sense (Hassenpflug 2010, p. 22).

The dataset which informs the aforementioned body of knowledge has been created with the use of sources that can be grouped into self-generated by the author (photographs, video recordings, sketches, and interviews) and provided to the author (maps, city plans, floor plans, sections, site plans, visualisations, brochures) (see fig. 25); on top of that, the author’s own experiences working in architecture and urban design in China add to the constellation of the data.

![Figure 25: analysis framework](image-url)
The figure 25 ‘analysis framework’ illustrates the approach of this thesis in regard to extending and revisiting the traditional application of a well-established method, such as decoding architectural and urban signs. In order to arrive at research results, conclusions, and assumptions, the analysis of several different sets of data about the specifically selected case studies is the basis for the superimposition.

Case studies

The present section includes a brief introduction of the case studies; they are described more closely in the following and the analysis chapter. The implemented research approach looks for overarching patterns concerning the use of codes throughout China as well as local, more specific codes; the cities are selected based on the empirical criterion of population size and are analysed on different levels (the three scales). Crucially, the collected background information but especially the supporting information gathered from the Chinese experts, who possess knowledge of both local circumstances and the actual investigated city components that neither the author nor the available literature could offer, have allowed this research to focus on the codes and the underlying ancient concepts of on the specific developments of the cities and buildings, without a deep analysis of the specific development and historic background information of the case studies which would have gone beyond the scope of this thesis.

The case studies consist of 35 city components located in the seven largest Chinese cities (Shenzhen, Guangzhou, Wuhan, Chongqing, Shanghai, Tianjin, and Beijing). The cities have been selected primarily due to the size ranking but secondarily because they are located in a way that spans the whole eastern part of the country (where the vast majority of people live). Thus, the cities create a representative group for various types of cities, e.g. the inland vs coastal type, northern vs southern, eastern vs western, or flat vs hilly location, recently built vs ancient.

The selection of the city components of the aforementioned cities is analysed according to the architectural and urban semiotics typically used in the Chinese context, which is closely connected to the Chinese building traditions – for example geomantic and philosophical concepts – and contextuality (cultural, geographical, topographical, historical, just to name a few). The body of the research is processing the cases. From the initial, larger set of city components51, the following have been focused on: city halls, CBDs, railway stations (including their spatial context within their respective cities). The selected case studies were chosen based on the symbolic and representative function they have for the country, the region, or within the city, with the assumption that certain elements of a city have a more iconic and representative function than others and therefore reflect the local socio-cultural identity of a certain region or city, much more than the general texture of the city (which is often created under severe budgetary restrictions and even harsher time pressure). Further, representative elements of regions or cities have the additional effect of transferring innovative approaches, iconic symbolism, or identity-creating narratives to other parts of the urban texture (the ‘flag-ship effect’). In order to analyse a broad spectrum of representative city components, case studies were selected that represent the political power dynamics and image (city halls), the economic power dynamics and represented image (CBDs), and infrastructural projects

51 The initial set counted over 70 city components and also included types such as airports, university campuses, or congress centres.
(railway stations) as images reflecting the identity of citizens – or what the authorities would like the citizens of a city, and the city itself, to be identified with. Train stations are key to China’s transportation network as they play a major role as inland gateways for the transfer of freight and passengers. The participation of China in the global market economy is transforming freight railway stations into major goods flow centres, while the increasing mobility among the Chinese is certainly supported by the modernization of train stations. Passenger railway stations are consistently expanding their importance in intra-urban mass transit systems and multi-modal transportation; they have also always been major landmarks in the Chinese urban landscape. They are public places and have performed an important economic function. The expansion, modernization, and relocation of train stations remain major features of the morphological changes of Chinese cities (Comtois 2009, pp. 849–850). Railway stations, and especially those serving high-speed trains, are therefore in many cases the ‘business-cards’ or the first impressions that cities create, similarly to the role of former city gates. Overall, all the carefully selected case studies, city components, represent elements of cities that are connoted with different kinds of representative functions and therefore are paid more attention to, during the process of creation, but also in use and in interaction with the city.

Scales of analysis

The research is carried out on three different scales of analysis. The macro scale level refers to the analysis of the structures, patterns, and codes that can be found on the city level; the meso scale stands for searching for patterns and codes occurring on the scale of urban districts and conglomerates of built space that function together (several buildings and their dedicated open space such as Central Business Districts and their composition against each other, as well as city halls and railway stations with their respective connection to open spaces created along with them or for them), and the micro scale analysis focuses on the codes and contextual symbols manifested in the language of the architectural design of single buildings.

Datasets; information obtained and generated

The combination of self-generated and obtained data for this research has been a natural state of the matter for a couple of mutually influential reasons. The efforts to acquire documents, plans, and images were undermined by the fact that availability of such materials is limited in China. Therefore, resources that were reachable with the use of the internet, libraries, and domestic academic network had to be complemented by fieldwork research and, additionally, by the good will of Chinese collaborators and colleagues of the author. On top of that, the author being neither Chinese nor local to any of the cities provided for a certain increase in difficulty.

The dataset of this research (see fig. 25) may be divided into the two main groups described earlier (obtained and self-generated). A different classification names four types of data: architectural and planning documents, visual data (sketches, photos, and video recordings), literature, and expert interviews. The following section offers a review of these types.

Literary data consists of a vast number of scientific papers and books, along with other minor publications, which the author has analysed and which are presented throughout this dissertation. The full list of literary sources is to be found at the end of the text.
Architectural and planning documents, which included maps, city plans, floor plans, sections, site plans, visualisations, and brochures, have been acquired both by the author independently and thanks to the help of Chinese colleagues of the author, and in some cases even from the interviewees. This type of data has been analysed through semiotic observational analysis with the aim of finding codes and interpreting their meaning within the context in which the codes appeared.

The visual data, predominantly self-generated, is also analysed through semiotic observational analysis, and its main goal in the research is to break down the city and the urban space into elements or units that are more easily manageable in the research process, while remaining analysable in a scientifically plausible way. In other words, both the still and the moving images complement the other types of data and enable the author to capture sights, angles, and scenes that would not be attainable otherwise. The additional role of visual data is to support objectivity by providing the chance to check the correctness of information or assumptions originated elsewhere. However, one of the methods used to obtain the visual data – the mobile action camera approach – requires additional elaboration.

The author developed an improved approach to generate data in fast-developing and ever-changing urban environments with the purpose of capturing different facets of transformation processes. It was achieved out by wearing a mobile action camera in the selected Chinese cities (Borgmann, Sneep 2017). Using the less visible from the outside action camera enabled the author to become part of the flow of human movement within the spatial settings in Chinese cities without being immediately recognized as observers. It enables the researcher to consider and include important influencing factors in the research analysis and draw better educated conclusions and results of the analysed urban settings. Its usefulness may be found in expanding on what architecture usually has at its disposal by means of noise, movement, and people’s behaviour.

Mentions of such new uses of video recordings can be found in papers and reports from the fields of architectural sciences (White, Kimm 2015), communication (Pauwels 2016), transportation (Hurvitz 2015), heritage preservation (Santano, Esmaeili 2014), photogrammetry (Sun, Cao 2015), and environmental design disciplines (Rekittke et al. 2015); (Zeile et al. 2015). The methodology of acquiring and using video footage in urban sciences, including its potential and accompanying limitations and challenges (such as the ethical dilemmas of such research practices, i.e. the filming of many unaware persons), is extensively commented on by Luc Pauwels (2016). The overall understanding that video footage of the recorded urban environment alone does not create a satisfactory pool of data (Pauwels 2016), however, does not lead to the conclusion that traditional means and methods of gathering and analysing data are sufficient for researching processes of urban transformation and re-innovation in Chinese cities. Visual documentation methods such as photography, drawings, and sketches have the disadvantage of being clearly influenced and staged by the author who captures the situation. Furthermore, if architectural and planning documents and statistical data are added to the picture, analysing people’s interaction with their physical urban environment poses significant challenges, since the research material is focused on the buildings and not on the user. In today’s urban research methods for analysing the complexity of megacities, it is becoming increasingly important to consider the physical space, the interaction between user and city, as well as the environmental influences,
in order to acquire a better understanding of today’s cities. The current research shows how making use of the latest digital tools in visual media can help researchers from seemingly separate disciplines to improve existing methods in their fields. This is a way to show the diversity of innovative practices and the importance of the relation between people and the city. It is argued that visual media, in particular video recordings, are a necessary addition to all research designs that focus on the relation between built environment and society.

Finally, the fourth type of data – qualitative semi-structured expert interviews – serve as a ‘verification loop’, which means that information from them is superimposed on the findings from the other means in order to test the information and claims included. This method also calls for a deepened outline. The questions the author submitted to the interview partners are listed in fig. 26.

1. What are the main factors of influence on the design process of urban or/and architectural projects (from design phase until completion)?
2. Who is involved in the process of developing urban/architectural projects (except from the planner/architect and the client)?
3. How important is the user for urban/architectural projects?
4. How important is the context for urban/architectural projects?
5. Based on your experience, in what direction transform cities, their built structure, towards to?
6. What are the future goals, or visions for cities (the city you practice in or research on) and their built structure, (next 5 years/15 years/30 years)?
7. Is there a change recognisable in urban planning or/and architecture, global influences, international orientation, Chinese or local orientation (in overall concepts)?
8. Based on your experience, what role does local (building) tradition and Identity play in the development and execution of projects?
9. Based on your experience, how important - for the architect’s or/and planner’s success - is the “design-story” and narrative or “story telling” of a project?
10. If important, what are the main stories (or symbols) appearing?
11. What role play city components, such as (high-speed) railway stations, city halls, and CBDs for the Chinese cities?
12. How much do these city components take part in the process of urban transformation?

*Figure 26: Questions sent to the interviewees by the authors beforehand.*

The scientific interview is a method mostly used and well-established in the disciplines of social sciences such as ethnography, history (historic documents of interviews), psychology, and sociology, and is widely regarded as a fundamental activity in the ‘interview society’ (Gobo 2004, p. 48). An important element of preparation for such an interview is making sure about the information one wants to obtain, as well as is to have a clear idea on whom one wants to speak to and how the information is to be collected (recording, notes etc). From the ethical viewpoint, it is important to be open.
and transparent with the interviewee as to why one wanted to speak to them, and how the information will be used. If recording the interview, it is important to gain consent, for instance through written consent obtained via a preceding e-mail exchange. Not all questions are designed and phrased ahead of time. The majority of questions are created during the interview, allowing both the interviewer and the person being interviewed the flexibility to probe for details or discuss issues. Recording answers can be done through taking notes, audio-recording, or both. One of the constraints to audio-recording is whether the respondent will feel at ease answering questions. Taking notes is generally seen as less threatening, and it also keeps the interviewer involved in the process. Taking notes allows the interviewer to highlight key points to probe further, and also may make the production of the final notes and its evaluation quicker as there is no need to wade through large files of transcripts. If an audio-recording is used, it is important to make sure that it will work, and that transcription software is available. Of course, the method in question is also prone to critique, which may include, firstly, the fact that spoken results can mean different things for interviewer and interviewee, and secondly, the interviewer (researcher) risks interpreting the answers to his or her research’s benefit. This is not to say that qualitative interviewing is not a valid method, but rather means that the interviewer needs to be aware and self-reflexive to avoid these pitfalls and biases and false interpretations (Edwards, Holland 2013, p. 103).

The author first tried to establish contact with potential interview partners by formally approaching the Urban Planning Society China. This, however, did not lead to the hoped and necessary responses. In the light of this push-back, the author initially, and only to some extent, relied on existing contacts, architects and urban designers, established during the time the author spent working in South China. Via the special circumstances of guanxi (关系), it was possible to get access to a much larger group of experts, not belonging to the group of people that the author knew beforehand. However, due to mismatches of individual schedules, language barrier, or reasons that have not been disclosed to the author, out of a much larger set of experts contacted initially, twelve experts agreed to meet and participate in the interview. The goal of meeting at least one expert in each city included in the research has been met (see fig. 27). In most cities, except for Beijing and Shanghai, at least two expert interviews were carried out. Engaging in interviews as a non-Chinese (in English) turned out to be an unforeseen advantage, as the interview partners were much more direct and open. Some of the interviewees wanted remain anonymous. This might have contributed to the openness in answering questions and discussing topics beyond the asked questions. During the interviews, notes were made, as well as sketches and quick drawings if necessary, by the interviewer as well as from the interviewee. The recording via mobile phone (less intrusive) was made based on prior consent of the interviewee. The main advantages of this method for this research lay in the possibility to explore the texture and weave of everyday life; the understandings, experiences, and imaginings of research participants; and how social processes, institutions, discourses or relationships work (Mason 2002).

The initial connection was drawn, in most but not all cases, by offering the interviewees to ask the researcher in turn any questions they might want to have answered, which worked as a convenient introduction to the conversation and gave them the feeling of not being exploited. The emotional side of the interviewing process and the potential

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See the glossary for further explanation of the term Guanxi
Information on the interviewees

This box provides an outline of the interview partners, providing information on their being Chinese or non-Chinese, their professions, and some additional facts. Anonymity of all interviewees is kept.

Beijing:
[1] Chinese native; practitioner of architecture

Chongqing:
[2] Chinese native; practitioner of architecture; university degree from the US

Guangzhou:
[3] Chinese native; student of architecture
[4] Chinese native; professor of architectural history
[5] Chinese native; professor of architecture

Qingdao:
[6] Chinese native; professor of architecture

Shanghai:
[7] Chinese native, practitioner of architecture; specialises in schools, hospitals, and residential projects for seniors

Shenzhen:
[8] Chinese native; practitioner of architecture
[9] European living in China; practitioner of architecture

Tianjin:
[10] Chinese native; professor of architecture

interviews with partners nos. [10] and [11] were conducted together, in Chinese with the help of a translator provided by the interviewees

Wuhan:
[12] Chinese native; practitioner of architecture
[13] Chinese native; practitioner of architecture
[14] Chinese native; practitioner of architecture

interview with partner nos. [13] and [14] was conducted together, in English and Chinese with the support of a translator.

Contact information of the interviewees may be provided by the author upon acquiring a written agreement from the interviewee.

Figure 27. Information on the interviewees.

benefits and losses stemming from how the emotions might play out during it have been discussed in the literature of the topic (Game 1997); (Holland 2007) Edwards, Holland 2013). This offer was already extended before the actual meeting happened, with the offer of sending in their questions in advance in case they would like to discuss something in specific. Some interview partners returned to the author after the interview with questions concerning their own research or projects they were working on – thus exercising the guanxi. Finally, it needs to be pointed out that the interviews helped reduce the disadvantage in research coming from the author not being Chinese.

To summarise, the three ‘streams’ of processing data (as visualised by fig. 25) verify and check each other, which is especially valuable keeping in mind the uncertainty of
the semiotic abduction and the danger of losing objectivity. Arriving from the denotation to the connotation gives a lot of room for subjective projections, and on top of that the end result (connotation) in the semiotic method is also a plausible assumption and not a certainty. Therefore, the three 'srmets' of analysis have the common goal of reducing the misreading and limiting the uncertainty of the results.

**Methodology: concluding remarks**

In order to highlight the contribution of this research approach and the methods employed to the body of knowledge of the disciplines interested in the built environment, three aspects need to be taken into account. Firstly, cities are continuously growing and becoming increasingly complex and dense, along with that, the complexity of the social, environmental, economic, and infrastructural challenges they face is increasing. Secondly, the research method (semiotic analysis) has been developed in the cultural realm (Europe) which did not – compared to many other places, especially China – grown and changed as much in the last 50 years, which means that the method has not been applied to such a rapidly changing environment (until Hassenpflug – who, though, does not come from a background connected to the built environment, which is possible to be seen in his analyses and conclusions). Thirdly, not only has the action camera been used in the present research to deal with today's complexity, but it has also happened in a foreign cultural setting, and in the urban realm (the research is rooted in the discipline). From there, the claim can be made that this research approach may generate a unique and valuable body of knowledge for environmental design experts.

Among other conclusions, it seems important that the dissertation brings together knowledge about the culture and history of China with the selected methodology, and then adds the analysis of the cases as a representation of the Chinese elements of the city. All these steps are crucial to interlink and build upon each other to decode the level of cultural context (Chinese-ness) of the Chinese built environment.

A novelty of the approach employed in this research lies in the superimposing the various data sources in order to limit the potential misreadings of the codes. Metaphorically speaking, the use of the various ways of data collection makes the 'sieve' through which the information is decoded denser.

Among the shortcomings of the method one could name primarily the fact that it is still a method that draws plausible assumptions, even if better informed, and not strong conclusions. Moreover, a 35-element case study research approach can by no means be called an exhaustive representation of phenomena concerning the most populous country on Earth. Finally, it is worth mentioning that such a research conducted by a non-native person certainly helps the objectivity on the hand, but on the other it restricts the access to the understanding of socio-cultural phenomena that a native has, therefore the conducted interviews with Chinese native experts of the built environment formed a crucial element of the thesis.

To look out into possible expansion and continuation of the presented research method, it can be said that this method may be used as a matrix or framework and applied to urban research carried out not only across cultural borders but also in rapidly growing urban settings (e.g. India, Africa). Moreover, as has been mentioned just above, it opens the door to international dissemination and the execution of similar researches by persons native to the examined environments.
3.6 | Synopsis

This chapter is dedicated to the introduction of the methods and theory behind them in order to analyse not only the tangible, but also the intangible facets of the process of reading and decoding the built environment. A review of the schools of thought that have been interested in the built space in a direct way is provided. The notions of architectural denotation and connotation are presented, together with the process of ascribing meaning that is beyond the denoted. Further, the Chinese context is added to the discussion. An assessment of the validity of the presented methodology when applied in today's urban situations and their complexity is offered. Finally, a description of the methods used to carry out the research that constitutes the core of this dissertation is provided.

Thanks to the work of sociologists, linguists, literary scholars, economists, architects, and many more, the field of study of cultural aspects in urban space has gained significant momentum and research legitimacy. Semiotics holds the central position as the method of spatial analysis in this thesis; moreover, its particular form is elaborated upon: architectural semiotics, and its capabilities in investigating urban codes, by decoding their socio-cultural connotations, and the potential of expanding its tools even further.

The research approach applied in this text is strongly based on the well-established urban hermeneutics research semiotic approach – featuring the works of prominent and pioneering scholars such as Peirce, de Saussure, Eco, Gottdiener, and Hassenpflug – however this work's methodology aims at contributing to the existing body of knowledge by extending the traditionally used disciplinary-based datasets and analytical approaches, especially with the particular circumstances of urban settings such as the Chinese one in mind. The applicability of this approach lies in the fact that the Chinese conditions are distinctly different compared to the 'old world' both because of the multitude of cultural differences and the rapid growth observed in the last decades. The superimposition of different sets of research data within this research approach is explained as one serving to limit down the potential misreading and misinterpretations of the codes by combining the well-established semiotic methods with an abundance of differently self-collected data. The latter has as its sources semi-structured interviews, and photographs and videos produced by the author during fieldwork research and expanding therefore the traditionally analysed research data. The urban situation in its complexity can therefore be represented at a different scale in this research through, e.g. the recorded videos; by including facets such as noise-, and environmental pollution as well as facets of the climate and the users' perspective, in order to not only provide a much more detailed overview of the context of the analysed urban elements, but also to capture the momentum for future reference.

Embracing the tangible and intangible facets and layers of the built space, this research framework provides the opportunity to carry out analysis on cultural implications of space. Additionally, this research approach may prove to be a way to break through the complexity that urban research faces when analysing space across cultural boundaries, not only in regard to China.
4| The codes of the Chinese built environment

This chapter includes the main body of research featured in this dissertation and it consists of four parts. The reader is guided through the analyses by first being introduced to the realm of socio-cultural codes and their occurrences in the analysed case studies. Next, for additional comprehension, the analysed case studies are presented chronologically. In these two subchapters, patterns and most frequently used codes are identified and conclusions are presented. With the use of the knowledge gathered and extracted in the above-mentioned parts, the research questions and hypotheses are answered. The chapter is closed by a synopsis.

Apart from the two ways of presenting the data in subchapters 4.1 and 4.2, the matrix of codes is to be found in the Appendix.

Figure 28 below is a scheme that tries to capture the broader connection system between the codes, culture, economy, and society in China.

4.1| Case study analysis: an interpretation based on the traditional codes of the Chinese built environment

This subchapter and its subordinate sections contain the presentation of the research analyses. The goal of this presentation is decoding the analysed city components in order to create an empirical base for answering the research question in a legitimate way. The subchapter is organised by codes, which means that every section is named after a code; within each, a code’s origins and interpretations are presented with the support of scientific sources as well as the information from interviews, followed by a list of all its occurrences in the pool of the examined city components. The code occurrences are categorised according to the three scales of consideration (macro, meso, micro). Each occurrence is shortly described in order to provide commentary for the code’s application, particular meaning (if different from the generic one), and all potential remarks. Some fundamental information is to be found multiple times in the explanations of the codes but that should not be seen as sloppiness of the composition; that is so because these symbolic elements of the rich Chinese culture are deeply interconnected and dividing them into clear-cut categories without allowing overlaps would be misleading.

Along the river, across the river
(Spatial orientation of urban development and the relation to topographical features)

In the Chinese city-building tradition, the constellation of topographical features played a fundamentally important role. Location of cities as well as various city components relative to a river, to mountains, and to the compass directions was carefully thought through on the basis of geomancy and then planned. For instance, the riverbank sites were frequently reserved for temples. This code reflects Hassenpflug’s observation of the fact that many cities have been winding in surprising ways in order to maintain position between a river and a mountain or mountains. The geographic preconditions
Figure 28: Chinese codes and their socio-cultural context (following Borgmann and Kaiser 2011).
for 'river jumping' exist due to the cosmology-based rules. Based on those, imperial city-
founding prescribed that a city should preferably be built south of existing mountains
or hills and north of a river (Hassenpflug 2010, p. 133). Mountains or hills symbolize
(and frequently actually provide) protection from enemies and cold weather, while rivers
symbolize fertility, nourishment, mobility, and trade. As a result of this geographic rule
for founding cities in ancient China, many Chinese cities to this day are 'one-bank cities',
expanding between mountains or hills to the north and a river in the south. This ancient
traditional Chinese spatial code is therefore found on the city scale, the macro level
analysis of this research and will be explained in its occurrences of the case studies in
the following.

**Occurrences** (case studies where the code has been found):

**Shanghai**

Shanghai is a unique city in the landscape of cities across China due to its role as a
frontrunner and being at the forefront of introducing new concepts and ideas across all
disciplines. From implementing new policies that give way to urban planning concepts
and development guidelines to its history as an international port city, Shanghai had the
role of the pioneer. Other cities in China not only try to follow its example but also rival
its position. This metropolis originated in a fishing village and became a city during the
time of colonial settlement.

The territory where the city has settled is not surrounded by mountains or hills, however
the urban development followed the ancient rules of developing along the river. Shanghai
was until relatively recently basically a 'one-bank city' (see fig. 29, development phases
I-III).

During the rapid urbanization and urban growth period of the last decades, however,
Shanghai lived up to its reputation as a pioneer. Shanghai's urban development made
the 'jump' across the river, breaking with the ancient traditional spatial concepts
but at the same time shaping and creating a new code that has been adopted and
implemented in many other instances of Chinese urban development since. The urban
planning 'jump' from Puxi (the western bank of the Huangpu Jiang) to Pudong (the
eastern bank) (see fig. 29, development phase IV), resulted in the creation of an inner-
city ensemble with a unique power of imagery. On the one side of the river the colonial
architecture of the Bund is located, while on the other side the new skyscraper centre
Lujiazui in Pudong is growing. The Chinese craze for altitude dates back to 1970s,
and in 1990s the competition between and within cities resulted in the development of
many high-rise buildings, branded by their investors, developers, and designers as a
triumph of modern civilisation. In Shanghai, the Oriental Pearl TV Tower was erected
as the first one (1995) in Pudong, on the eastern bank of the Huangpu river, facing
(boldly) the 'old' Shanghai as the third tallest building in the world at the time. Many
skyscrapers followed, with some of them reaching a world-wide renown (e.g. the Jin
Mao tower), symbolising the Shanghai's ambitions of rivalling Tokyo and New York as
an international business centre (Barme 2009, pp. 767–768). Hassenpflug describes
the new development in Pudong as the symbol of the new China and many Chinese
cities feel obliged to follow the example of Shanghai and prepare for a 'river jump' of
their own (Hassenpflug 2010, p. 132).
Guangzhou

Guangzhou is one of the oldest cities in southern China. The first administrative boundary of Guangzhou was formed in AD 214 during the Qin dynasty and was built approximately in the vicinity of today’s old city centre (see fig. 30, development phase I). After Qing, the city underwent several major changes during the period of the Han, Three Kingdoms, Tang, Song, and Yuan dynasties, and was expanded to become an area later known as the ‘old city’ between 1368 and 1398 (interviewee 4). The earlier physical expansion of Guangzhou was limited and happened mainly around the edge of the old city (Xu, Yeh 2003, pp. 362–363).
The city expanded, after 1949, in a rather unplanned manner and subject to the demands of industries (Xu, Yeh 2003, p. 364). Fortunately, Guangzhou was still a compact city and the unplanned expansion was not so dramatic as it was given very low priority in receiving industrial investment. The development happened, however, along and north of the river, south of the hill range towards the eastern rim of the city, leading the city towards the eastern estuary. This spatial result of urban growth had, along with the consideration of ancient concepts, also practical reasons, since the development to the south, north, and west was constrained by the presence of the city boundary with Panyu County, Huadu County and Foshan City (interviewee 4). The northern rim was an ecological zone where the Baiyun Mountain and the source of city water supply were located. The ideal site was the eastern region where space and a deep-water port facility were available.
Shenzhen

Shenzhen’s urban development and spatial layout of the city as a whole as it is present in today’s China is an urban transformation that started mainly after the economic opening in the late 70s. Shenzhen’s recorded history goes back well over one thousand years, as the first records available bearing the name date back to 1410. However, evidence suggests that the first human activity in the area dates back over 6,700 years ago. The name Shenzhen translates to ‘deep drain’, named for the drains created in paddy fields...
around the rivers and streams that are still in the city today, since the area has over 330 rivers and streams (Shenzhen Government Online).

The map above (fig. 31) shows the spatial representation of the different development phases that were taking place along with the rapid urban growth that Shenzhen experienced after the introduction of the special economic zones in the late 70s. The Luohu district was the location of the first development phase, while the urban growth pattern then followed the direction north of the river, along the coastal line towards west. Futian is the second important urban development hub, which then turned into the city's centre of political, administrative, and commercial (trading and finance) importance. The spatial orientation followed the ancient principles of locating the cities development south of a mountain (mountain range) and north of the river. This principle was followed although the technological advancement and building techniques as well as materials allowed for, unlike in ancient Chinese times, preventing the built structures from climate
influences and the like. It was clearly a planning principle carried out according to the fundamental Chinese geomantic traditions, as the interview partner [8] explained, following the examples of many other and much older cities in China.

Chongqing

Chongqing city is located in a topographically challenging situation of mountain ranges and the confluence of the Yangtze River and its major tributary stream Jialing River in the eastern edge of Sichuan Basin. The city is located in a big syncline valley. Two tributary ranges of Huaying Mountain (Zhongling Mountain and Tongluo Mountain) roughly form the eastern and western boundaries of Central Chongqing. The highest point in downtown is the top of E-ling Hill, which is a smaller syncline hill that keeps Yangtze River and Jialing River apart for some more kilometres. The average height of Central Chongqing is 259 metres.

Yuzhong, today a district of Chongqing, was the first phase of urban development and is effectively a peninsula (see fig. 32). The urban development was first arranged along the peninsula and only after the rapid growth of the city two other towns, located north and south, across the two rivers were included into the urban fabric of today’s Chongqing. The city centre and the most important features of the city are still located on the peninsula of Yuzhong, but since the density of urban fabric has reached a certain maximum, the city is now growing along the phases II and III, as in fig. 32.

The urban development followed traditional spatial concepts only to a limited extend due to the topography. However, it is important to mention that whenever a chance was seen, the traditional ancient concepts have been tried to be followed and some of them are still visible in today’s urban texture as will be seen in the code analyses to follow.

Wuhan

Wuhan is one of the most ancient and civilised metropolitan cities in China with a 3,500-year-long history (interviewees 12, 13, 14). The metropolitan area comprises three parts—Wuchang, Hankou, and Hanyang—commonly called the ‘Three Towns of Wuhan’ (hence the name ’Wuhan’, combining ‘Wu’ from the first city and ‘Han’ from the other two) (interviewees 12, 13, 14). The consolidation of these cities occurred in 1927 and only then Wuhan was established. The former individual cities face each other across the rivers and are linked by bridges, including one of the first modern bridges in China, known as the ‘First Bridge’. It is simple in terrain—low and flat in the centre and hilly in the south, with the Yangtze and Han rivers winding through the city, providing a variety of lakes and pools.

During the Han dynasty, Hanyang became a fairly busy port. In the winter of 208/9, one of the most famous battles in Chinese history and a central event in the Romance of the Three Kingdoms—the Battle of Red Cliffs—took place in the vicinity of the cliffs near Wuhan. Around that time, walls were built to protect Hanyang (AD 206) and Wuchang (AD 223). The latter event marks the foundation of Wuhan.

The spatial organisation of the urban development is in Wuhan a unique case, since it must be looked at individually at the three former cities that later formed today’s urban fabric. All three of the individually developed cities, Wuchang, Hankou, and Hanyang (see fig. 33), followed the principle of growing along the river according to, whenever possible, ancient traditional building principles. The location of Wuchang (old town and
one of today’s centres) is located between a mountain range and the city, having the protection on the one hand and the river as source for trade, food, and prosperity on the other, following ancient geomantic concepts.

**Tianjin**

Tianjin, a coastal city in northern China, bordering the municipality region of Beijing, is located at the Hai River and the confluence of the Ziya River, Ziya River, Daqing River, and Yongding River. The walled city of Tianjin was built in 1404 (see fig. 34, development phase I). As a treaty port since 1860, Tianjin has been a major seaport and gateway to Beijing. Under the Ta Tsing Empire, and the Republic of China, Tianjin became one of the largest cities in the region. At that time, numerous European-style buildings and mansions were constructed in concessions, many of which are well-preserved until today (interviewees 10, 11). Because of the rapid development of industry, commerce, and finance, Tianjin was established as a municipality of China in 1927.

The urban development and its spatial organisation of the first development phases
were carried out according to traditional geomantic principles. The topographic circumstances during the initial development phases were such that the ancient city, which still exists in parts, was located north of a large water basin (which is not existent anymore in today’s urban fabric). The later development and urban expansion of the city, due to colonial influences, trade, commerce, and its strategic location in relation to Beijing, resulted in urban growth becoming oriented along the southern-west side of the riverbank and only much later did the ‘jump’ across the river happen.
The Dragon & Golden Axes

(The ‘golden cross’: Axiality as a principle of spatial organisation)

As has been said above classical Chinese cities, including necropolises were arranged and oriented according to spiritual aspects following cosmological laws. Cities were laid out on a rectangular plan with north–south orientation and their spine consisted of two (or more) central axes intersecting in the city centre (Hassenpflug 2010, p. 68). Traditional Chinese urban form evolved over the space of centuries, but remained anchored in ancient principles designed to find harmony between the natural world and the creations of humankind. From the most basic ancient traditions calling for grid-patterned, symmetrical cities oriented toward the cardinal directions, Chinese cities developed into highly sophisticated, preconceived constructions (Wu, Gaubatz 2013, p. 50). The most valued sites in the city were usually located in its centre and the ‘back’ (north) part of it due to qi accumulating there; for this reason, the most important components of cities were located in the centre or north of the centre. Feng-shui was also employed to protect against ill will that approached from the northern side (Wu, Gaubatz 2013, p. 52). For these reasons, frequently the most prominent structure of a city – e.g. a temple, palace, or administrative facility – was located directly on the north-south axis, which at the same time ensured the lack of interruption of that axis (Wu, Gaubatz 2013, p. 56). The most important urban axes are called tiger and dragon axis forming the golden cross in the city grid from where the remaining part of the city is spatially organised. These two creatures play a vital role in Chinese ancient mythology that has been transferred and translated into guidelines of the built environment.

Tiger

The dragon and the tiger stand for the balance of power and energies. Feng-shui is centred around the acquisition of balance between the yin (female) and yang (male) qi (energy) in order to achieve harmony in the built environment and in all other aspects of life; the dragon and tiger symbolise these two opposing energies. The white tiger is the celestial guardian of the west compass direction, which governs the luck and prosperity of one’s descendants. As the protector, the tiger is an auspicious symbol in feng-shui and looks after wealth, health, and bloodline continues. When the tiger and dragon are at odds, a family’s, or community’s future and well-being is threatened. Thus, the two energies must be in balance to work as a whole, because in that case they become destructive (interviewee 4).

Dragon

The dragon is a mythological being with a long (dating to at least 2500 BC) and rich history. The dragon represents the east and is the celestial guardian of this direction, complementing the tiger. The dragon has long represented the Chinese emperor and those of royal blood, to whom descendence from god-dragons was attributed. Dragons are associated with the number nine and multiples of nine, which is thought by the Chinese to be a lucky number. There are nine different varieties of Chinese dragons; it also possesses nine mythical sons and nine attributes. The Dragon is yang (male) and the yin (female) symbol compatible with it is the phoenix; together create a yin-yang balance associated with matrimonial happiness. The dragon is the opponent of the tiger and is superior to it, which is reflected in the superiority of the north-south (dragon) axis over the west-east (tiger) axis (interviewee 8). The occurrence of this grand axially of
the golden cross is found on the macro level, the city scale, and is further analysed in the case studies where this code appears.

**Occurrences** (case studies where the code has been found):

Shanghai

In the case of Shanghai, the city axes were originally already a fundamental part of the old town (during the colonial era also referred to as 'Chinese Town'). When the city expanded, especially after the Imperial era and in the recent decades, the spatial organisation of the city has followed the main grid of a new main city axis (see fig. 35). Since the early set up of the city and the orientation of the city has not followed a clear north-south orientation but a slight tilt counter clockwise. This, however, is even from the ancient perspectives of cosmological principles and city organisation somewhat problematic, since the ancient guidelines were adjusted to the given terrains and

![Figure 35: Shanghai city axes](image-url)
geographical conditions.

In Shanghai and its most recent development and urban growth, especially in the newly established districts such as Pudong (see fig. 34), clear central axes have been applied to organise the spatial urban texture of the district. This, in turn, allows to formulate the statement that in a city that is considered the pioneer and frontrunner of urban development strategies, ancient spatial arrangements adhere to the traditional concepts of the built environment.

Beijing

The history of Beijing can be dated back three millennia. Beijing is situated at the northern tip of the roughly triangular North China Plain, which opens to the south and east of the city. Mountains to the north, north-west, and west shield the city and northern China’s agricultural heartland from the encroaching desert steppes. As the last of the
Four Great Ancient Capitals of China, Beijing has been the political centre of the country for much of the past eight centuries (interviewee 1, 4). With mountains surrounding the inland city on three sides, in addition to the old inner and outer city walls, Beijing was strategically poised and developed to be the residence of the emperor and thus the perfect location was chosen for the imperial capital.

The ancient city structure and spatial conceptualisation meticulously following the geomantic and traditional principles is still present in today's city structure. A main part of this structure is the above-described golden axis, which had the highest importance, since the emperor and the highest governmental officials were situated here, and that has remained until today: the main representative buildings of the Chinese central government have not relocated away from the golden cross (see fig. 36).

Furthermore, the urban growth and development of the city have happened along the main north-south and east-west axes (the dragon and golden axes). The location and strategic placement of crucial city elements and functions are similarly either directly on or in close vicinity to these two main axes (as will be described in more detail in the following code-subchapters).
**Guangzhou**

The main north-south and east-west city axes (dragon and golden axes) can be found in the spatial structure of today’s Guangzhou. The fundamental spatial principles for this were already laid out in the early first development phases of the old city of Guangzhou, north of the river. During the various phases of urban growth and development of the city, especially the east-west axis has remained a crucial element on which along the spatial expansion took place (see fig. 37), e.g. in the development of the Tianhe district, forming a secondary north-south axis that organises the district.

Additionally to the Axiality along the main ancient urban axis of the districts north of the Pearl River, the newly formed and developed districts including the most recent ones (e.g. the island Panyu, newly established university town in the south east, see fig. 37) clearly follow axiality as a fundamental spatial organisation of each individual district.

**Shenzhen**
Shenzhen’s urban development after the economic opening and during the past three decades has established a clear organisation based on the north-south and east-west axes. The golden cross is located in the Futian district (see fig. 38) with, analogous to the ancient concept of Beijing, the political and administrative centre located at the heart of it (as will be explained in further detail in the following codes).

The clear spatial orientation according to ancient building traditions and geomantic, symbolized by the golden cross as one of the most fundamental ones, is striking in the case of Shenzhen.

Wuhan

For Wuhan, due to its unique and very recent establishment of the city Wuhan (in the 1920s) in its current form, the discussion and analysis of main city axes need to be approached based on these circumstances. The city has been formed based on the
three old cities Wuchang, Hankou, and Hanyang. All three of these former individual cities have a long history of urban development. The districts of today’s Wuhan follow not only ancient historically established axes, but these axes now expand to the newly-developed areas and districts as well.

Wuchang district has the main axes and its golden cross running through the old city centre, not perfectly aligned with the north-south and east-west directions, however as much as possible considering the terrain and the river run. This Wuchang north-south axis is spanning further to the north as a spine of the newly-developed districts (see fig. 39). Similar to this occurrence is the situation in Hankou district, where the north-south axis follows the river bank line and connects the new districts with the ones established long ago. This is visible as well in the district of Hanyang.

Overall, it can be said that the occurrence of the ancient traditional principles of the main golden and dragon axes is not only visible in the former cities but is carried further in the significant urban growth and development phases that Wuhan is facing as one of the most construction-intense cities in China.
Tianjin

Tianjin’s early development phases, described above, one of which is the still existing old city of the first establishment of Tianjin city, were carried out along a clear north-south and east-west axis (see fig. 40) and the golden cross as the centre of the old city, in accordance with the traditional concepts.

Further, the additional and later developments and urban development phases of Tianjin have followed their individual axes, according to the geographic conduction of the river run. This has not been in line with the perfect orientation of north and south, and east and west, however it has been conceptualized to the best execution of these axiality structure as possible.

City grid

(The code of hierarchy and spatial organisation)

Due to the existence of clear guiding principles concerning the hierarchy of function and meaning, consequently rules have emerged that served to determine size, arrangement, and equipment of each building and each street. That hierarchy was transposed into a linear spatial sequence. This linearity indicates the importance of a singularly legitimate perspective: the Emperor’s (Hassenpflug 2010, p. 69). As already indicated in chapter 2.3.1., Chinese cities were preconceived; it was common, particularly in the case of small and medium-sized cities, for the walls and principal grid-patterned streets to be laid out before there was enough settlers and construction pressure to fill the created form (Wu, Gaubatz 2013, p. 56). The fundamental elements – such as walls and gates, the street grid, and monumental structures (administrative compounds, temples, and bell and drum towers) – come together to form the spatial concept of the ideal Chinese city. The walls, gates, and street grid served as a superstructure to organize the rest of the city, such a superstructure was planned and frequently realised before the remainder of settlement was executed. Consequently, all following construction was carried out in conformance to the superstructure. This ‘spine’ also controlled the subsequent growth of a city. Many ancient diagrams and plans of Chinese cities showed only the superstructure, underscoring its significance (Wu, Gaubatz 2013, p. 53). Secondary streets completed the basic grid forming square or rectangular blocks for further construction. They followed the primary streets in forming an orthogonal grid pattern, thus remaining true to the overarching cosmological layout of the city (Wu, Gaubatz 2013, p. 56). The above-described regulations were defined by religious tradition and it was up to the feng-shui expert (yamen) to make most of the decisions in the matter (Kögel 2015, p. 46).

Occurrences (case studies where the code has been found):

Shanghai

In the case of Shanghai, the spatial hierarchy defined by the urban grid of primary, secondary and tertiary axes is composed throughout the different urban districts, from the ones already established during the first development phases until the latest developments (e.g. Pudong district). The hierarchical structure of the city axes is
followed through in the urban development strategies, although Shanghai’s geographical location, along the meandering river, does not necessarily support a grid structure. Due to that, the urban grid pattern is not followed according to the ideal principle of clear north-south and east-west axes, but is adjusted to the natural occurrences of the surrounding environment (see fig 40).

The axial grid pattern is not only followed as an urban planning principle, stemming from ancient Chinese spatial organisation concepts, in the central areas of the city but also in the outer rings of the city. This leads to the phenomenon in which the selected case studies, located across the city (especially the railway stations), have clear spatial
patterns to orient the built elements accordingly (see fig. 41).

Beijing

Beijing has a very clear hierarchical structure of the primary axes, the golden cross, and the secondary and tertiary axes and grid following the most important ones that have been described in the code above. Due to the geographic circumstances of not facing a river, a waterfront, or a major mountain range at neither of the cities edges, the urban development has spread almost equally along the north-south and east-west axes (see fig. 42).

The most significant elements of the city are located along the dragon and golden axes. Political and administrative functions are to be found around the golden cross, the heart of the city and most valuable, highest ranked, location of the city. The CBD however, situated at the east side of the golden cross, along the primary axis of the east-west orientation, displays the importance and significance not only through the economic power but also through the location it has within the city. The alignment along the primary axis can be considered as one of the most auspicious ones, apart from the area around the golden cross south of the Forbidden City. The important infrastructure
elements of the city, such as the railway stations are also found in the vicinity of the main axes. The main railway station is located parallel to the east-west axis towards the south, while the west railway station is located at the secondary east-west axis on the western part of the main urban grid. The Beijing railway stations north and south, however, are located at the tertiary grid hierarchy (see fig. 42).

The clear axial and hierarchical urban structure not only allows to understand the most vital and valuable elements of the city but also is an urban structure that has been followed for more than 2000 years and is still carried out.

**Guangzhou**

Guangzhou’s spatial hierarchy follows the ancient implemented grid of the old city (development phase I). These axes and their following secondary and tertiary axial grid
is particularly crucial in the east-west direction, since this has been the main direction of urban growth and urban expansion (see fig. 43). The Tianhe district, which grew along the eastern expansion of the city, has a spatial hierarchy and grid pattern similar to the one of the old city, organising the district within itself spatially. Along the main north-south axis of the Tianhe district are located the most important functions of this district (main office and commercial complexes as well as sport facilities such as stadiums) with the highest representational function within the district, whereas the actual north-south central axis is mostly kept for public and open space and axis for the energy to
flow (interviewees 4, 5).

Shenzhen

Shenzhen’s city grid is structured both along the primary axes (dragon and golden axis) and the flow of the river bank and coastal line with its tertiary axes (see fig 43). Shenzhen follows, compared to Shanghai, the grid pattern and resulting spatial hierarchy mechanisms more clearly, taking into account that Shenzhen has been planned and developed along these principles in the past three to four decades, while Shanghai has a much longer history as a major urban centre.

The main CBD, Futian, is located east and west of the political and administrative city elements within the rectangle of the extended golden cross. This location gives the Futian CBD, which has been developed in the recent years and is still under construction, spatially a more valuable position than the older Luohu CBD (see fig. 44) (according to the interviews 8 and 9 carried out in Shenzhen). The effect of this advantage of the location was visible instantly, when many banks and domestic as well as international companies moved their main offices into the Futian district.

Wuhan

Figure 45: Wuhan, city grid and hierarchy
As described already in the analysis of the golden cross in the section above, Wuhan needs to be looked at based on the three different districts (Wuchang, Hankou, and Hanyang) that used to be individual cites. The city grid and spatial hierarchy based on the grids and Axiality happen on each side of the river individually and join at the instances of meeting axis connected through one of the several bridges that connect Wuchang with Hankou and Hanyang and vice versa (see fig. 45).

This spatial hierarchy is, however, carried out along the urban development and across the individual districts with the effect that the analysed city components that lie outside of the old core urban areas (Wuhan (main) Railway Station and Hankou RS) are embedded in an axial hierarchical spatial urban structure (see fig. 45).

Tianjin

The old city of Tianjin, development phase I, follows a clear structure of primary and
secondary hierarchical axes that form the urban grid of the northern part of the city. In the eastern part of the city, along the river, there are differently oriented city grids that follow the perpendicular-to-the-river axis orientation (see fig. 46).

The Heping CBD, located on the west bank of the river, follows the clear hierarchy structure of primary and secondary axes. Additionally, the East Railway Station is oriented along the axis, although the railway tracks do not provide such an orientation naturally (see fig. 46).

**The rectangle**

(Geometric concept: rectangle = earth; in juxtaposition to circle = heaven)

Traditional Chinese design ideals were tied to cosmological representations, one of which is the rectangle and its counterpart, the circle. The ideal Chinese city may be thought of as being a map of the cosmos (as viewed in Chinese ancient philosophy), in which the walls represent the world. Since the Chinese believed that Heaven was round and Earth square – based on the empirical observation of apparently flat ground and hemispherical sky – most cities are planned following the square Earth format.
while some temples, like the Temple of Heaven in Beijing, are round, symbolising the physical form of Heaven. The main streets served as an idealized organizing force to control the chaos. Planning cities out as a representation of the cosmos shows the fundamental importance of the layout and ground plan to the Chinese conceptualization of the city. Shape, rather than size, was critical in the Chinese city-building ideals, which influenced proportion and placement for all scales of design and building projects (Wu and Gaubatz 2013, 51). This traditional ancient code is looked at on the macro level, the city scale, as will be described in the occurrences of this code in the case studies below.

**Occurrences** (case studies where the code has been found):

**Shanghai**

Today’s political centre in Shanghai is centred around the People’s Square (see fig. 47), north of the old Chinese city and east of the north-south axis, along the east-west axis of the city. The composition of the square that not only accommodates the Shanghai People’s Government buildings (built 1995) but also cultural complexes (museums) that have been developed there during the past few decades.

The traditional Chinese spatial code of the rectangle with the axial placement of built elements, can be seen and are referenced in Shanghai, however not to the same extent.
and level of detail as in cities such as Beijing or Shenzhen (described below).

**Beijing**

The Forbidden City in Beijing, the former political centre of the Middle Kingdom and largest built palace compound in the world built between 1406 and 1420, is shaped according to the cosmological and traditional ancient understanding of the representation of the world: rectangular. The emperor of China, the son of heaven, was the residing and ruling over the world, represented in the shape of the city (palace compound) he lived in (Wu, Gaubatz 2013, p. 51). The spaces of power, such as the throne hall, were mostly spaces in which rituals and ceremonies were performed; rituals to achieve absolute harmony that was then supposed to flow through all parts of the kingdom, sent from the emperor to reach everyone in the realm.

This conceptualization and spatial representation of the centre of political and administrative power has been carried from the ancient Chinese periods until the recent ones. Beijing’s political centre today has its representative buildings located just along the axis of the former political centre, south of it, extending the formerly created rectangle (see fig. 48).

The spatial composition of the ‘rectangle of power’ is located north of the golden cross and south of the mountain (a code that will be described in detail in the next section) at the most primary location in a city according to ancient Chinese geomantic principles,
with the aim of gathering power, manifested in the flow of energy through the site. This spatial arrangement found in Beijing has been an example for various other cities that followed the same principles, as can be seen at the other analysed case studies above and below.

**Guangzhou**

The old city of Guangzhou was spatially arranged and conceptualized based on the fundamental geomantic principle of the rectangular city shape with the golden cross in its centre, the mountain (hills) north of the city, and the river flowing in the south (see fig. 49). This geomantic concept formulates the ideal city layout and the spatial execution has been carried out accordingly.

Not only does this concept apply to the ancient settlement in Guangzhou but it has also been carried out in the urban planning concepts of the new developments east, such as the Tianhe district, which hosts the main commercial and business area along with
main sports facilities (due to the Asia Games that took place in Guangzhou in 2010).

**Shenzhen**

The political, economic, and administrative centre is located in the urban code of a rectangle (see fig. 50), in the heart of the Futian district. In the case of Shenzhen, the traditional ancient Chinese geomantic concepts have been carried out to such a detailed level that it can be seen as a recent interpretation of the codes used in the case of Beijing. North of the golden rectangle a hill is located and south of it the river, while the centre is defined by the golden cross.

In this case, like in Beijing, the most important political city component (Shenzhen civic centre) is positioned north of the golden cross on the north-south axis (interviewees 3, 4, 5, 8).

**Wuhan**

Wuhan’s old district and former city Wuchang is arranged in the rectangular shape, following the ancient traditional guidelines (interviewees 12, 14). The uniqueness of the Wuchang spatial arrangement of the ancient city, however, lies in the fact that the hill
range is not located north of the (walled) rectangular city but in its centre (see fig. 51). Importantly, this particular hill in the centre of the old city, at the heart of the golden cross, accommodates, the ancient Yellow Crane Tower (built around 200 AD), which created a centre point not dedicated to political power but to an even more valuable aspect: the spiritual and mythical powers (interviewees 12, 14).

Today’s political and administrative building complexes also follow the rectangular layout to arrange the individual built elements to each other, and are located in the Hakou district of the former foreign concessions, facing the river (see fig. 40).

**Tianjin**

Similarly to the case of Wuhan, the rectangular ancient code of the city shape can clearly be seen in the old city of Tianjin (see fig. 52). The rectangular shape was arranged
according to the central north-south and east-west axes with the drum tower in the centre. All other functions and city elements were located along the primary and secondary axes of the main golden cross.

Today’s political and administrative centre with its several building complexes, located much further in the south (see fig. 51), although arranged in a rectangular shape, does not seem to strongly reference the ancient traditional spatial arrangements.

Mountains and hills

(The spatial code and its importance in ancient Chinese concepts)

The mountain is a key element of many Chinese traditions and legends and in historic Chinese sources, many mountains are considered sacred in China. Among the most important ones, the Five Great Mountains or Five Sacred Mountains have been pilgrimage sites for emperors throughout the ages. They are placed according to the five cardinal directions of feng-shui (Kögel 2015, 518–19). Landscape morphology is a key aspect of feng-shui, as particular shapes of landscape elements are associated
with various mythical beasts or objects with varying degrees of impact on the good fortune of a city (Wu and Gaubatz 2013, 51). An ancient Chinese rule for home builders posits that the house should have its back turned to the mountains (Huang 2012, 1). The most auspicious mountain forms, for example, are those with sharp ridges resembling a dragon's back, or undulations in a form associated with tigers (Wu and Gaubatz 2013, 51). Artificial hills were sometimes constructed north of important structures or complexes to protect them.

**Occurrences** (case studies where the code has been found):

**Beijing**

The 'coal hill' in Beijing, located north of the Forbidden City, was constructed out of dirt dug from the palace moat in order to defend the emperor, and thus the empire as a whole, from evil (Wu, Gaubatz 2013, p. 52). This case in Beijing illustrates the importance that the mountain carried – and still does – for the ideal spatial arrangement and flow of positive energy, within and outside the rectangular shaped city structure (see fig. 53).

It is important to note that the spatial arrangement of the mountain north of the political centre, which is shaped in rectangular way and located north of a river, brings – according to ancient building traditions and cosmological concepts in China – prosperity to the entire urban area, not only to those parts that were located directly in line with the
traditional guidelines. This spatial orientation and placement of the individual elements to each other was, however, particularly crucial in the case of palaces or, in today's cities, built urban elements of political function and representation.

**Guangzhou**

Guangzhou's ancient city placement has been carried out along the understanding of placing the city (rectangle-shaped) south of a mountain and north of a river (see fig. 54). This code is to be found not only in the arrangement of the old city but also in the newer development of the Tianhe CBD, which follows an arrangement along similar lines with a hill in the north of the district's central north-south axis and the river in the south.

Guangzhou is therefore not only a case where a code of spatial importance of the mountain (or hill range) can be seen in the old part of the city but also in the more recent development district (interviewees 4, 5). This speaks for the significance that this code carries, its meaning for the well-being of the city's inhabitant and its flourishment, as well as its ability to carry over into more recent urban development phases.

**Shenzhen**

The political, administrative, and economic centre of Shenzhen (Futian) is not only located at the most preferable location in the city (centre-north of the golden cross), with the shape of a rectangle, and the river in the south, it moreover has the hill (a park with a large-scale Deng Xiaoping statue) in the north. The mountain is therefore protecting

![Figure 55: Shenzhen, the mountain north of the political, administrative, and economic centre](image)
the most important part of the city, its core, from evil, according to the Chinese traditions and geomantic concepts (see fig. 55).

 Qi

(The flow of energy/breath and its holistic (spatial) connection)

The account of qi in the environment, often seen in the practice of feng-shui, demonstrates a traditional connection between the notion of qi and the constructed environment (S. Li 2014). According to feng-shui, cosmic energy (qi) flows through the landscape like wind and water. A wall or building can block or collect and augment these forces – depending on its placement – by interrupting or supporting the natural energy flows. Because these forces can be benevolent or evil, the way in which structures are placed and built is critical to the well-being of those who will occupy them. A badly placed house can bring misfortune to the family who occupies it; a carefully placed temple can bring good fortune to the populace of an entire city (Wu and Gaubatz 2013). The best construction sites are those that allow the qi to flow freely while at the same time collecting the good qi for the benefit of the residents or users. In most cases, flowing water is considered to carry good qi, however there are instances where it flows away from a site in such a way that drains the place of good qi. Moreover, with clear connection to many previously provided information, mountains and hills on the northern side of a development are the main feature in blocking off ill winds and other undesired influences (Wu and Gaubatz 2013).

Figure 56: Beijing, flow of the Qi, north-south, through the city (larger urban situation provided in the bottom box)
Occurrences (case studies where the code has been found) on the macro and meso level:

Beijing

The element and code of qi is characterized as the main driver and force for the spatial arrangements described earlier, which, in their combination, provide the most fertile ground for the individual built elements located positively as well as the city complex as a whole to capture the positive flow of energy. This flow of energy goes from the mountain in the north to the south through the capital city along its main (dragon) axis (see fig. 56).

The qi flows not only through the old imperial palace, the Forbidden City; the current main political representative buildings are located in a way right east and west of the main flow of qi to benefit from its power (interviewee 1).

Guangzhou

Guangzhou’s city composition and spatial arrangement is carried out in such a way that the qi flows from the northern hill to the south located river (see fig. 57).

Shenzhen

In the case of Shenzhen, the qi flows – similarly to Guangzhou - from the northern hill to the river south of it (see fig 58). By having the city centre and its important functions located in the rectangle south of the mountain, it is – according to traditional Chinese geomantic and spiritual concepts – possible to positively benefit from the qi.

Shenzhen, along with Beijing, have additional cases that incorporate qi into the built space on a micro level.

On the meso and micro level:

Beijing West Railway Station

The Beijing railway station west, located in the Fengtai district, was built in 1996 and conceptualised by the 3rd National Bureau of Railway Stations. The building complex is not only located along the secondary east-west axis of the city but it also has a clear
south orientation with two main entrance squares in the north and south of the building complex. Not only does the building carry clear references to ancient Chinese pagoda roof designs (as can be seen in fig. 59 in the roof accentuation), along with its monolithic architectural language of reinforced concrete, but it also carries a particular feature, a large opening in the centre of the building.

This opening, also referred to as cut or gate, has been part of the concept for the reason of not blocking the flow of energy, qi, despite building a large railway station. The solution with the opening in the centre of the building not only serves as a way to let the qi flow through the city (from north to south) but it also provides the opportunity to catch the positive energy for this site.

Considering that the railway station is a location where people arrive to the city but also commute from one part of the city to another, it gives an opportunity to all of these users of the railway station to benefit from the positive energy and carry it with them in the direction their ways take them.

Shenzhen, city hall

Similarly to the Beijing railway station west, the Shenzhen civic centre is – for a non-Chinese eye – strikingly missing a part in the centre of the building (where one might

Figure 59: Beijing West Railway Station (built 1996, Fengtai district) [view from north to south]

Figure 60: Shenzhen, civic centre, (built 2004, Futian district), [view from south to north]
expect the entrance portal (fig. 60). The Shenzhen city hall is, however, located at the most valuable location in the city according to the ancient Chinese building traditions, north of the golden cross and right at the centre of the north-south axis. In order not to block the qi that flows along the north-south axis from the mountain (see the background in fig. 60) to the river, the opening in the building was designed, thus allowing to capture and reinforce the flow of qi (interviewee 8).

The significantly different architectural interpretation of the same spatial code comparing the Beijing West RS and the Shenzhen city hall (where the former displays a conservative approach of ‘cutting out’ a piece of the building and the former actually is a two-part building with a common roof, which creates more of a ‘gate’ than a ‘cutout’) illustrates the scope and variety of code implementation on the meso and micro level.

**Facing South**

(South as the direction of spatial orientation)

Southern orientation of buildings and other man-made structure is a wide-spread principle, so it comes with little surprise that it is to be found in ancient and modern Chinese city-building and architecture as well. According to archaeological evidence, in the case of China, the presence of this principle is strong and deeply-rooted, as the ‘south-oriented layout’ is a prehistoric building tradition, older than the development of the yin and yang, the Confucianism, and feng-shui (Huang 2012, 100). In the Chinese tradition, the southern side of the world is associated with the sun and the ‘male’ (yang) energy. An exemplification of this code may be the frequent location of the most representational city gate on the southern wall of a city, which naturally came in concert with the location on the northern bank of a river.

**Occurrences** (case studies where the code has been found):

![Figure 61: Beijing Railway Station, Dongcheng (built 1959)](image)

![Figure 62: Beijing South Railway station, Fengtai district (built 2008)](image)

The Beijing West Railway Station (see fig. 59), the Shenzhen civic centre (see fig. 60), as well as the following city components are all oriented towards south along the north-south city grids (see fig. 61, 62, 63, 64, 65, 66, 67):

![Figure 63: Beijing North Railway Station, Xicheng district (built 2009)](image)
4.1 Case study analysis: an interpretation based on the traditional codes of the Chinese built environment

Walls have defined Chinese cities from the earliest times, as have enclosed spaces present in architecture and culture. In fact, the Chinese term for city, *cheng shi*, means ‘wall and market’ (Wu and Gaubatz 2013, 53–54). Closed urban space is not only generally introverted, but also exclusive; enclosure may be called an obvious and crucial element of exclusion but it does not exhaust the meaning of the term. Very often, enclosure is less related more social distinction (stratification) than to physical defence. In enclosure, the primary goal is symbolism, i.e. indicative or iconic exclusion. A Chinese enclosed neighbourhood makes it clear to visitors that they do not belong, that they are
in a foreign territory, and that they will only be tolerated for a limited time (Hassenpflug 2010, 150). In both symbolic and literal terms, city walls separated urban residents, administrative staff of the government – the mandarins - from the rest of the world. Urban residence during many eras was exclusive either to clans with specific status within the administrative hierarchy or to those who could afford the higher costs of urban life. The symbolism of walls was therefore social in this sense, but it was also cultural: for example, in multicultural settlements in China’s interior frontier zones, city walls marked the boundary between the Han Chinese and non-Chinese realms (Wu and Gaubatz 2013, 54–55). Feng-shui was also employed to protect against the ill will that may come from the north. 'Spirit walls' – long brick in front of openings such as doorways - were important in blocking any evil that otherwise might travel into a courtyard structure. Mirrors often were placed on the outsides of structures to deflect ill forces away (Wu and Gaubatz 2013, 52). Moreover, the gated aspect of walled compounds resonates with the importance of the family as an archetype for Chinese society.

**Occurrences** (case studies where the code has been found) on the meso level:

**Chongqing**

The surroundings of the Chongqing city hall, including the large square in front of the entrance portal and the stairs, is an enclosed rectangular space with gates for entrance and exit. Due to the fact that the building directly opposite to the city hall is a well-visited museum (the Three Gorges Museum), the square is popular.

The enclosing elements of this larger complex are on the one hand the two main large buildings, the museum and the city hall, but additionally there is a gate (referencing ancient Chinese city gates) dividing the large square into two parts: one in front of the museum and one oriented towards the city hall. The enclosing elements of the square, fences and gates, as well as the defining element in the centre of the square, are all arranged symmetrically and follow a hierarchical structure of axes (see fig. 68 and 69).

Despite the construction period of the square and its structural elements such as the gate (see fig. 80), which took place in the mid-1990s while the city hall was already built in the early 1950s, the ancient Chinese building traditions are referenced in the façade and the appearance of the gate. The construction technique is clearly dated
in the contemporary era by having used reinforced concrete for most of the structure. This, however, is not hidden or difficult to discover, which leads to the conclusion that ancient traditional codes and language can be combined with modern materials and techniques without much problem (interviewee 2).

Wuhan

The Wuhan Railway Station in the district of Wuchang (see figure 72, 73) follows a different architectural interpretation of the code of walls, especially city walls. According to interviewees 12, 13, and 14, the design and architectural language of this railway station is a re-interpretation of the Wuhan City Wall and Qi Yi gate (see figure 70 and 71). The underlining concept of the railway station has been designed with a concept of a new interpretation of the monolithic Wuhan City Wall, with the main entrance gate and the inclined walls constituting the main feature, as can be seen in figures 72 and 73. This design from the 2010s is referring to one of the most ancient codes of Chinese building traditions and cosmological concepts, feng-shui, as elaborated above.
The crane

(A mythical bird spreading its wings)

This bird, the crane, is legendary in Chinese beliefs and is attributed to be the prince of all feathered creature on earth. Its main traditional meanings are longevity (for which it is the most popular representation) and the wisdom that comes with old age. The Crane has long been an auspicious symbol and is the most prominent bird, next to the phoenix, in the Chinese mythology. It is believed to be immortal. The crane is sometimes called ‘the heavenly’ or ‘the blessed’. The death of a Daoist priest is said to mean ‘turning into a feathered crane’. The Chinese crane is also said to manifest a peculiar interest in human affairs. Moreover, it symbolizes progressiveness and development forward (Eberhard 2000 (1986)), (Volker 1975), interviewees 12, 13, 14).

Occurrences (case studies where the code has been found) on the macro level:

Shanghai

The Shanghai skyline is believed to be composed and conceptualized based on the traditional code of the spread wings of a bird (phoenix or crane, opinions differ between the interviewees 6, 12, 13, 14), symbolizing progressiveness and development forward (see fig. 74).

This symbol, created by the skyline of Pudong, reinforces the image of the city and its urban development goals: pioneering, forward-looking, a step ahead (interviewees 6, 13).

Chongqing

The Chongqing Skyline - shaped by the skyscrapers of the CBD in the Yuzhong district – located in the main urban centre, on the hilly peninsula, is well visible when approaching the urban centre from the south as well as from the north, sending a signal to all visitors, guests, and inhabitants of the city which it represents. The development forward and progressiveness as the path chosen by the city of Chongqing is shown, according to the interviewed experts, by the implementation of this ancient code (interviewees 2, 13) (see fig. 75).
4.1 Case study analysis: an interpretation based on the traditional codes of the Chinese built environment

On the micro level:

Guangzhou

The Guangzhou East Railway Station is not only aligned according to the north-south main city axis of the Tianhe district of the city but also the south entrance’s (see fig. 76) main design feature is the roof covering large parts of the entrance square carrying a code reference. This roof design is making use of the ancient design code - the shape of wings - as described above (interviewees 4 and 5; see figure 77). It is referring to progressiveness and development, as the railway station and especially the south entrance are among the city components of the newly developed district of Guangzhou. The new business district is located south of the railway station and provides one of the main entrances to this district, welcoming the visitors of the CBD and its employees.

Shenzhen

The Shenzhen civic centre displays a variety of traditional codes which, however, are implemented in the conceptualisation not necessarily along conventional lines. The denotation of the roof design, executed in steel and metal sheet finish, is referring to a bird swinging its wings to fly high as can be seen in figure 60 (interviewees 8, 9).
The main design feature, the roof, spans 486 meters and has a width of 154 meters, overarch ing and visible from the entire complex (public park, public square south of the civic centre, and the north-south axis which is publicly accessible and one of the ways to reach the hill in the north).

The connotation of this ancient code, as explained above, is referring to the upward development that Shenzhen has undergone ever since the economic opening and the strategic important decisions by Deng Xiaoping that led to the policies that enabled Shenzhen’s growth. The 2004 civic centre refers to this successful past as well as the future that the government had in mind when commissioning the design of this building complex.

Wuhan

The architectural office (AREP) and the Fourth Survey and Design Institute of China, who conceptualised the railway station, state that the design is referring to the yellow crane (see fig. 79) with the train station’s roof being the spread wings (see fig. 78). The reference was made because in Wuhan there is the most famous Yellow Crane Tower, which is not only a tourist attraction but also brings about one of the most important landmarks of the city with which the inhabitants of the city identify themselves (interviewee 13).

Another interpretation of this code is the connotation to the nine-headed bird, also called the 'Nine Phoenix', which is one of the earliest mythical creatures of Chinese mythology and has been worshipped particularly by people native to Wuhan and the Hubei province (interviewees 12, 14).
Colours & Shapes

(The spatial manifestation of Chinese traditional codes of colour)

Colours are invested with different meanings in China than in Western cultures, to the point where it is not irresponsible to suggest that the connotative meanings of colours are more important in communicating in Eastern rather than Western cultures (Kommonen 2011, p. 367). When used on their own, the colours carry specific meanings; together, the five colours reflect a hope for good luck and warding off evils (Kommonen 2011, p. 370).

Due to the interconnectedness of the Chinese mythology and culture, each element, each sound, each order of magnitude within the numerical schemes, each colour, etc., possess qi; consequently, distinct formal ways of assigning colours apply to the Chinese art but also architecture and city-building. To draw a comparison, mixing colours, common in the western realm, would be seen through the lens of the Chinese concept of colours as diluting them and thus weakening their qi (Li 2014). The cyclical structure of five colours (wuse) – green/blue, red, yellow, white, black – sees them as parallel manifestations of the five elements of the universe (Li 2014). In the imperial palaces, colours and forms were strictly codified in accordance with hierarchy and power (Li 2003).

Red

Red, corresponding with fire (and sharp-angled shape), symbolizes full vitality, good fortune, sun, inspiration, and joy (as mentioned in Chapter 3.3.), but primarily it expresses happiness; it is a universally liked colour throughout Chinese history. The red colour of a packet symbolizes good luck. Red is strictly forbidden at funerals as it is a traditionally symbolic colour of happiness; it is, in turn, the common celebration colour, e.g. for weddings or the New Year; during the Spring Festival, red items, such as lingerie, are sold. Another key function of this colour is to ward off evil, for which reason the walls of the Forbidden City and modern buildings as well are painted red. Contrary to the Western presupposition regarding Chinese red as the colour of communism, red for the Chinese predates communist ideology by thousands of years (Kommonen 2011, p. 371). In modern China, red remains a very popular colour and is affiliated with and used by the Government not only for today's political meaning.

Yellow

Yellow, corresponding with earth (and rectangular shape), is considered the most beautiful and prestigious colour; it stands for sunshine and brilliance. There is a saying, 'yellow generates yin and yang', implying that yellow is the centre of everything. It signifies neutrality and good luck. Yellow is sometimes paired with red in place of gold. Even today, the colour yellow carries an exclusive undertone of belonging to the emperor, which dates back to the Han dynasty (202 BC-220 AD). The emperor wore bright yellow clothes, and no-one else was allowed to use yellow. Yellow or gold was also used on the ceilings of the emperor's buildings. Yellow represents gold as a colour; hence, it represents richness (Kommonen 2011, p. 372). It also represents freedom from worldly cares and is thus esteemed in Buddhism.
White

The difference in the perception of the white colour between East and West is visible in the fact that in the East it is the colour associated with death and used for funerals. The deeper difference, however, is that the connotation is lighter than in the West, as it refers less to mourning and more to passing and the anticipation of new life. Apart from that, white may stand for winter and snow, as well as for brightness, purity, and fulfilment. White corresponds to metal in the five elements matrix (Kommonen 2011, p. 372).

Black

Black is considered a neutral colour in the Chinese culture. Importantly, it needs to be noted that the complementarity of black and white is embodied in the yin-yang symbol, which is exclusively black-and-white. Black has a slightly mysterious connotation through references to northern or western skies, from where dark and gloomy weather frequently comes to China, and which directions stand for non-Chinese realms. Black corresponds to water, which is a universally auspicious element in the Chinese culture.

Green

The green colour belongs to the five main colours and is generally associated with health, prosperity, and harmony, however it is frequently considered together with blue or even the two are treated as one, exemplified by the green-blue shade that water or skies sometimes take on. This blend of colours may be difficult to comprehend for westerners as it refuses a clear classification. Green-blue is popular in ornamentation that denotes hope for longevity. Green-blue is also strongly connected to royal buildings: for instance, the roofs of buildings inside the Forbidden City are green. Moreover, in traditional art and handicraft, it can be observed that the other four colours are represented consistently: black and white being the obvious ‘pure’ colours, red taking on one certain main shade, and yellow appearing in its two main variants (imperial yellow and gold), while green/blue come in a broad spectrum of shades (Kommonen 2011, p. 372).

Occurrences (case studies where the code has been found):

On the micro level:

Shenzhen

The feature of the Shenzhen civic centre that stands out the most is the roof. As described above, in addition to the denotation and cultural Chinese connotations of the spread wings, the codes used in this building complex extend to the use of the colours red and gold (yellow) in the main two columns supporting the roof structure and also serving as design features (see fig. 60) and even stick out through the roof so the shapes and colours can be seen while standing at the viewpoint of the northern hill, overlooking the city from the most central north south city axis (the dragon axis). The red column on the eastern side of the symmetrically-designed civic centre, rectangle-shaped, symbolizes full vitality, good fortune, and joy. The golden, plated with metal sheets, and round-shaped column on the western side of the central axis running through the building, signifies neutrality and good luck. Gold and yellow are considered the most beautiful and prestigious colours and the centre of everything.
Since it was the emperor’s colour in Imperial China and is held as the symbolic colour of the five legendary emperors of ancient China, red is a carefully chosen one in the context of the most representative governmental building in Shenzhen, symbolizing and representing the governmental strength and success in developing Shenzhen into an internationally important city with economic power and massive rapid growth during the recent three decades (interviewees 8, 9).

The two most important vertical design features of the building (see fig. 60), the round and square columns, reference the balance and harmony connoted with the combination of heaven (round) and earth (square), yin and yang, phenomena in the Chinese understanding of the universe of endless interaction between the two opposing natures of yin and yang, which manifest themselves in oppositions such as light-shade, man-woman, sun-moon, or heaven-earth (round and square). Shenzhen’s government is not only interpreting the ancient Chinese codes in a contemporary fashion (debates about the aesthetics of the complex are manifold and being had among citizens as much as professionals) with the help of materials and construction techniques that have only been available since the last decades embodied in the civic centre as the centre piece of the larger picture of Shenzhen’s city layout and planning principles.

Chongqing

The Chongqing city hall main square is defined by the ancient-looking gate built in 1997 along with the square. Along with the built language of the city hall, the gate design makes use of the ancient Chinese symbols. Among these symbols and architectural codes the use of the red colour for the main columns of the gate is the most prominent one, in concert with the traditionally-shaped roof design of the gate structure (see fig. 80).

The red columns with their rectangular shape symbolize full vitality, good fortune, and joy. The ornamental decor as well as the roof, its blue/green colour referring to the emperors buildings, makes use of the colours mentioned above: gold, blue, and white. Gold and yellow are considered the most beautiful and prestigious colours and the
centre of everything. Even though the aesthetics of the gate design might indicate the use of traditional construction materials, most of the gate has been built with reinforced concrete and the roof tiles are not made out of fired clay although this might be the first impression (interviewee 2).

Overall, the gate of the Chongqing city hall appears to be an ancient Chinese construction, using the traditional codes and architectural language and symbolism of colours and shapes (roof design). However, the gate has been constructed in the 1990s and is, especially to a non-Chinese observer, only appearing to be ancient, the reference - ancient Chinese architectural symbology - is unambiguous, while the construction technique is modern. These two facts are not conflicting with each other in the Chinese environment, since the message - a symbol of power and prosperity in the form and shape of an ancient Chinese looking gate - is conveyed even without following the details of construction technique or heritage preservation (or the copying of ancient references). It is the idea, symbolised by the gate, that creates the messages in the mind of the Chinese observer that is the most crucial. This is in direct connection to the phenomenon of 'memory without location' which was discussed in chapter 2.2.

4.2] Case study analysis: an interpretation based on the chronology of their construction

This sub-chapter offers a different angle of viewing the codes identified in the selected city components. It reshuffles the codes presented in 4.1. and orders them according to eras of the Chinese urban development in the 20th and 21st centuries. It offers the placement of the analysed case studies according to their period of construction with a brief description of the significant built features of their time. This is not aiming at providing an analysis that could be found in writings of architectural historians (such as Li Shiqiao or Guo Qinghua just to name a few), since the scope of this thesis and the authors expertise lies in analysing the case studies based on their ancient traditional Chinese codes, as seen in chapter 4.1. The following analysis, however, takes into account the socio-cultural connotations (as the last sub-chapter did), however it discusses the Chinese-ness, manifested in the selected case studies, from a chronological perspective. Moreover, this section remains in strong connection to Chapter 2 in general, however it tries not to double the content provided. The temporal classification in this sub-chapter consists of the following:

1. the Imperial era – marked by technological obsolescence and heavy colonial influences,
2. the Republican era – marked e.g. by a new kind of nationalistic narrative,
3. the Revolution era – marked by the communist regime’s approach to urban space, architecture, and codes of the built environment,
4. the Global era – marked by the rapid, large-scale changes caused by the opening and the introduction of the free market.

A visualisation of this classification can be seen at the end of this sub-chapter in figure 98.
The Imperial era (before 1912)

In the late Qing period – which in the context of this discussion may be defined as the time from the establishment of the Treaty Ports in mid-19th century until the fall of the dynasty in 1911 – China experienced an increasing level of acceptance and presence of western building styles. This happened due to a combination of factors, among which two seem the most impactful: the administrative, economic, and cultural weakness of the imperial authorities, which were not able to reject the western influence nor to offer an enticing alternative; and the economic power of merchant-propelled western corporations and state-backed companies, coupled with the allure of the more technologically advanced, exotic style of building and living. This western influence was visible the most in the realm of infrastructure, as here – in the construction of railways, harbours, etc. – the western technological advantage was the most distinct and since living the western way was only affordable to a minuscule number of Chinese.

This, importantly, is the most relevant theatre of development for this dissertation in the perspective of this period, because apart from the Wuhan city hall (today the Wuhan People’s Government), the only city components from the examined group that were built in that time are railway stations. As discussed in the section dedicated to the development of the railway system in China, it began late (in comparison to the western development) and with reluctance from both the authorities and conservatives, and after it did start, initially all railway-related construction was carried out by foreigners. As a result, these of the examined train stations from before 1912 that were possible to be researched, listed below, looked western or were a mix of western and Chinese design. Moreover, the ones that carried unambiguous western design were located in cities that had foreign trading concessions. Another interesting detail worthy of mention here is that not all Chinese builders were interested in such developments, as some of them considered infrastructure projects – such as bridges or railway stations – not to be architecture proper and thus below their dignity.

As a result, the below-mentioned railway stations either no longer exist or have no more logistical function today. For this reason, they have not been analysed in the search for codes – their descendants, however, have.

The eight train stations built in the imperial era that are among the predecessors of the examined city components in this research belong to the first wave of railway stations construction. They include: Tianjin RS (1888, Hedong district), Wuhan Hankou RS (1903, Jianghan district), Beijing North RS (1905, Xicheng District), Shanghai West RS (1905, Putuo district), Shanghai South RS (1908, Xuhui District, Laohumin Lu), Shanghai RS (1909, Zhabei district), Tianjin West RS (1910, Hongqiao district), and Shenzhen East RS (1911, Longgang district). The Wuhan Hankou RS may be characterised as having been built according to the western architectural styles and as being clearly referenced in its contemporary predecessor; it has also physically survived and today is an unused but preserved building not far from the contemporary one. The Shanghai RS was built as a hybrid of Chinese and western design styles; it has since been replicated and repurposed and is now a museum of railway transportation. The remaining six do not exist anymore due to being razed or completely incorporated in later structures; unfortunately, were impossible to be researched further due to the natural inaccessibility to generate data during the research visit in China.
The Republican era (1912-1949)

In the period of the existence of the Republic of China (1912-1949), some of the phenomena observable in the built environment in the late imperial era continued, while new emerged. As described in Chapter 2, there were three main approaches to modernisation: a conservative or traditionalist one, arguing that the Chinese identity is being lost and the Chinese way is being ‘polluted’ by the external influence, and therefore that westernisation should be opposed; a reformatory or progressive one, positing that copying solutions from the West is the best path and that modernisation should be the most important goal of the nation; and the middle camp, represented by those who proposed that China finds its own way to modernisation (with careful adoption of foreign doctrines), which they deemed necessary but not at the cost of diluting Chinese-ness. This was also reflected in the tumultuous political life of the period, with compromise governments, social unrest, and civil conflicts. Naturally, this conglomerate of factors is reflected in the architecture of that period. Authorities of Republican China wanted to reform both the society and the landscape of the country. The latter included heavy investment in infrastructure – objects such as roads, bridges, sewage systems, etc. – but also efforts to control the aesthetics of the built environment. There was a clear drive towards controlling the façades of buildings with the goal of making them more uniform, as well as attempts to establish more governmental control over the construction market.

Nationalism was strong in the Republic era; however, it took on different faces. Apart from the outright rejection of anything foreign displayed by the most conservative factions, many other groups looked for new ways of retaining and expressing the national identity in all aspects of life, including architecture and planning; ones that would stay clear from uncritical adoption of western approaches while at the same time not referring too strongly to the imperial power. As a result, the dominant trend in architecture of the Republican period was one that referred to the Chinese tradition. This may be seen in
the case of the Guangzhou city hall (currently People's Government building) (see fig. 81), which displays the architectural language of the Republic of China: national codes of traditional ancient architecture combined with the 1930s architectural language of power (entrance, columns, use of colour). The traditional Chinese building codes that can be found in this case study are further described in chapter 4.1.

The other case from that time – the Wuhan Wuchang RS – was originally constructed in 1916, however has been relocated a couple of times before settling in its today's location and little data is accessible about the buildings preceding the contemporary one.

**The Revolution era (1949-1979)**

The first decade of the communist rule in China was marked by close ties and cooperation with the Soviet Union. China has been helped in its efforts to recuperate after the war and to build communism by the neighbouring superpower in various ways; among them was the presence of Soviet builders and designers and the adaptation of the socialist realism style in art and architecture. Pre-reform China shunned western architectural theory and instead embraced the Soviet doctrine of 'national form with socialist content'; the approach was accepted by most leading Chinese architects due to their nationalist leanings and beaux-arts education. Early in PRC's history, Liang Sicheng proposed a theory of using traditional forms as a 'vocabulary' for architectural composition but this proposal was found too expensive to implement and was replaced in 1959 by functionally vague principle that wanted buildings to be 'functional, economic, and aesthetic when conditions permit' (Miao 2009a, p. 21). The Chinese communist regime – similarly to other countries of the bloc in that time – was investing most of its developmental power on two fronts: infrastructure and representational buildings. A prime example of the monumental city-building undertakings of the time is the reconstruction of the Tiananmen Square in Beijing, which hosts one of the city components analysed in this research: The Great Hall of the People, built 1959 (see fig. 83 and further analysis, especially on the macro and meso level in chapter 4.1).

Miao summarises the architectural style of the period by stating that

> the majority of buildings erected in China between 1949 and 1979 appeared as simple boxes: not, however, in a conscious pursuit of Modernism, but as the result of a poor economy. As for the small number of public buildings intended as architecture (e.g. the 'Ten Grand Projects' in Beijing during the 1950s), Soviet classicism and Chinese classical revivalism were the official styles, reflecting both government control and the taste of leading architects (Miao 2009b, pp. 22–23).

The trend represented by these buildings may be described as focused on achieving an impressively massive aesthetics and high functionality; these buildings were not necessarily entirely deprived of traditional Chinese codes, however they were implemented at the level of architectonic details, such as window frames or doorways that show the implementation of handicrafts and techniques of traditional Chinese construction knowledge. In the 1960s and 70s, however, after the ties between China and the Soviet Union had become less close, the Soviet-flavoured social realism was disused and instead the style evolved towards China's own architectural expressions of the communist ideals.
In Chapter 2, the section dedicated to the Chinese railway system provides some data on the rapid increase in the length of railways that happened during the Mao era. This constitutes the most important symptom of the priority put on infrastructural development by the authorities of the time. The country was being heavily industrialised, which created the obvious necessity for developing the transportation system; that included ‘The Great Leap Forward’ plan of a four-year (1958-1961) especially heightened effort for the whole society to meet the goals set by Mao Zedong’s government. Four out of six city components from that period present in this research are train stations; the other two are city halls.

City components of this research built in this period:

*Shenzhen Railway Station* (1950, Luohu district):
- This railway station was originally constructed in the Luohu port area. The initial first building no longer exists and therefore it has not been possible to collect data on it;

*Chongqing city hall* (1952, The Chongqing People’s Hall, Xuatian Bay district), see figure 68:
- For the macro and meso scale analyses, see 4.1.;
- On the micro scale, the design of this building refers to the traditional Chinese building language. The point of reference is the Temple of Heaven and its round shape (as indicated by the interview partner for Chongqing [2]);

*Chongqing Railway Station* (1952, Yuzhong district), see figure 82:
- Reconstructed and maintenance in 1992 and 2012;
- For the macro and meso scale analyses, see 4.1.;
- The Chongqing railway station has less representative function in the urban fabric of the city. This building was initially constructed in the early years of the Chinese People’s Republic with functionality first and foremost in mind. On the micro scale, the design was simple a concrete structure with little ornamental details, with the addition of the short main tower as a landmark, orientation point.

*Figure 82: Chongqing Railway Station, Yuzhong district (built 1952)*
and the only representational note;

*Beijing city hall* (1959, Great Hall of the People, Tiananmen Square), see figure 83:

- For the macro and meso scale analyses, see 4.1.
- On the micro scale, the design of this building belongs to the Chinese socialist realism style, however with the inclusion of traditional techniques in some architectural and interior design details that remain below the interest scope of the present analysis (carpentry, handicraft);

*Beijing Railway Station* (1959, Dongcheng district), see figure 61:

- For the macro and meso scale analyses, see 4.1.
- On the micro scale, this building also represents Chinese socialist realism. In addition to the standard features of that style, more traditional aesthetics are visible in the design of the roof;

*Guangzhou (central) Railway Station* (1974, Yuexiu district), see figure 66:

- For the macro and meso scale analyses, see 4.1.
- On the micro scale, the architectural design of this building represents the late period of Chinese socialist realism. The design is functional with representational portal, and no elements of traditional Chinese building language have been identified.
The Global era (1979-)

After the 1979 economic reform and the introduction of ‘open door’ policies, the chances of growth and development appeared in front of Chinese cities. The state no longer tightly controlled architecture, however architects largely lost interest in architectural theory in an increasingly market-oriented situation, especially past 1990 (Miao 2009a, p. 21). The cities with the largest advantage to make a developmental leap were the 14 cities designated as coastal open cities (of the case studies of this research, Tianjin, Guangzhou, Shenzhen, and Shanghai belonged to that set). Chinese cities became able to improve their current roles or create new ones, which would in turn stimulate the expansion of tertiary activities (J. Xu and Anthony G.O Yeh 2003, 364). As discussed in Chapter 2, Economic and Technological Development Zone (EDZ) and Special Economic Zones (SEZ) were created in the hope of attracting foreign investment. Prior to economic reform in 1978, spatial development relied primarily on individual industrial projects that provided jobs as well as infrastructure and social provisions. After the reform, municipalities undertook initiatives to invest in land development by demarcating development zones and providing infrastructure and serviced land under a unified planning method53 (J. Xu and Anthony G.O Yeh 2003, 365). However, frequently ambiguity in defining development objectives and unclearly articulated policies of economic restructuring, land use, and inner city redevelopment, have resulted in numerous urban problems (J. Xu and Anthony G.O Yeh 2003, 367), the most prominent of which include urban sprawl, air pollution, unsustainable urban development, and the real estate market bubble.

In the search for a direction for today’s Chinese architecture, the debate between traditional and modern styles was intense in the 1990s, with the balance finally shifting towards the latter (Miao 2009a, p. 21). The first two decades after Deng Xiaoping’s reforms saw China relying heavily in the field of the built environment on external references, know-how, technologies, and experts. The demand went hand in hand with the supply, as the exploding Chinese economy, the domination of the Chinese state over its land and capital, and the urgent need for development provided funds, project security, and an abundance of commissions, which made engaging in urban development in China attractive to architects and developers from outside of China. This has resulted in a wide variety of outcomes, spanning from successful for both the Chinese commissioners and the foreign authors, to disappointing for both parties. This period has also given rise to such radical urban phenomena as projects that copy certain settings and places one-to-one from distant cultural realms (which Hassenpflug ascribes to some of the features of Chinese culture: appropriation, production, and consumption of space,(Hassenpflug 2010, 96). In the last decade, however, the demand for non-Chinese input into the urban development in the Middle Kingdom has been decreasing as a result of increased domestic supply of professionals and developers and of negative political pressure on outsourcing design to non-Chinese.

Most importantly for this thesis, however, this was the time of the emergence of the claim suggesting that Chinese cities began to lose their Chinese-ness due to the overwhelming

53 References to traditional Chinese cultural codes can be found even in language that pertains to the built environment or economy, as the mayor of Guangzhou said the city should be developed as a modern metropolis with a “dragonhead” role in the Guangdong Province, exerting its influence in southern China and Southeast Asia (Information Times, 2003) (J. Xu and Anthony G.O Yeh 2003, 367)
external influences. The investigation carried out in this dissertation and presented in this chapter wants to assess the validity of this claim, while at the same time to draw conclusions concerning culturally sustainable planning in the Chinese urban setting. The research has searched for traditional Chinese codes in the built environment (chapter 4.1) with the most attention, due to the time period of the construction of the case studies, turned to the post-opening era in China, as can be seen in the previous and current subchapters as well as the matrix (fig. 100 a - g) to be found in the Appendix.

City components of this research built or reconstructed in this period (listed in chronological order of their time of completion):

**Chongqing city hall** (Yuzhong district), see figure 68 and 69:
- East wing added in 1986;
- Plaza referring to the Tiananmen Square in Beijing constructed in front of the city hall in 1997; along with an separated area, marked by a gate created along the fashion of ancient traditional Chinese city gates, as can be seen in fig. 74. This illustrates a direct link and reference to ancient Chinese building traditions dating back centuries and thousands years, even if the materials and construction technology used are along modern contemporary techniques and abilities. It has not been tried to find a contemporary interpretation of these ancient references, but a direct and obvious link has been created.

**Shanghai Railway Station** (Zhabei district), see figure 65:
- Built in its current form in 1987;
- roof extension in 2010;
- For the macro, meso, and micro scale analyses, see 4.1;

**Tianjin (main) Railway Station** (Hedong district):
- Built in its current form in 1988;
- extension in 2008;
- For the macro and meso scale analyses, see 4.1;
- This railway station has been conceptualised and designed during the early years of the economic reforms of Deng Xiaoping and codes conforming with socialist doctrines are present but they are a more modern versions of them,

![Figure 84: Tianjin Railway Station, Hedong district (built 1988)](image-url)
partly because of the materials that have been used. The south plaza faces the river, see figure 84, which combination is used to showcase the representative function to the city of the other side of the river.

**Shenzhen Luohu Railway Station, Luohu district:**

- Built in its current form in 1991;
- Extension in 2008;
- For the macro and meso scale analyses, see 4.1.;
- Micro scale: the US American designers did not implement traditional Chinese building codes according to this study; the building follows a functional architectural language, see figure 85:

![Figure 85: Shenzhen Luohu Railway Station, Luohu (built 1991)](image)

**Wuhan Hankou Railway Station, Jiangshan district:**

- Built in its current form in 1991;
- Minor extension in 2008;
- For the macro and meso scale analyses, see 4.1.;
- Micro scale: the main entrance building and representative building element references in its design conceptualisation the original built station from 1903 (see fig. 86, which still exist as part of the urban fabric, however, it is unused, closed to the public, and not well maintained. The original design has been carried out by the colonial parties that had their concessions in Hankou during the time of the early 20th century. The built language of the current Hankou railway station refers directly to this colonial (European) design (see fig. 87), however, on a larger scale, since the current station is manifold larger in its scale (interviewee 13, 14). The colonial references with the bright façade, towers, and arch of the entrance portal building is however striking and allows conclusions to the positive connotation of this colonial era in terms of infrastructure buildings (such as railway stations) in Wuhan in the early 20th century.
4.2 | Case study analysis: an interpretation based on the chronology of their construction

Shanghai CBD, Pudong district, figures 29, 36, 41, 47, 70:

• under development since 1994
• For the macro and meso scale analyses, see 4.1.

Shanghai city hall – The Great Hall of the People (Nanjing Road, People’s Square):

• Built in 1995;
• For the macro and meso scale analyses, see 4.1;
• Micro level: the sober concrete architectural connotations of the building carry meaning of power through the solid, monolithic design language. On the micro level of the analysis no traditional Chinese codes were found in the analysis, see figure 88 (interviewee 7)
Guangzhou CBD (Tianhe district), see figures 30, 37, 43, 49, 54:
- Under development since 1996
- For the macro and meso scale analyses, see 4.1.

Shenzhen CBD (Futian district), see figures 31, 38, 44:
- Under development since 1996
- For the macro and meso analyses, see 4.1.

Beijing West Railway Station (Fengtai district), see figures 42, 59:
- Built in 1996;
- For the macro, meso, and micro scale analyses, see 4.1.

Beijing CBD (Chaoyang district), see figure 42:
- Under development since 1997
- For the macro and meso scale analyses, see 4.1.

Guangzhou East Railway Station (Tianhe district), see figures 49, 76, 77:
- Built in 1997;
- Reconstruction in 2010;
- For the macro, meso, and micro scale analyses, see 4.1.

Chongqing CBD (Yuzhong district), see figure 75:
- Under development since 2002
- For the macro and meso scale analyses, see 4.1.

Tianjin CBD (Heping district), see figure 46:
- Under development since 2004
- For the macro and meso scale analyses, see 4.1.
**Wuhan CBD** (Hankou district), see figure 45:

- under development
- the main CBD of Wuhan was still under construction and inaccessible during the author’s research visit, therefore it was not possible to collect data for the research.

**Shanghai West Railway Station** (Taopu Road, Putuo):

- Rebuilt in 2006;
- Another partial reconstruction started in 2010, completion planned for 2018;
- This tier-II railway station outside of the main urban centre is part of a larger commercial transportation centre and was partly still under construction during the research visit. The main entrance building, which is only part of a much larger complex to come, displays no traditional Chinese codes and is built with a language of functionality and modern, contemporary, clean appearance as can be seen in the figure 89 below;

![Shanghai West Railway Station Taopu Road, Putuo district (built 2006- unfinished)](image)

**Figure 89**: Shanghai West Railway Station Taopu Road, Putuo district (built 2006- unfinished)

**Wuhan Wuchang Railway Station**, Wuchang district, see figures 70-73:

- Rebuilt in 2007;
- For the macro, meso, and micro scale analyses, see 4.1.;

**Shanghai South Railway Station**, Xuhui District, (Laohumin Lu):

- Rebuilt in 2008;
- For the macro and meso level analyses, see 4.1;
- The station is located south and outside of the inner urban area. It is a tier-II railway station designed by a French design studio, not clearly referring to Chinese socio-cultural contextual codes (the round shape, as can be seen at the Beijing temple of heaven, is a shape that is connotated to heaven and spiritual meaning, which, in this case was most probably not intended), see figure 90:
Beijing South Railway Station, Fengtai district, see figure 85:

- Built in 2008;
- For the macro and meso scale analyses, see 4.1.;
- Micro level: elliptical floor plan, with plazas on the north and south side, which are not following the orientation of the building (north-east to south-west). The station, conceptualized by the British design firm TFP Farrels, does not refer to traditional codes, it does however, carry an architectural language that expresses and connotates representative function by the use of advanced building and construction techniques (see fig. 91);

Tianjin West Railway Station, Hongqiao district:

- Rebuilt in 2008 (with the original station from 1910 in the near vicinity of the railway station’s complex, see fig. 92);
- For the macro, meso, and micro scale analyses, see 4.1.
- Meso level: the building and its entrance plaza are oriented north-south, while
having the river both on its northern and southern sides. Micro level: the monumental structure makes use of the clear geometrical forms such as rectangle and circle, symbolising the harmony of Heaven and Earth, see figure 93. However, although the station’s construction has been completed, at the time of the research visit, the station was hardly in use.

Beijing North Railway Station (Xicheng District), see figure 63:

- Rebuilt in 2009;
- For the macro level analysis, see 4.1;
- Meso and micro levels: the entrance building of the station is a rather sober and functional building concept, while the main station is under ground and part of a larger office and shopping complex. This station belongs to the tier-III level of railway stations and this is clearly visible in the less representative building language and no clear reference or use of traditional Chinese codes;
**Guangzhou North Railway Station** (Huadu district, at the outskirts of Guangzhou, does not belong to the main central urban texture of the city):

- Built in 2009;
- Macro level: Guangzhou Railway station north is not part of the urban texture of the main city due to location in the northern outskirts of the city. Therefore, traditional codes on a macro level can not be identified;
- The micro level codes identified (round, harmony) are not the primary representative message but rather the functionality and tertiary position in the hierarchy of railway stations of Guangzhou, see figure 94;

![Guangzhou North Railway Station, Huadu district (built 2009)](image)

**Wuhan Railway Station** (Hongshan district), figures 78, 79:

- Built in 2009;
- For the macro, meso, and micro scale analyses, see 4.1.;

**Shanghai Hongqiao Railway Station** (Minhang, Shenhong Road), see figure 67:

- Built in 2010;
- For the macro, meso, and micro scale analyses, see 4.1.;

**Guangzhou South Railway Station**, Panyu district, see figure 49:

- Built in 2010;
- For the macro and meso scale analyses, see 4.1.;
- the international office TFP Farrels (London based) aimed at creating a concept with an open floor-plan, a "garden" approach, in order to connect the city Guangzhou with Foshan, both cities are connected with the railway station south (interviewee 5), see figure 95. There have been no ancient traditional codes of Chinese socio-cultural context identified.
Shenzhen North Railway Station (Bao’an district), see figure 64:

- Built in 2011;
- For the macro and meso scale analyses, see 4.1.

Shenzhen East Railway Station (Longgang district), see figure 50:

- Rebuilt in 2004;
- Rebuilt again in 2011;
- For the macro scale analysis, see 4.1;
- Meso and micro level: the station building and its commercial area and public space is oriented east and west, while the railway tracks go through the station along the north-south axis. The architectural language does not refer to traditional Chinese building codes and instead is a functional, simple design (see fig. 96). This might be the case due to the fact that the major railway stations of
Shenzhen are still under construction and will have a more representative function.

**Tianjin South Railway Station**, Xiqing district, see figure 52:

- Built in 2011;
- For the macro and meso scale analyses, see 4.1;
- On the micro scale analysis the station follows a contemporary functional design language with ornamental elements in the way the glass elements of the façade are designed (see fig. 97). There is, however, no clear reference to traditional Chinese codes to be found in this case study in the architectural design of this railway station.

![Figure 97: Tianjin South Railway Station, Xiqing district (built 2011)](image)

This additional chronological overview and additional embedment of the analysed case studies within their period of construction is illustrating the variety of architectural and design styles applied and found on the analysed cases. The placement of their period of construction along with the political, socio-cultural, and economic situations of their creation provides information to what extend traditional Chinese building traditions and codes were referenced in the respective eras of construction. This in turn is crucial to answer the research questions, based on the analysis provided in chapter 4.1 and 4.2, which will be carried out in the following sub-chapter.

The chart below (fig. 98) shows the chronological distribution of the analysed city components. A larger version of the chart is to be found in the Appendix.
4.2 Case study analysis: an interpretation based on the chronology of their construction

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1890</td>
<td>Founding of the Great Leap</td>
</tr>
<tr>
<td>1891</td>
<td>Founding of the Qing Revolution</td>
</tr>
<tr>
<td>1893</td>
<td>Xiangping's Republican of Beijing protest</td>
</tr>
<tr>
<td>1894</td>
<td>China joins World Expo Shanghai Olympics Beijing</td>
</tr>
<tr>
<td>1897</td>
<td>Guangzhou Railway Station</td>
</tr>
</tbody>
</table>
4.3 | Research results and preliminary conclusions

The preceding sub-chapters have presented the analysis of the case studies and the traditional Chinese codes identified in them. Sub-chapter 4.1 was organised according to codes, where code occurrences in the case studies were grouped together; sub-chapter 4.2, in turn, presented a chronological listing of the case studies and completed the analysis by naming the situations where no references to ancient Chinese traditions were found. The confirmed codes based on the conducted analysis of the case studies were:

- Along the river, across the river
- The dragon and golden axis
- City grid
- The rectangle
- Mountains and hills

- Qi
- Facing south
- (City) walls
- The crane
- Colours

It can be said, based on the presented study, that references to ancient building traditions occur not only in the case studies built a century ago but also in contemporary buildings and urban developments, which make up the large majority of the examined city components. The codes have been identified on three analysis scales: macro, meso, and micro. It is worth noting that on the macro scale all cities examined in this research referred to traditional codes. Moreover, Shenzhen, by far the youngest city of the seven, has been developed with an abundant implementation of references to ancient building traditions, and the older cities, which of course grew tremendously in the last decades, have shown varying extents of adhering to those traditions in their newly-built expansion districts, but, within the body of this research, never a complete absence of such references. As has been stated in the previous segment of this dissertation, not for every analysed city component was the author able to identify if it included a reference to a traditional code, as can be seen in some of the Revolution-era (when socialist realism limited their use) and Global era (e.g. when a non-Chinese designing office did not implement them) projects; finally, research could not have been carried out in the couple of cases due to the unfortunate inaccessibility of sites. This subchapter concentrates on distilling conclusions from the carried-out analyses in order to answer the research questions and verify the research hypotheses. Consequently, the subchapter returns to the question whether the largest cities of China have been developing with decreasing attention to their local contexts and cultural specifics, and offers an answer based on the conducted research.

The primary research question of this dissertation was whether, in the process of globalisation and due to the opening to foreign influences and therefore to cross-cultural transfer processes, the Chinese urban development has been losing its ‘Chinese-ness’ or local cultural context. In the light of the analyses results, the answer would be no, however, that answer would oversimplify the matter and overlook the complexity of the issue discussed in this research. Based on the research analyses, the contextual and ancient Chinese socio-cultural codes can still be found, sometimes even in abundance, in the Chinese built environment. Results have shown, on the one hand, that urban design projects need to respond to global overarching aims such as technological
advancement, environmental issues, quality of life, increasing urban population, but on the other hand one can see the use and at times misuse of traditional codes in the representation and the way the cities and building complexes are created and communicate to their surroundings and to its users and inhabitants, and potential customers or investors. Examples include the Wuhan railway station, one of the most modern transportation hubs in central China, which refers abundantly to one of the mythical creatures, the yellow crane, that have always been a part of traditional Chinese culture; a bank building in the Shenzhen Futian CBD that incorporates a shape which used the architectural tradition of the collection of wealth and fortune, as well as the Shenzhen city hall which is situated on the main north-south city axis in order to benefit from and capture, but not block, the qi flowing through the building. Even though it was only built in the past decade, this representational governmental building complex uses ancient Chinese traditional codes and plays with the tacit knowledge and the intangible layer embedded within the Chinese ancient and contemporary culture. On a larger scale, some of the fundamental concepts, inspiring urban design principles, are the same ones that are present in historic Chinese cities. It is clear however, that urban transformation in China is confronted with the challenge of balancing the latest developments in technology, and demands of the urban growth with ancient traditions and the cultural roots of the inhabitants.

This is true not only for those urban elements that have been constructed centuries ago (such as Beijing’s spatial arrangement on the macro level) but it also is, more interestingly, true for the more recent developments (visible on each of the macro, meso, and micro levels); the presence of traditional codes of the post-opening projects may serve as the strongest argument in pointing out that traditional and deeply rooted Chinese cultural features have not completely ceased to exist. It is a fact, however, that the rapid and large-scale urban development on such a large scale has taken a toll on the Chinese urban fabric, especially when looking at the top tier cities; this observation may also be applicable to the urban tissue that was not within the focus of this research.\footnote{Some of the analyzed and researched urban neighborhoods (e.g. in Wuhan in the district of Wuchang) have been razed after data collection during the fieldwork. Unfortunately, it is not within the scope of this research to analyze deeper the strains that have appeared due to the Chinese rapidly developing urban landscape. This would, however, open the scope for further research approaches that might help to understand the effects of fast urban development on the cities and their inhabitants, where and how this has happened and affected the involved stakeholders.} The rapidity of urban transformation and growth has had its side-effects, such as razing neighbourhoods that have been parts of cities for generations in order to make space for new developments. This may be viewed a necessity to leap-frog Chinese cities to the development level comparable with their counterparts globally. The way this development has happened illustrates the struggle of balancing local identities, traditions, and ancient cultural roots with newest advanced approaches, spatial concepts, and technologies, as well as with the mechanisms of the capital economy.

Turning to the second of the two main research questions, which, directly connected to the first one, asks that if Chinese cities have been losing their Chinese-ness, then are there any signs of China shifting back towards it. With the answer to the first question stating that Chinese-ness is not diminishing, the second question could be considered no longer valid. However, it still can and should be answered, on the grounds of the
conducted research. It can be said that although the Chinese urban development is not per se shifting back to Chinese-ness or more local identity, one can observe that some of the developments that happened until the last couple of years adopted western (e.g. from USA, Europe) patterns and aesthetics generously and sometimes uncritically. This may be understood as approaching urban development not from the perspective of prioritising local contexts but rather of embracing and seeking out the global and so-called ‘leading’ city-building doctrines and spatial concepts. The New Urban Agenda on housing and sustainable development (by UN Habitat III, October 20th, 2016, Quito, Ecuador, and ratified widely by the international community including China) as well as the report issued by the German Advisory Council on Global Change (WBGU, February 2017), however, made the local Eigenart one of the priorities: ‘Urban quality of life depends on the Eigenart, i.e. the specific character, of cities. Historically evolved urbanity and creative spaces generate identity; public places and spaces make exchange and a sense of community possible; architecture can express and encourage beauty, openness, humaneness and creativity instead of exclusion’ (WBGU 2017, p. 2). In the light of this statement, it should also be noted that rooting projects in local context is rather connected to the motivation of the stakeholders involved than to monetary expenses, which might then suggest insufficient knowledge and sensitivity to this issue.

Developing the urban environment through (sometimes significant) foreign influences, which includes the implementation of cross-culturally transferred spatial methods, technology, or aesthetic trends has probably led to a situation of a ‘chaos’, which could in a way be considered beneficial to the search for the contemporary ‘Chinese way’ of spatial interpretation. Understanding it as allowing a wide variety of spatial concepts to be developed, imported, tested, and tried with the goal of acquiring a selection based on which future development strategies can be decided. However, despite the unparalleled rapid development that has happened in China, adopting foreign ideas and concepts is, after all, not a new phenomenon. The exchange of ideas, knowledge, and expertise has happened across cultural borders since centuries. The Silk Route trade as well as political and economic exchange between China and nations near and far brought new influences. The scale, the pace, and the institutionalisation of such exchanges, however, have reached a new dimension in the past decades. During the era of Mao Zedong, although rightfully viewed as the time of the closing of China to external contacts, China did invite influences from the Soviet Union, an important political and economic ally, and those influences are still visible in the built structure until today and have been even more so a couple of decades ago.

The pace of both economic growth and urban development in China has slowed down recently; these two phenomena are interconnected. Furthermore, the country is experiencing an increased interest in establishing its own interpretation of newly-built urban environments that are addressing the highest possible living standards, quality of life, and technological advancement as desired by the majority of the Chinese society, mainly the steadily growing middle and upper-middle class. Because of that growing focus on finding an own Chinese way – which also falls in line with the notion of dao – the market for foreign planners and architects is becoming less rich in opportunities and less open and attractive in comparison to the peak of the Chinese urban development phase. Furthermore, the politically-introduced limitation on overly creative architecture
(which can be and is interpreted in various ways) is understood by some as a message to internationally operating design companies that they are less likely to win bids for Chinese projects than they used to be in the past. This trend needs to be looked at in more detail over the next years to better understand the characteristics of globalisation in the built environment in China.

The research has also included secondary questions. The first one was whether the Chinese urban codes have begun to look differently considering the influence of globalisation and technological improvements in construction and design. On the surface, the ancient, traditional building codes have indeed changed in their appearance along with the cultural, political, socio-economic, technological, or environmental protection developments. It is not a contradiction to the fundamental Chinese philosophical concept of interconnectedness of things that these codes change in their physical manifestation along with the general development phases; their essences and meanings, however, have remained throughout history until the 20th century, despite the communist-led cultural revolution, and despite the last 35 years since the 'open doors' policy has been in place. In fact, they have stayed within their meanings for longer than science is able to establish. What makes this extraordinary symbolic longevity possible is the fact that the physical manifestation – details of the way the code is displayed – of these ancient codes is secondary, while the idea, the references, the narrative, the mythology are primary. This observation also serves as a good window into the level of difficulty in reading and decoding these symbols as an outsider; that requires a more in-depth approach to the knowledge about the Chinese cultural contexts.

Many of these codes are often misinterpreted as purely ornamental, especially by those not familiar with the socio-spatial underlying meanings, while in fact they represent deep references to spirituality, philosophy, culture, politics, history, and (written) language. Similarly to the Chinese writing – where characters not just symbols denoting sounds as they are in most languages of the world but pictograms, representations of meaning – the Chinese built environment is abundant in references whose references reach further than most western observers might expect. For further information, the works on the 'empire of figures' by Li Shiqiao might be of use. In a metaphorical sense, Chinese urban codes may be seen as characters of urban texture and if one can read them, then one can also understand the spatial story they are telling.

Another of the secondary questions of this research concerned the differences between China and the West in the designing and execution of urban projects and how these differences influence the presence of cultural codes in the built environment: the answer to this twofold question lies in the main difference in the dynamics of power that influence the decision-making process of urban development and creation of space. The role of a designer, architect, and planner in China is rather that of a receiver of orders than an expert in an advising role, which was a key element discussed by practising architect and planner interviewees. This applies in particular to projects with a high interest in the return of investment (investor-driven projects: residential and commercial projects that do not have an outstanding representational function but are much rather part of the general urban texture, especially in the urban fringe). Even considering the challenges that architects, planners, and urban designers face in central European countries, the pressure and demand in China is greater; this is one of the side effects of urbanisation happening at such a high pace. Today, Chinese city builders creating the built space
are in the majority of cases quite aware of both potential and threats created by the
decisions of developers or governmental officials, however their expertise still carries
limited weight. Of course, there might not be a country in the world free of political
and economic pressure influencing spatial development, the Chinese specificity of this
phenomenon lies in the unparalleled scale of urbanisation and in the unique semi-free
market economy of the country, supported by the political system. The influence of those
dynamics on the presence of cultural codes in the built environment may be described
with the use of three simplified scenarios: in representational, governmental, or other
high-profile projects where the role of the state is dominant, references to traditional
codes are likely to be found; economically efficient, high-speed construction such as
residential estates built on, for example, converted farmland on the outskirts of cities,
advanced cultural references are to be expected to a limited degree; in higher-class
residential projects, traditional codes are increasingly likely to be found, partly due to
the receding popularity of developments copying foreign aesthetics.

A topic upon which the secondary research questions touched was whether current
Chinese urban design approaches support culturally sustainable developments.
Cultural sustainability is – following a simple understanding of sustainability as
technological, environmental, economic, and social inclusive development with the
future in mind – finding more and more grounds. Even if it perhaps is not widely called
cultural sustainability, the awareness of finding one’s own, individual way of creating and
managing urban space for an exceptionally large number of people (with no examples
of such scale that could be learned from to be found anywhere else rooted within the
existing context) is increasingly important and getting more recognition. China has
perhaps realised that the western world does not have all of the needed answers to such
large-scale urbanisation challenges. What western experts can provide China’s urban
planners, urban designers, and architects with, however, is expertise in a multitude
of connected and vital aspects, which is an important element in the effort to build an
independent route of development.

Importantly, it can be argued that if an urban or architectural project does not display
any traditional codes, then it does not necessarily mean that project is ‘un-Chinese’. The
case study pool analysed in this thesis includes some examples that are not equipped
with such traditional cultural references, but a vast majority of them do; the author would
like to avoid a common logical error of refuting a claim based on a rare case that
does not follow the theory. Furthermore, sometimes codes will be present but without a
deeper meaning, as, especially on the architectural scale, they can also be degraded
to purely ornamental and image-related function (i.e. branding a project with a cultural
‘flavour’).

That the codes used in the Chinese built environment refer to mythical creatures like the
dragon or the phoenix, or that there is consideration of an invisible flow of energy through
cities, open spaces, and buildings, might cause non-Chinese observers to associate it
to backward thinking of ancient traditions that seem to be disconnected from today’s,
modern life. However, especially in the case of China, the use of traditional codes does
not indicate backwardness in development or construction. This misleading assumption
may cause fundamental friction that can be witnessed not only regarding China but
any other realm of significant cultural difference to the observer’s home culture, which
naturally hampers this observer’s ability to comprehend such unfamiliar environments.
If, however, it is made possible to shift perspectives and change one's viewpoint for a moment and consider the fundamentally different understanding of the city as a man-made entity, one might come closer to an understanding. Importantly, unlike in the western setting, where the city is seen as one of the most prominent achievements of civilization and every city archives the date of acquiring the so-called city rights, and where being a citizen meant enjoying a certain range of privileges, in China the city has not been understood as an achievement in its own right. The man-made urban settlements along with the accompanying amenities and infrastructure is seen as a means necessary to thrive for the important matters in the life of an individual and of the society. The natural step from such an approach is to have the urban environment reflect exactly that. The city and its elements composing the urban fabric are parts coming together to represent a greater concept where the city as an entity is one part out of many, together with rural areas and natural landscape; in this way, this perspective follows the harmony principles of Confucian philosophy and the yin-yang. Bright and dark, female and male, built structures and nature, etc., need to be in balance with each other in order to achieve harmony. Even if this balance is a constant process of negotiation and is difficult to achieve, improving the knowledge how to achieve it can be framed as the struggle of dao, finding the way.

To recapitulate, researching on the Chinese cities and built environment is not merely a goal on its own but a 'means' to coming closer to an understanding of the Chinese approach to urban environments. In it, the built environment is not an art or an achievement in its own right, as architects are not artists of the built environment, but are rather understood as craftspeople shaping the basis on which the individual and the country is enabled to work for a good life. As abstract as this explanation might sound, it is not to be understood as trying to romanticise the Chinese urban environment but as a backdrop against which a cultural understanding of the built environment in China may be attempted. From a western perspective, China, where many old neighbourhoods, streets, temples, or construction elements have been replaced, razed, or moved from their original spots easily evokes shock and a lack of understanding. This, however, can also be viewed as a natural development, advancement, or improvement, where one element gets replaced by a new one while the original idea, message, and (spatial) concept remain the same, whatever the actual age of their physical manifestations. Looking at these different concepts of understanding the built environment not only opens up ways of understanding the Chinese urban environment better but also provides non-Chinese people with a chance to view the Chinese built environment in a more informed way and to learn from it as well. This goal lies at the base of the necessity to approach research on built space holistically, with the inclusion of its cultural aspects.
4.4 | Synopsis

This chapter has been dedicated to the presentation of the main body of research carried out within this dissertation. An immediate takeaway from this research may be that the traditional Chinese codes are very far from having vanished or from being mere ornaments. For instance, the presence of the crane-wings reference is not an aesthetic design idea, but much rather a response to not enough yang in the space or to create balance with a structure that functions as a yin counterpart. The understanding of such balances, of the cosmology, philosophy, and their relationship with the built environment is one of the reasons why Chinese early urban settlements took on the shape of the rectangle, referring to elements such as Earth, creating harmony with Heaven, which is traditionally connoted with the round shape. This knowledge of the interconnectedness of everything was regarded so powerful (and still is to some extent) that only the emperors and mandarins had access to and employed building and planning masters that knew about the principles of Chinese philosophy and the way it may be transformed into built space.

As stated in the answer to the research questions, one cannot generalise and conclude that Chinese cities are losing their Chinese-ness; they have been, however, absorbing and incorporating influences from abroad as well as newest technologies and novelties developed in China, especially during the past decade. The question about the future relationship between Chinese urban growth (which is certain to continue) and the use of tradition-rooted codes in the built environment is an interesting one. Taking into account, for instance, Chairman Xi’s position on the urban realm (‘no more weird architecture’, as brought up earlier in the text) may be one token of what is to come; his stance may be interpreted as putting a cap on the ‘overly global’ architecture and allowing traditional concepts to flourish. This would fall in line with the bottom-up trend of the increasing demand for residential projects that are more clearly connected to Chinese-ness and a decreasing demand for foreign-referenced projects. Importantly, however, ‘allowing traditional concepts to flourish’ should not be understood as a kind of downgrade or shift back to obsolete technologies and building styles. Instead, it seems likely that new ways of implementing traditional codes will be devised and modern technologies will be made helpful in this process.

What stands out from the extracted knowledge is that in China the codes and symbols of the built environment are connected, which is much more rarely the case. They are physical manifestations of ancient philosophical concepts and spirituality and they have permeated into the principles of geomantic spatial order. In the West, it is difficult to find ambiguous or multi-reference urban codes; symbols such as the owl (standing for wisdom), the blind Temida (justice), etc., are usually one-to-one pairings between the symbol and the meaning. In contrast to the western coding system, the Chinese one is able to display far more interlinkage between symbols than just the connotation linked to material objects in which they are physically present. In China, a code may have its representation in the physical space and at the same time be connected to everyday life. Traditional socio-cultural codes and references occur in all aspects of life in China, from the physical environment, through spirituality, to everyday chores. Chinese codes are not limited to material objects; instead, they affect everyday life simultaneously to being rendered in the built environment. The Chinese socio-cultural codes are a far more complex layer that represent the philosophical understanding and approach to
the universe as a holistic system; the built space is just a part of it. Cities and the built environment are not regarded as the primary achievement of humans in the Chinese context. Cities and the urban environment are much rather understood as providing the necessary tools (infrastructure and shelter) in order to perform those activities that allow the citizens to follow the way (dao) which brings harmony and balance in one’s individual life. The codes present in the environment are therefore linkages and connections between the philosophical, spiritual, intangible space, and the physical, built, tangible space. This, in turn, leads to the fundamental characteristics, the Chinese-ness of space, where traditionally the built environment is a carrier of a much larger idea of being, not bound to materials and textures forming the environment, but connected to the meaning and philosophy behind it, which can still be found in today’s urban fabric. Due to this understanding of built space and approach to it, the elements of the built space may be changed, replaced, renewed, re-invented, or transformed with the use of the newest technology, while the idea and understanding of a particular element (belonging to a greater whole) remains.

Chinese-ness, therefore, can not be ‘manufactured’ by merely using codes that are ascribed to be Chinese and traditional, because such codes would remain ornamental elements as long as the ideas and philosophy, which makes the Chinese environment distinctly different, is not included in its interconnectedness and wholeness.

Through a thorough comprehension of what traditional socio-cultural codes mean and how they connect to each other, are designers able to create elements of built space in China that respond to the specific context. The traditional Chinese understanding and approach to the physical environment has not completely faded due to globalisation, rapid urbanisation, or technological advancement, and the traditional codes, linking the built space with the philosophical and spiritual realm, are still relevant and present today. Knowing about the philosophical concepts allows for a deeper understanding of the Chinese built environment; only when the deeper philosophical concepts are understood, are city-builders enabled to truly build within the socio-cultural context of China. This, however, might only truly be achievable if non-Chinese planners and architects collaborate with local Chinese experts in order to not only transgress the knowledge gaps of cultural and spatial specifics, but moreover to benefit from each other’s expertise. It might then be possible to shape the physical environment with the sincere intent of holistic, long-term cultural sustainability and inclusiveness.

From the professional perspective, non-Chinese practitioners and investors interested in the Chinese market may expect a somewhat more difficult path to engage in projects than in the past three decades. One of the reasons for this prediction is the rising confidence in and popularity of Chinese concepts. This, in turn, strengthens the need for urban researchers and practitioners that it becomes unavoidable to systemically understand those aspects of the Chinese realm, however complex they might appear, form the fundament of the Chinese culture in order to be able to connect all relevant aspects: from the built environment, through people’s interactions, to decisions in investment and development.
5| Research results, their context, and the bigger picture

The goals and questions of this research revolved around the claim that since China’s opening and in the era of globalisation, the cities in this country have been losing their ‘Chinese-ness’ and are headed towards uniformisation with other cities of the world. The inspiration for such an investigation stemmed from the realisation about the unsatisfying supply of research about the built environment – and in this particular case, Chinese built environment – that simultaneously meets two criteria: keeping the city-builder’s perspective at its centre and remaining sensitive to the issues of contextuality and socio-cultural conditions of a territory. To recapitulate, the research questions, answered in the subchapter 4.3, were grouped into primary and secondary:

<table>
<thead>
<tr>
<th>Primary</th>
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<tbody>
<tr>
<td>• in the process of globalisation and due to the opening to foreign influences, has the Chinese urban development lost its ‘Chinese-ness’ or local cultural context?</td>
</tr>
<tr>
<td>• if it has, are there any signs of China shifting back towards it?</td>
</tr>
<tr>
<td>Secondary:</td>
</tr>
<tr>
<td>• do the urban codes look differently in China, considering globalisation and technological improvements in construction and design?</td>
</tr>
<tr>
<td>• what are the differences in the urban projects’ designing and execution between China and the West; how do these differences influence the presence of cultural codes in the built environment?</td>
</tr>
<tr>
<td>• do current Chinese urban design approaches support (culturally) sustainable development?</td>
</tr>
</tbody>
</table>

The research hypothesis that followed based on these questions was:

- Chinese urbanisation has never ceased to be rooted in its local context.

Based on the research analysis, the Chinese built environment is not only rooted in its heritage in ancient city elements but also recent building projects show the local heritage and building traditions by implementing ancient urban and architectural codes.\(^\text{55}\)

The above questions, however, should be critically reviewed here, after the completion of the research laid out for this dissertation. The questions considered in this thesis are phrased from a western perspective; they represent an inherently western approach by asking for a rational, linear explanation. Follow-up research could perhaps devise research questions that from the onset take into account the frequent non-linearity of Asian philosophies and interconnectedness of all elements in life, thanks to which the course of such research would promise insights that not only add to the existing western understanding of the built environment but also provoke an auto-critical look at the western city-building ideas.

In a broader perspective and beyond the scope of this thesis and research discipline,

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\(^\text{55}\) The analysed case studies that do not classify as ancient, like the city hall in Shenzhen, built 2004, the main railway station in Wuhan, built 2009, or the grand city structure of Shenzhen, built from the 1980s onwards, illustrate the use of Chinese specific codes that have socio-cultural connotations, which have been identified as well as interpreted (decoded) in the previous chapter.
additional relevant research questions may be asked, considering this research as a basis; one could understand it as a next step of taking a journey even deeper into understanding the Chinese cityscape. Examples of resulting research questions could include: what meaning does space carry in Europe and in other cultural realms such as China? How will our understanding of space change with a growing number of citizens not only travelling but also experiencing and living in other cultural settings, distinctly different to their native ones? Can a western urban planner, designer, or architect ever truly internalize and understand the fundamental concepts reaching from philosophy, geomancy, and building traditions, to deeply embedded cultural rituals that all combined affect and shape the built space?

5.1 | The Chinese codes: a contribution to a better understanding

This subchapter includes a condensed catalogue of the traditional Chinese codes that have been identified in the course of the analyses in the examined city components; the listed codes have all been found (some of them several times) in the analysed case studies. It is meant to distil the codes from the cases into simplified graphics and at reinforcing the visibility of the connection between the matter of the research and Chinese philosophy. In reference to some of the information included in the subchapter 4.3 'Research results and preliminary conclusions', the codes in the compilation are accompanied by Chinese writings symbols, which highlights the interconnectedness present in the Chinese mythology and culture, as well as figures of the Chinese language. The author would like emphasise once more that Chinese-ness is not merely a claim or a metaphorical term. As much as it is an intangible feature, the built environment allows the observer to see some of its manifestations, or in other words notice whatever tangible elements such a notion has. Daoism, Confucianism, Buddhism, Feng-Shui, and other elements of the Chinese tradition all contribute to the pool of cultural references whose presence in the Chinese built environment this research has investigated. A compilation of the codes identified in this research is presented in figures 99 a and 99 b.
### Reoccurring traditional Chinese codes (the manual of codes)

<table>
<thead>
<tr>
<th>Name</th>
<th>(abstract) visualisation</th>
<th>Chinese character (literal translation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Golden cross</td>
<td><img src="image" alt="Golden cross" /></td>
<td>⊙ (ten, cross)</td>
</tr>
<tr>
<td>Hierarchy (placement, location in the city)</td>
<td><img src="image" alt="Hierarchy" /></td>
<td>⊙ (ten, cross)</td>
</tr>
<tr>
<td>Hierarchy (urban grid, axiality)</td>
<td><img src="image" alt="Hierarchy" /></td>
<td>⊙ (centre, middle)</td>
</tr>
<tr>
<td>Rectangular (city shape)</td>
<td><img src="image" alt="Rectangular" /></td>
<td>甲 (time, date indication)</td>
</tr>
<tr>
<td>Mountain (city location)</td>
<td><img src="image" alt="Mountain" /></td>
<td>山 (mountain)</td>
</tr>
<tr>
<td>River (city location)</td>
<td><img src="image" alt="River" /></td>
<td>(山水, beautiful scenario)</td>
</tr>
<tr>
<td>Qi</td>
<td><img src="image" alt="Qi" /></td>
<td>气 (qi, energy)</td>
</tr>
<tr>
<td>Bird (crane, phoenix)</td>
<td><img src="image" alt="Bird" /></td>
<td>飞 (to fly)</td>
</tr>
</tbody>
</table>

*Figure 99a: Ancient traditional codes of the Chinese built environment reoccurring in the analysed city components (for a larger version of this illustration, see Appendix 6.2)*
The city Shenyang is one example to this phenomenon.
deeper notions of Chinese culture. This is how, as indicated more than once earlier in the text, this research has the built environment as its object, however the physicality of it is not at the heart of the investigation; instead, the main focus is the presence of the ideas represented by space, of concepts of space, and of emotions invoked by space.

5.2 Research output and its contexts

It is necessary to look at the various contexts and perspectives through which the results of the presented research, along with the applied method, may be viewed, and to try to assess what the results mean for the target audience of this text – the non-Chinese building experts (from both academia and practice).

In order to offer a critical take in the scientific context, it must be said that the approaches and the selection of cases presented in this research can only be understood as a start of – or a contribution to – a significantly longer and preferably interdisciplinary research endeavour in understanding Chinese cities. Furthermore, a deeper understanding of the challenges and the complexity of the Chinese built environment, the cross-cultural and already existing research between western countries and China may need to be deepened and broadened in order to sustainably transgress the surprisingly vast knowledge gap. The codes of the built environment that have not been identified in this research do not necessarily allow to come to general conclusions about the Chinese urban society; they may, however, serve as indicators. Expanded, could aim at understanding whether the claim of the developmental 'ripple effect' indeed exists (the progression of phenomena in city-building traveling from the '1st tier' coastal cities to inner country cities).

Another aspect of a critical assessment of this research is of course the fact that not all selected case studies have been carriers of the mentioned codes. This can be explained in three ways: firstly, the limitations of the author of this research endeavour, even in combination with the joint forces of Chinese experts providing their input and with an extensive literature review of the ancient Chinese philosophical writings and building traditions, still do not automatically enable a foreign observer to identify all existing codes that the selected city elements might carry.

Secondly, based on the empirical framework of case-study selection, some of the included cases have been conceptualised, designed, and executed by non-Chinese architects and city builders. This alone might not lead to the lack of cultural codes, but it would require the non-Chinese offices, such as OMA (based in Rotterdam; Beijing CBD), Ferrels (London-based; Beijing railway station south, Guangzhou, railway station south), or GMP (based in Hamburg; Tianjin West Railway Station) to have obtained the specific cultural and contextual knowledge prior to the design of the projects, or to have had the resources in form of experts working and collaborating with and for the projects.

Thirdly, the situation of some case studies being built during the era of the Republic of China (such as the Greater Shanghai Civic Centre, built 1933) or the era of Chairman Mao Zedong, before the great opening (this applies especially to city halls and governmental or administrative representative buildings), is that these analysed elements show the strong use of codes typical for this particular political era. For instance, the influence
of space-creation doctrines from the Soviet Union is clearly visible in the architectural language of the Mao era buildings (an example of this era are the governmental buildings, part of the Ten Great Buildings, 十大建筑 south of the Forbidden City in Beijing, built in the late 1950s).

These aspects of the dissertation, however, do not contradict the general findings of this research. Having looked at a broad spectrum of case studies from a multitude of different political, economic, and social periods in China have provided the author with the opportunity to not only look at those building projects that have been completed over the past three decades, but also to look further to the past, at a larger picture. The author concludes that the analysed buildings and city elements respond to and manifest the Chinese context of the times in which they were built. This provides the basis of being able to refer to the research hypothesis Chinese urbanisation has not completely ceased to be rooted in its local context as being correct but incomplete as a statement; it needs to be added that the local context includes the 'political' and 'social' contexts as well.

The backdrop of this dissertation included the discussion of cognitive biases or thinking traps. The one that could be highlighted in this conclusion section with the thought of the scientific community in mind is the confirmation bias. It refers to situations in which a claim or a statement that is comfortable and believable is selectively taken to reinforce preconceived notions without enough critical assessment of those notions. With this phenomenon in mind, scientific theories and claims need to be approached with a dose of doubt and self-reflection. Generally true for all scientific endeavours, but in this specific case researchers dealing with the issues concerning the Chinese urban growth, design, and the built environment must remain wary of the danger of self-propagating paternalistic narratives or misconceptions.

Another important matter that needs highlighting are the concerns regarding potential applications of this research's output. On the one hand, the interpretations of those codes can help scientific or practical goals; on the other, however, could do harm if used improperly and ornamentally. An easy example of such occurrence would be using the codes for cynical commercial purposes and including them in sales and image campaigns (or to satisfy the individual demands of investors) without having applied them with the user or the socio-cultural context of the project in mind in the architectural or urban design.

**Educational context**

A perspective inherently connected to science and academia that is worth mentioning here is education. Based on this research, a question may be posed in two versions: a general one and a specific one. The first would inquire whether the future architects and city-builders are being exposed to a canon of knowledge that provides them with skills to understand the intangible facets and tacit knowledge of the built environment, especially the one that is unfamiliar, by being able to at least notice, and hopefully decode, the denotations and connotations in it? Meanwhile, the second would add the Chinese component: is the teaching of those who are to be involved in professional exchange with China making them sensitive to the tremendous richness of that culture, which is naturally reflected in the built environment?

This research is not proposing introducing seminars about every existing building
tradition from around the world; nor is it trying to disregard the importance of deeply understanding one’s own environment first and foremost (Germany, Europe), as it is crucial to know one’s own roots before diving into other cultures. The postulate here would be to bravely engage in the process of learning from each others differences including the ones posed by the built environment that is shaped by its inhabitants. This would increase the chance of truly learning from each other and about ourselves.

Innovation context

The analysis and evaluation of the research data have shown that different aspects of transformation processes are reflected in the built urban environment. Urban design projects respond to the overarching, global facets of innovation, such as technological advancement. However, at the same time, another kind of transformation and innovation process can be found: how the transformation of the built environment, shaped by traditional spatial models and frameworks, has been re-thought and re-designed to correspond with today’s requirements and building practices. The modernisation of the Chinese urban space and the technological leap that accompanies it may, from the outside and especially if the observer is not familiar with the codes, may give the impression of stepping away from Chinese traditions. In other words, one may become ‘distracted’ by the newness, the application of high-tech, machinery, scale, grandeur, the modern process (which is also perfectly justified on its own, as China embraces innovation). One must be aware that the Chinese people as well as Chinese state authorities are not afraid of testing innovative solutions; crucial, however, is the realisation that this does not contradict keeping tradition, including in city-building, alive. Especially the city components analysed in this research that were created in recent years have shown the creativity and facets of possibilities to adjust traditional Chinese principles of creating and shaping physical space. This can be seen in the design of the Wuhan railway station, built in 2009, which refers to a creature from ancient Chinese mythology (the nine-headed bird), which only reveals itself to the observer if one can see beyond the steel and glass structure of this massive railway station and, of course, if one knows about the existence of such a creature in Chinese culture in the first place. This can be described as an innovation or re-innovation process of the Chinese built space that re-interprets traditional connotations into new shapes and forms.

Socio-political context

Based on the interviews conducted and the research carried out as well as the author’s own experiences from the time spent working in China, it has become clear that analysing and understanding the codes of the built space needs to be put into context of the process of developing the built environment. One aspect that was highlighted in most of conducted interviews is that of the impact of the decision-making process and power-(im-)balance of creating urban space. Since only a minority of both the large- and small-scale projects shaping the Chinese cities are announced based on open (nation-wide or even international) competitions or semi-open competitions, it is important to look at the process of how the individual involved stakeholders shape the process. The chain of power follows an unsurprising but strict formula: governmental representative – client – architect or planner – user or inhabitant, the design process is truly dominated by the central and local governments (which was a recurring information in the interviews). In the Chinese practice of creating the built environment, economic and political pressure
are in most cases key elements of the whole process; additionally, there exists the danger that the people in the decision-making chain are not necessarily experts on the built environment and, in unfortunate circumstances, they might disregard the voice of those who are experts and professionals of the built environment. This way, wishes (which do not necessarily meet the needs of the society, citizens, or users) of those who have the means (money, power, guanxi) to get something they wish executed become reality and take not only a toll on the urban texture or the environment, but may even create odd spatial situations that the next generation of (global and local) urban citizens will inherit. The users’ needs may be considered within the conceptualisation and execution process various types of data; these imperfect considerations are then passed on to the designers in the form of instructions. In other words, the authorities and representatives are often found to be positioned between the user and the developer.

If it is understood how the urban environment evolved in a specific setting, conclusions can be drawn on whom these projects and components of built space represent (the inhabitants and users, the governmental officials, the designer’s tastes, or the investor’s preferences). The situation of decision-making and power dynamics being reflected in built space has not been hindered by the Chinese system of evaluation for political career advancement which is strongly based on assessing the results of the initial goals (stated in 3- or 5-year plans) and not based on the holistic or sustainable impact or lack thereof these results have on the city and its citizens. Examples can be seen manifold in the outskirts of cities, where roads, metro stations, or single apartment complexes have been built without existing context or urban structures to follow the initial infrastructure setup, standing alone in a distance from the urban surrounding, disconnected from it, or never having been connected to it.

Many of the current Chinese built environment experts belong to a generation that not only received professional education in post-opening China but in some cases also abroad, while many Chinese decision-makers still belong to a generation formed and educated during the Revolution era. That, naturally, causes generational as well as professional frictions. Processes that could ease this conflict include (1) a natural generational change; (2) implementation of tools measuring success for local decision-makers based on long-term improvement and on the quality of urban change, rather than on a strong focus on five-year plans; and (3) a larger inclusion of the local population. Although the latter is seen as a deeply rooted democratic tool to engage the public in decision-making processes, it does find reception and in some cases application, adjusted to the local specific circumstances. It can also be understood as a correctional, pragmatic approach of minimising risks. The authorities, especially those of the Chinese central government, are sensitive to the contentment of the public and they understand it as increasingly necessary for a smooth running of the country and in the realm of urban projects some measure of consulting the local population, especially the fast-growing Chinese middle class, is likely to grow, especially in the case of the ones with the largest impact on the local environment. Some such cases have already taken place; however, this is not a result of a systemic approach but rather individual occurrences. Finally, however, the question remains whether participation, whatever form it takes on in China, will be merely a surface gesture or a robust strategic tool.
Transfer of ideas

Meanwhile, it is probably correct to say that Chinese cities today are neither wholly traditionally Chinese or contemporary Chinese nor fully westernized, globalised (in aesthetic and planning terms). They reflect different phases of transition and development stages in a constantly changing global and local setting. However, by valuing the rich cultural and philosophical past and traditions – which is not subsiding, as this thesis argues – China follows its own way (dao) to achieve its goals and master its (ecological, technological, societal, etc.) challenges by rooting the solutions within the Chinese context, its Eigenart, the intrinsic logic. This has been confirmed by research of notable scholars such as Li Shiqiao, Weiping Wu and Piper Gaubatz, or Dieter Hassenpflug. It is, however, yet to be seen how this further development will correspond to the global challenges that the international community faces.

One may also include in the discussion the Chinese urban developments that do not stop at the national border, but go beyond and seize opportunities in other parts of the world. China may be well on its way to regain much of its ‘ancient’ power and glory understood and measured in financial, diplomatic, and military power. The One Road, One Belt initiative and the New Silk Route are good examples in this light. It expands on human resources and on know-how by continuing to hire western architects and designers but with a changed, more critical approach to their work. The Chinese ‘rise to power’ has cities as its arena – and not only its own, but worldwide. This could be understood as a driver to engage even more in understanding the Chinese urban systems deeper and sustainably.

The practical context. Takeaways from this research

As has been indicated more than once in this text, one of the main aims of this research is to support the non-Chinese city building professionals and academics and interested observers in reading and decoding Chinese cities with the intention of understanding them more deeply and systematically. This research may be looked at as a ‘door-opener’ (a framework of support) that an eye untrained in the Chinese symbology may employ to better access the cosmos of its meanings. As it would be impossible to explain all possible facets of Chinese architecture and urban design, this work may function as a contribution to collect and analyse fundamental pieces of knowledge that should be expanded with information from fields such as history, sociology, political science, etc. This may also be a starter of a multidisciplinary research endeavour, which in the case of this dissertation has been applied to the Chinese built environment; but as a methodology, it may have the chance to become a useful tool in decoding the intangible layers of built space distinctly different from the one an observer comes from. This ‘framework of support’ addresses the community of city building practitioners and architects working across cultural borders as well as other stakeholders engaged and interested in urban systems beyond familiar cultural realms.

This can be approached and understood in the following ways:
The very approach to the notion of city constitutes a major difference between China and Europe. Whereas in Europe it is seen as a civilisational achievement in its own right, in China it is an element of a way (dao) towards achieving harmony. The city does occupy a notable place in the hierarchy of human achievements and is acknowledged for its complexity and extreme importance, but is a part of a bigger whole nevertheless.

The Chinese approach to architectural heritage (which is currently a topic and point of contention while being negotiated in the scope of the past rapid urbanisation) is different. In Europe and other western countries, memory is inherently attached to location, which has consequences such as the development of heritage preservation. In China, memory is not bound to location, which makes it perfectly feasible to, for example, relocate historic buildings or renovate them without meticulous care for retaining the original materials or details as long as the original idea is preserved.

Despite the limitations and obstacles mentioned, the “decoding lenses” or the methodology introduced in this research may be helpful in an attempt to read and interpret the denotations and connotations of the layer of Chinese-ness. In simpler terms, this research may be used to better understand the Eigenart of the Chinese cities (context, culture).

The codes shaped by the Chinese culture are rarely linear in their meaning or display a one-to-one pairing with meaning; in most cases, the codes constitute intricate networks of meanings and frequently appear in combinations and form entire cycles of meaning, all interconnected and being a part of the greater whole formulating balance, harmony, and beauty.

The different cities and regions in China have different specific socio-cultural contexts and at the same time, despite regional identities and cultural specifics, there are many codes that occur across Chinese cities. The different settings need to be understood if the aspect of (cultural) sustainability is considered.

A crucial characteristic of production of built space in China is the decision-making process. The strong centralisation, the strict political hierarchy, the unique political-economic setup, and the quite limited public involvement (up to date) all pose challenges in comprehension and functioning for a non-Chinese practitioner of city-building.

Due to the on-going changes in the Chinese economy, society, and, most importantly, politics, non-Chinese city-builders or architects may not (anymore) be as successful as they used to be in the early phases of the post-opening Chinese urbanisation. Chinese city-builders are educated and sometimes trained abroad, increasing the challenges of succeeding in design and planning competitions, and furthermore the government emphasises a ‘proper’ Chinese way of building. Therefore, an understanding of the Chinese culture becomes increasingly important to successfully participate in the shaping and creation of the built environment of China.

Achieving a full understanding of the circumstances and conditions of the Chinese built environment may not be possible without collaboration with a Chinese native. Due to the extremely deep rooting of cultural elements such as writing and calligraphy (due to the tremendous difference between the pictogram-based Chinese philological system and all those that are alphabet-based), mythology, traditions, geomancy, etc., it may be a virtually impossible challenge to master for a non-Chinese person to deeply and holistically understand the different way associations, and creative processes happen in order to be then equipped to fully comprehend the Chinese culture and society.

Finally, one should be consistently watchful of thinking traps and cognitive biases. In simplistic terms, seeing fewer historic buildings than expected in China may not lead to the conclusion that the Chinese city is less Chinese, or that it has become fully global or westernised. High-tech, innovation, and adjusted urban codes successfully co-exist in the Chinese cities, even if they are difficult to discern to the non-Chinese eye.
5.3 | Further research possibilities for urban research and practice

(in China and globally)

Implications may be derived from the presented research for future agenda in urban research and practice. Such implications would be, on the one hand, naturally focused on China, but on the other hand the results of this investigation may have implications for urban research that is carried out across cultures in more general, broader scopes.

Urban development that aims at reaching the highest globally discussed and negotiated development standards cannot happen without embeddedness into specific local context. Therefore, if non-Chinese experts aim at successfully and sustainably contributing to and participating in this process in China, the local context needs to be understood equally with the global aims (sustainability goals, environmental agreements, etc.) in order to avoid creating new problems and challenges (left-over spaces, ghost towns, additional environmental strains, transportational unsustainability) while addressing challenges of built space. This is the responsibility of a discipline dealing with creating and researching on built space but also the responsibility of the global community contributing to a larger body of knowledge. A city can be both local and an important element in the global puzzle, as the research results of this dissertation hopefully have shown.

A holistic sustainable urban future and city creation may only be possible with cultural and technological research that happens simultaneously. A next step for research work on Chinese cities may be to develop contextualised approaches with the next Chinese urbanisation phase in mind which already started with the most recent five-year plan presented by the central government in 2015. As stated more than once earlier in the text, China is now encouraging development strategies that are not necessarily connected to foreign ideas and concepts but rather created within China and for the Chinese environment. It remains interesting to observe to what extent China will try and succeed in providing healthy and inclusive urban environment that serves what citizens need without excessive economic, social, or environmental cost – in other words, creating sustainable cities. Another research step could be to investigate the relationship between the built space (the kind where the cultural contextual specifics are considered and the kind where they are not considered) and the citizens and users. Especially considering the changing Chinese society with the growing middle class and its increasing expectations, income, improving education, and more international experiences, the central government may have a vital interest in understanding what the urban citizens need, what challenges they face and responding to these observations and transferring this understanding into future concepts. A crucial aspect within this development may be to invest resources into agencies (local, domestic, foreign) who have a systematic understanding of the fundamental principles of Chinese spatial and local specifics, as well as philosophical, and cultural concepts.

An important takeaway from this research approach may be that it was able to illustrate how important it is to investigate the cultural layer of built space that is foreign to an observer. Analysing the so-far rather 'hidden' and not well-researched intangible and tangible layers of (Chinese) cities provides a chance to gain insight into concepts about cities that are unfamiliar to a non-Chinese reader (e.g. the city as a ‘means to’ and not an ‘achievement’). Future developments and approaches to an urban and rural
improvement of quality of life may be the recollection of values that have long existed in China and their conscious revisiting and re-emphasis. What follows may be that in the Chinese doctrine, in order to enjoy the vital elements of life, cities must not destroy the foundation (nature, culture, etc.), but serve to build and retain balance and harmony; crucially, nature, culture, and the built environment need to co-exist in a balanced way to achieve those goals (nature, however, does not have to be understood as an ‘untouched by man’ environment; it can be a modified, ‘beautified’ counterpart to the urban world). These notions may be crucial to understand not only for city-building experts and researchers but on a more systematic level also for any non-Chinese interested entity that is confronted or deals with the built space in China (investor, designer, manufacturer, political or strategic advisory bodies) or tries to implement strategies for sustainable urban development in China. These fundamental principles of different understandings of built space can help to adjust and contextualise approaches. Furthermore, they might also allow to see one’s own environment through another perspective, as well as generally improve the state of knowledge on the influence of philosophy and spirituality on space.

There is plenty to be discovered from urban-focused research carried out in such a way that brings together approaches usually not employed by traditional built environment disciplines but used by fields such as sociology, anthropology, history, literary studies etc. Bringing these together provides a chance to sustainably – holistically – understand the layers of complexity displayed by urban systems around the world. This research shows one of the ways of analysing what exactly makes an urban environment unique in its setting and composition, from China to India, from African countries to Latin American countries. Especially when looking at the parts of the world that are likely to face significant urban growth, possibly rapid in nature, considering the contextual layer and local characteristics first (in other words: learning from the Chinese case and the shortcomings stemming from in some cases not having done that earlier) will help to select and adjust the methods, concepts, and approaches of urban development in such areas.

From the perspective of urban research carried out in highly developed, urbanized countries, it is vital to look at these future development hubs from a variety of angles (the cultural layer belongs to one of the most crucial ones while being one of the most neglected ones). A broad perspective allows researchers as well as practitioners from environmental design disciplines to contextualize their support and expertise to a greater extent. Considering the global impact that urban growth and development has, it might be our responsibility to pay attention to the right implementations of concepts and development strategies, since we might not be able to learn from ‘best practice cases’ and to wait and see which concept and ideas work out the best after having them implemented.
5.4 The bigger picture

The overarching context of the investigation taken up in this research is the effort to build a holistic approach to reading and decoding the built environment.

The global context of the information presented in this dissertation and the research results needs to be addressed as well. In the era of globalisation, where the world seems to become smaller, better accessible, and one that allows for constant following of events as if on a stage, the world has turned more of its attention to China and its cities. The popular impression that Chinese cities only recently joined the league of urban development and transformation might be misled and instead it might be the foreign observers who may be new to closely observing the spectacle. Chinese cities have undergone a transformation influenced by a variety of factors that all had an immense influence on shaping today’s city structures with which we are confronted. However, this transformation is constant and cyclical. Throughout history, in certain aspects the Chinese city has been reinventing itself, responding to the rises and falls of intellectual trends, absorbed influences from the northern steppe and central and south Asia, and remained influenced by a kaleidoscope of climatic conditions while at the same time operating within a framework of spatial understanding that may have remained similar over all this time. The Chinese city is inherently cosmopolitan due to the influence of the many religions (Buddhism, Manichaeism, Nestorianism, Islam, Judaism, and Christianity), philosophical systems, and peoples. As mentioned in Chapter 2 and as referred in many scholar’s works such as in Li Shiqiao’s writings, Confucianism and the Chinese writing system transformed the Chinese cities into something closer to the concepts of the Chinese culture. In this sense, the Chinese city may traditionally be seen as an intellectual construct - traces of that are still present - than a racial, religious, political, economic or territorial entity only (which may be a visible difference from the European or western concept).

A fact that easily seems to slip the attention of non-Chinese observers but is crucial to comprehending the Chinese-ness of the urban realm in that country is that the European countries and China have distinctly different perceptions of preserving ancient elements of the urban texture that still remain in the existing cities. The western doctrine attaches memory to place – thus, it is only natural that material carriers of memory are being cherished and protected. The traditional Chinese approach sees memory as not chained to place – which results in seeing it as unproblematic to take down a historic structure and, if so wished, rebuild it in a different spot or to replace broken elements of buildings with modern machine-made materials.

Moreover, even though Europe has experienced its own periods of drastic and rapid changes in the built environment – e.g. during the post-war construction and demographic booms of the 1950s and 60s, when the focus was more on progress and less on protection of the historic or symbolic urban fabric (which came later) – the pace of Chinese transformations is not easy to comprehend for a non-Asian observer. This very easily leads to an erroneous conclusion that if the speed is so overwhelming, then the changes cannot be rooted in local context or in tradition. In China, they can.
5.4 | The bigger picture
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Appendix

A Abduction

Abductive reasoning (also called abduction) is a form of logical inference which goes from an observation to a theory which accounts for the observation, ideally seeking to find the simplest and most likely explanation. In abductive reasoning, unlike in deductive reasoning, the premises do not guarantee the conclusion. One can understand abductive reasoning as 'inference to the best explanation'. Charles Peirce wrote thusly on the topic: "What is good abduction? What should an explanatory hypothesis be to be worthy to rank as a hypothesis? Of course, it must explain the facts. But what other conditions ought it to fulfil to be good? .... Any hypothesis, therefore, may be admissible, in the absence of any special reasons to the contrary, provided it be capable of experimental verification, and only insofar as it is capable of such verification. This is approximately the doctrine of pragmatism" (Peirce et al. 1974 [1934]).

C Chinese character systems

Unlike in the western languages where arbitrary characters (letters) stand for sounds and combinations of sounds form words which then carry meaning, Chinese character system is composed of individual pictograms. Each of those images symbolizes meaning, and the appearance of the pictogram is derived from actual representations of signified. This is crucial, as it shapes the cognition and perception and therefore the ways of processing information and reading signs. More detailed information may be found in the Encyclopedia of Contemporary Chinese Culture: “Chinese characters (sinographs, logographs), have a known history of approximately 3,200 years, with the earliest forms visible on the so-called oracle bones used by Shang diviners to query the future. At origin somewhat pictographic, this aspect of the script is only vestigial. As they now exist, characters typically have both a phonetic component and a signific component, together giving clues to pronunciation and category of meaning. Though over 100,000 characters have been used at some time in China’s long literary past, for most purposes only 6,000 to 8,000 characters are used in high-level contemporary writing (such as newspapers and novels), and a vocabulary of approximately 4,000 characters is considered adequate for basic literacy. The lengthy process required to learn characters has been blamed for China’s historically low literacy rates, leading to writing reform movements. These have largely been discarded and the writing system remains a beloved symbol of civilization, education and Chineseness" (Blum 2009, p. 2024).

City Component

In this dissertation, the term 'city component' has been employed to capture all of the fragments of city tissue that are examined in the analyses. Due to the significant difference in scale of these elements – from whole districts, where urban layout is considered, to single buildings or parts of buildings like roofs – the common term for them needed to be adequate. As has been said, the research looks at three types of city components: railway stations, city halls, and CBDs.
Code

The term code is a fundamental item in various disciplines of knowledge, perhaps most prominently in linguistics. The simplest definition of the term is that it is a system of signals or symbols for communication. It presents a message that is indirect (hidden) and therefore not immediately accessible, and requires a certain knowledge to be ‘read’ or ‘deciphered’. Codes determine a field in which certain meanings are permissible, but cannot be used in themselves to generate an original message. A code, so defined, cannot properly be said to be a medium. It acts upon a medium, such as forms of dress or societal behaviours, but does not serve on its own to manifest any sort of meaning (Hines 2003). In the perspective of this dissertation, the term code should be looked at as a piece of disciplinary terminology that has interdisciplinary relations and roots; the main authors, whose work related to codes is featured in this thesis, are Eco, Hassenpflug, Alexander, and others.

Cultural sustainability

It is worth noting that the terms “environment” does not only describe the natural and ecological facets of our surrounding, and “sustainability” is not limited to economy and ecology. “Cultural sustainability” refers to such an approach to man-made – but only partly physical – environment that acknowledges the role of culture in all human endeavours and in conditioning the human life; cultural sustainability also considers long-term needs of future generations for access to cultural resources. According to Throsby, a single definition of cultural sustainability is not possible, as it is rather a set of principles of sustainable management of cultural capital (Throsby 2013, pp. 183–184). Soini and Birkeland contribute to the understanding of this term through their research: “our broad understanding of culture suggests that cultural sustainability moves beyond social sustainability and that there can be important issues of sustainable development that are missed without a further examination of the role of culture. However, the cultural dimensions of sustainability do not have to be understood as a separate (...) pillar. Culture can also be seen as the foundation or necessary condition for meeting the aims of sustainable development in the first place or as a perspective through which understandings of social, economic, and environmental sustainability may appear. Concepts such as cultural sustainability do not evolve in a vacuum but in the interaction between science, policy, and society (...) The concept of cultural sustainability (...) refers to phenomena requiring a combination of knowledge that evolves from different discourses and that may transform the discursive order regarding sustainable development and create alternative policy options” (Soini, Birkeland 2014, p. 221). The authors name seven aspects of cultural sustainability: cultural heritage, cultural vitality, economic viability, cultural diversity, locality, eco-cultural resilience, and eco-cultural civilization.

G Guanxi

Guanxi can be described as a personalized network of influence, which is the set of relationships individuals cultivate with other individuals, and which is a central idea in Chinese society: the terms ‘connections’ and ‘relationships’ do not sufficiently reflect the wide cultural implications that
However, most remain impoverished because they find themselves outside the official urban household registration system that involves a kind of resident’s permit called the hukou. The hukou system, which was adopted into law in 1958, was originally set up to avoid overwhelming the cities of China with uncontrolled immigration. Under this system all Chinese received a document that classified them as either ‘rural’ or ‘urban’. In order to receive state benefits—education, health care, subsidized staple foods and work permits—one had to be an officially registered person in the city or rural county of birth. Since the end of the Mao era, however, the hukou system is seen by some as an obstacle to the development of China’s cities and bureaucratically very difficult to administer. On the other hand, many of the more privileged urbanites see it as their entitlement and a protection of their living standard in the face of massive and potentially destabilizing urban growth. For example, millions of city dwellers depend on the hukou to ensure their benefits in old age. Nonetheless, officially the system is being gradually phased out as urban populations tend more and more to be influenced by the socialistic-market economy in China’s cities (Foggin 2009, p. 379, see also the works of Wu and Gaubatz and Wu Fulong).

**H Hukou**

According to the Encyclopedia of Contemporary Chinese Culture, “geographic and social mobility are relatively recent phenomena in China. It is thought that roughly ten per cent of China’s citizens constitute a floating population of mostly rural people moving to cities in search of work (...)”

**S Sign**

A sign may be understood as the opposite of a code. A sign is employed when a message is being sent with the intention to be as clear and unmistakable as possible, as it stands for something and causes the observer to connect and deduce based on the experiences acquired in a specific environment in
Symbol

According to Encyclopedia Britannica, a symbol is an element of communication intended to simply represent or stand for a complex of person, object, group, or idea (Hoiberg 2002a). “Symbols are signs that represent something else, understood by association, resemblance or convention; something visible and tangible representing something invisible, intangible (…). A cross is a symbol of Christianity worldwide just as this sign has come to mean Red Cross or hospital in general, and in the Western realms as well as in several other cultural spheres an illiterate person knows and understands the message it stands for and can get medical services when seeing this symbol. Symbols are abstract or subjective in nature and require interpretation and are only understandable with the necessary cultural and societal context in which a symbol is embedded (…) Although a symbol may take the form of as discrete an object as a wedding ring or a totem pole, symbols tend to appear in clusters and depend upon one another for their accretion of meaning and value. They are not a language of and by themselves; rather they are devices by which ideas too difficult, dangerous, or inconvenient to articulate in common language are transmitted between people who have acculturated in common ways (…). Languages are systems of symbols” (Hoiberg 2002a-).

Urban language

In the scope of this research, the term ‘urban language’ is not used in the context of dialectology. 'Urban language' is employed as a term to describe the way ‘language’ the built environment is shaped, created, and expresses itself in different geographical and cultural settings.

The West & western

The western world, or the West is understood in this dissertation as the parts of the world that are highly developed (have a high standard of living), post-industrial, and based on and rooted in European, Judeo-Christian cultural traditions and rituals, including former colonial territories that have largely adopted these traditions, such as Australia or the USA. This generalization does not mean, however, that the author is of the opinion that there are no or little
Appendix

cultural differences between the above-mentioned countries. It is much rather a
term that combines under one umbrella
the countries that are distinctly different
from the East-Asian cultural realms and
have a common cultural history, visible
not only in the religious and spiritual
aspects but also in every-day life and
which naturally translate to similarities in
planning approaches and understanding
space.

Additionally, the author acknowledges
that, to some extent, a simplification of the
term 'the West' is being made. There are
many cultures that are being considered
together for the sake of this text, while
in reality, the so-called "western"
countries have different perceptions
of China. American Orientalism differs
from European Orientalism, especially
since the United States had more recent
military interaction during the Second
World War, which had much influence
on their perspective of China and Japan
(Leong, 2005). Nevertheless, both forms
of orientalism share the same basic
beliefs and are both derived from a
history of "colonization, territorialisation,
and imperialist destiny" (Leong, 2005:
2–3). For instance, due to that China is
often viewed merely in terms of being
an economic superpower, which is an
obvious and stunning simplification.
With the economic aspects dominating
the reports on China, the discussion
becomes repetitive and one-sided.

As Edward Said argued in his famous
work on Orientalism (1978), the West
has systematically portrayed the East
in certain ways that each establish
an unequal relation between them, in
which the West will always prove its
superiority over the other. On top of the
often-repeated narrative of the East as
less rational and less developed, there
is a strong gendering component in this

narrative that plays part in this process
as well, portraying the East as feminine,
childish, and submissive. There have
been many studies on the concept
in relation to the interaction between
China and the 'West' (Leong 2005;
Chan 2009; Vukovich 2012; Yang 2012),
especially with relation to the exchange
of philosophies, as both sides have
a substantial history of fostering very
strong philosophical schools.

Consequently, the understanding of
the term western is, in this dissertation,
limited to the adjective derived from the
term the West.
Visualisations

This visualisation of the analysed city components, as well as information about the analysed cities is organised by city and type of city component. Additionally, the city components are coloured according to the era (as divided in 4.2.) of their last reconstruction or redesigning, the chronology. 

Colours key:

- Imperial era;
- Republican era;
- Revolution era;
- Global era.

<table>
<thead>
<tr>
<th>CITY</th>
<th>POPULATION (in thousands)</th>
<th>Interim Partners (see chapter 3.5, fig 27)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2000</td>
<td>2010</td>
</tr>
<tr>
<td>BEIJING</td>
<td>9.880</td>
<td>21.500</td>
</tr>
<tr>
<td>GUANGZHOU</td>
<td>7.550</td>
<td>20.800</td>
</tr>
<tr>
<td>SHENZHEN</td>
<td>6.480</td>
<td>12.358</td>
</tr>
<tr>
<td>CHONGQING</td>
<td>6.130</td>
<td>18.384</td>
</tr>
<tr>
<td>WUHAN</td>
<td>6.790</td>
<td>10.670</td>
</tr>
<tr>
<td>TIANJIN</td>
<td>6.700</td>
<td>15.500</td>
</tr>
</tbody>
</table>

Figure 100a: Matrix of codes, analysed cities and their number of inhabitants
<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
<th>Architect</th>
<th>Image</th>
<th>Available data</th>
<th>Code occurrences</th>
<th>Explanation and interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shanghai CBD, Pudong, Central Business</td>
<td>Shanghai Modern</td>
<td>SOM, John Portman &amp; Associates Inc. (Shanghai Tower)</td>
<td><img src="image" alt="Shanghai Modern architectural design" /></td>
<td>2 conducted interviews, maps and site plans (self generated), video recordings and photographs (self generated)</td>
<td>river jumping, axiality, city grid, axiality, golden cross</td>
<td>Macau: the CBD is located at the main axis of the area where development has occurred due to river jumping. It is aligned with the river and functions as a larger city component to represent prosperity, development, and progressiveness connotated by the larger concept of the skyline layout (view) visible from the main axis of the city.</td>
</tr>
<tr>
<td>Beijing Chaoyang district</td>
<td>SOM, John Portman &amp;</td>
<td>SOM, John Portman &amp; Associates Inc. (Shanghai Tower)</td>
<td><img src="image" alt="SOM, John Portman &amp; Associates Inc." /></td>
<td>2 conducted interviews, maps and site plans (self generated), video recordings and photographs (self generated)</td>
<td>river jumping, axiality, city grid, golden cross</td>
<td>The location of the Beijing Chaoyang district is on the main axis of the city, not only connotates its importance and economic power through the absence of traditional codes, but it is the location where the Chinese traditional spatial codes are found.</td>
</tr>
<tr>
<td>Guangzhou New Town</td>
<td>Wilkinson Eyre, Architecture Design Institute of South China Universities of Technology</td>
<td>Wilkinson Eyre, Architecture Design Institute of South China Universities of Technology</td>
<td><img src="image" alt="Wilkinson Eyre, Architecture Design Institute of South China Universities of Technology" /></td>
<td>2 conducted interviews, maps and site plans (self generated), video recordings and photographs (self generated)</td>
<td>river jumping, axiality, city grid, axiality, golden cross</td>
<td>Guangzhou CBD is located at the main east-west axis, each of the city centers, that crosses the city, and is located to the north of the city and south of a mountain with a central axis.</td>
</tr>
<tr>
<td>Shenzhen Futian CBD</td>
<td>SOM, OMA/Morphosis</td>
<td>SOM, OMA/Morphosis</td>
<td><img src="image" alt="SOM, OMA/Morphosis" /></td>
<td>2 conducted interviews, maps and site plans (self generated), video recordings and photographs (self generated)</td>
<td>river jumping, axiality, city grid, golden cross</td>
<td>The location of the Shenzhen Futian CBD is located within the rectangle of the political, administrative, and economic centers, east and west of the main axis of the city, and north and south of the city center.</td>
</tr>
<tr>
<td>Xi'an City, Shaanxi Province</td>
<td>SOM, ECADI</td>
<td>SOM, ECADI</td>
<td><img src="image" alt="SOM, ECADI" /></td>
<td>2 conducted interviews, maps and site plans (self generated), video recordings and photographs (self generated)</td>
<td>river jumping, axiality, grid</td>
<td>The commercial center is, despite the challenges of geographical location, structured based on axes and hierarchical city grid. This is an example of following the Chinese iconic urban principles, with the support of new technology, despite challenges stemming in the way of execution.</td>
</tr>
<tr>
<td>Wuhan City, Hubei Province</td>
<td>SOP</td>
<td>SOP</td>
<td><img src="image" alt="SOP" /></td>
<td></td>
<td></td>
<td>(The main CBD of Wuhan was still under construction during my research visit, therefore it was not possible to collect data for the research).</td>
</tr>
</tbody>
</table>

Figure 100b: Matrix of codes, analysed Central Business Districts (CBD)
<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
<th>Architect</th>
<th>Image</th>
<th>Available data</th>
<th>Code occurrences</th>
<th>Explanation and interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shanghai city hall (municipal government's headquarters)</td>
<td>Nanjing Road, People's Square</td>
<td>n/a</td>
<td><img src="image" alt="Shanghai City Hall" /></td>
<td>3 conducted interviews, maps and site plans (self generated), video recordings and photographs (self generated)</td>
<td>City axis, political centre, space/placement, architectural alignment, symbolic meaning. The location is at the central-north part of the political and administrative center. The power of the Shanghai municipal government is expressed through a rich interpretation of codes on the macro level.</td>
<td></td>
</tr>
<tr>
<td>Great Hall of the People</td>
<td>Tiananmen Square</td>
<td>Zhang Bo</td>
<td><img src="image" alt="Great Hall of the People" /></td>
<td>1 conducted interview, maps and site plans (self generated), video recordings and photographs (self generated)</td>
<td>The rectangle (city grid) of political and administrative functions, symbolic representation, distribution. The great hall of the People serves as one of the main representative buildings and is therefore located at the very heart of the political center aligned with the north-south axis.</td>
<td></td>
</tr>
<tr>
<td>Guangzhou People's Government</td>
<td>Yuexiu, Guangzhou</td>
<td>n/a</td>
<td><img src="image" alt="Guangzhou People's Government" /></td>
<td>3 conducted interviews, video recordings and photographs (self generated)</td>
<td>Architectural language of the republic of China (national codes) of traditional ancient architecture combined with modern architectural language of power (entrance, columns, conservator)</td>
<td></td>
</tr>
<tr>
<td>Shenzhen Civic Center</td>
<td>Futian District (福田区中心，福田区福中一路)</td>
<td>Li Mingyi [Shenzhen Qunfeng Construction Group Co., Ltd.]</td>
<td><img src="image" alt="Shenzhen Civic Center" /></td>
<td>2 conducted interviews, maps and site plans (self generated), video recordings and photographs (self generated)</td>
<td>Qi, City grid, rectang, grid, axis, hierarchy, red, yellow, red, gold, round, rectangle. The macro level location is located near the golden cross at the center of the city and strengthens the political power that the Shenzhen government authorities hold through the spatial traditional codes. The micro level: the powerful location and the importance of the spatial codes is further defined by the grid in terms of analysis, with the grid forming the central part of the building.</td>
<td></td>
</tr>
<tr>
<td>The Changxing People's Hall</td>
<td>Zhuzhou City</td>
<td>Zhang jia</td>
<td><img src="image" alt="The Changxing People's Hall" /></td>
<td>1 conducted interviews, video recordings and photographs (self generated)</td>
<td>Round, axis, 9th element, red, yellow. The central axis of the city hall is designed to connect the spatial composition of the representative building and representational space. Other codes connect the political importance and ideology.</td>
<td></td>
</tr>
<tr>
<td>Wuhan People's Government</td>
<td>Jianghan District</td>
<td>n/a</td>
<td><img src="image" alt="Wuhan People's Government" /></td>
<td>3 conducted interviews, video recordings and photographs (self generated)</td>
<td>Activity, red, gold. The Wuhan People's Government building falls into the post-Mao period of the socialist realism with corresponding building codes and architectural language. The multi-level axial system is defined by the space aligned with the central axis of the city hall and with walls to enclose the spatial composition of the representative building and representational space.</td>
<td></td>
</tr>
<tr>
<td>Tianjin Civic Center Masterplan</td>
<td>n/a</td>
<td>Xiaoli Architectural Design</td>
<td><img src="image" alt="Tianjin Civic Center Masterplan" /></td>
<td>Unbuilt</td>
<td>The current Tianjin Municipal Government building complex could not be analyzed due to accessibility of the area (security restrictions, no access permission), the new Tianjin representative government buildings were still under construction during the fieldwork visit.</td>
<td></td>
</tr>
</tbody>
</table>

*Figure 100c: Matrix of codes, analysed City Halls, Civic Centres, and governmental representational city components*
<table>
<thead>
<tr>
<th>Railway Station</th>
<th>Location</th>
<th>Architect</th>
<th>Image</th>
<th>Available data</th>
<th>Code occurrences</th>
<th>Explanation and interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shanghai Railway Station</td>
<td>Shibei, Shanghai</td>
<td>Shanghai Railway design institute</td>
<td><img src="image.png" alt="Image" /></td>
<td>1 conducted interview, video recordings and photographs (self generated)</td>
<td>n/a</td>
<td>Micro level: located in the urban center, north-east of the main north-south city axis. Micro level: on both axes of the station there are places, public space connected and integrated with the station (place south and place north). Micro level: the main roof and platform extension of the station, three before the 2010 Expo, is based on a wave-shaped roof design, connecting prosperity, development forward, and progressiveness.</td>
</tr>
<tr>
<td>Beijing Railway Station</td>
<td>Dongcheng, Beijing</td>
<td>Yang Tongbo, Chen Dong-ao, Third Railway Survey and Design Institute Group Co. Ltd.</td>
<td><img src="image.png" alt="Image" /></td>
<td>1 conducted interview, maps and site plans (self generated), video recordings and photographs (self generated)</td>
<td>n/a</td>
<td>Central axis, city grid, north-south orientation, Traditional Chinese architectural language.</td>
</tr>
<tr>
<td>Guangzhou Railway Station</td>
<td>Shibi, Panyu, TFP Farrells</td>
<td><img src="image.png" alt="Image" /></td>
<td>3 conducted interviews, architectural drawings and plans, video recordings and photographs (self generated)</td>
<td>n/a</td>
<td>The international office TFP Farrells (London-based) aimed at creating an open forum with a “garden approach” in order to connect the city Guangzhou with both axes are connected with the railway station south. There has been no code of Chinese socio-cultural context identified.</td>
<td></td>
</tr>
<tr>
<td>Shenzhen Railway Station</td>
<td>Luohu District, Shenzhen</td>
<td>SWA Group Houston, TX / Sejong Urban Engineering Design &amp; Research Company, Ltd, Shenzhen, Guangdong, China, built 1991/2004</td>
<td><img src="image.png" alt="Image" /></td>
<td>2 conducted interviews, video recordings and photographs (self generated)</td>
<td>n/a (this station is located on one of the north-south city axes with a east-west building complex orientation)</td>
<td>The railway station is located at the border with Hong Kong, at the north-south axis and east-west building orientation of a connected open plaza in front, with an integrated commercial area and multiple transportation modes. The US American designers did not represent traditional Chinese building codes according to this study, the building is not a functional architectural language.</td>
</tr>
<tr>
<td>Chongqing Railway Station</td>
<td>Yuzhong, Chongqing</td>
<td><img src="image.png" alt="Image" /></td>
<td>1 conducted interview, video recordings and photographs (self generated)</td>
<td>n/a (mountain, river)</td>
<td>The railway station, with less representative function and design budget, falls into the period of the socialist era of Mao Zedong. The location of the railway station, on a wide bridge, traces ancient traditional building codes by being located south of the mountains and north of the river.</td>
<td></td>
</tr>
<tr>
<td>Wuhan Railway Station</td>
<td>Hongshan District, Wuhan</td>
<td><img src="image.png" alt="Image" /></td>
<td>4 conducted interviews, video recordings, architectural drawings, and photographs (self generated)</td>
<td>city grid, scenery, cross</td>
<td>On the second level, the location of this railway station is part of the wider city high climb, elevated along the north-south axis. On top are located the adjacent site of the main station. This transportation building is an extension of the yellow river, which is a key symbol. The construction of the building supports the representation function that this main station has on the main transportation line and its importance on the north-south transfer, it is not only show the extension to the last specific context but she stands for good luck, prosperity, and development forward.</td>
<td></td>
</tr>
<tr>
<td>Tianjin Railway Station</td>
<td>Heping District, Tianjin</td>
<td><img src="image.png" alt="Image" /></td>
<td>2 conducted interviews, video recordings and photographs (self generated)</td>
<td>axiality, river</td>
<td>This railway station has been conceptualized and designed during the early years of the economic reforms of Deng Xiaoping and is conforming with socialist doctrines are present but they are a more modern versions of them, partly because of the materials that have been used. The south plane faces to the river, which combination is to showcase the representational function to the city of the other side of the river.</td>
<td></td>
</tr>
</tbody>
</table>

Figure 100d: Matrix of codes, analysed Railway Stations
<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
<th>Architect</th>
<th>Image</th>
<th>Available data</th>
<th>Code occurrence</th>
<th>Explanation and interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shanghai South Station</td>
<td>Xuji District</td>
<td>AREP (<a href="http://www.aren.fr/">http://www.aren.fr/</a>) +</td>
<td>conducted interview, video recordings and photos (self generated)</td>
<td>n/a (micro level: circular shape)</td>
<td>2006</td>
<td>The station is located south and east of the urban area. It is a line II railway station designed by a French design studio. The combination of identified codes (the round shape, as can be seen at the Peking temple of heaven), is a shape that is reminiscent of heaven and spiritual meaning, which, in this case was most probably not intended.</td>
</tr>
<tr>
<td>Beijing South Railway Station</td>
<td>Fengtai District</td>
<td>TFP Terrell (R Tianjin Design Institute)</td>
<td>1 conducted interview, architectural drawings, video recordings and photos (self generated)</td>
<td>n/a (north-south axis, round)</td>
<td>2008</td>
<td>The station is located west of the urban area along the north-south axis, with a large area of open space on the north and south sides. The station is not following the orientation of the building (north to south axis). The station does not refer to traditional codes, it does however, carry an architectural language that expresses and communicates representational function by the use of advanced building and construction techniques.</td>
</tr>
<tr>
<td>Guangzhou Central Railway Station</td>
<td>Tiantan District</td>
<td>4th bureau of Chinese railway station</td>
<td>conducted interviews, video recordings and photos (self generated)</td>
<td>n/a (north-south axis, round)</td>
<td>1974</td>
<td>The station is located south of the urban area along the north-south axis, with a large area of open space on the north and south sides. The station is following the orientation of the building (north to south axis). The station does not refer to traditional codes, it does however, carry an architectural language that expresses and communicates representational function by the use of advanced building and construction techniques.</td>
</tr>
<tr>
<td>Shenzhen East Railway Station</td>
<td>Longgang District</td>
<td>Shenzhen regional planning bureau &amp; Shenzhen railway bureau of Design and Survey</td>
<td>2 conducted interviews, video recordings and photos (self generated)</td>
<td>city axis, east-west orientation</td>
<td>1911/2004/2012</td>
<td>The station is located east of the urban area along the north-south axis, with a large area of open space on the north and south sides. The station is following the orientation of the building (north to south axis). The station does not refer to traditional codes, it does however, carry an architectural language that expresses and communicates representational function by the use of advanced building and construction techniques.</td>
</tr>
<tr>
<td>Chongqing North Railway Station</td>
<td>Yubei District</td>
<td>n/a</td>
<td>conducted interview, video recordings and photos (self generated)</td>
<td>n/a</td>
<td>2000 - still under construction</td>
<td>This railway station was closed during the research visit, due to major construction and rebuilding. Therefore it was not possible to collect research data for the analysis.</td>
</tr>
<tr>
<td>Wuxi Yanggu Railway Station, (Former Name: Tingjiangmen Station)</td>
<td>Zhongshan Road, Wuxi District</td>
<td>The Wuxi Planning &amp; Design Institute (WBDI)</td>
<td>4 conducted interviews, video recordings, architectural drawings, and photographs (self generated)</td>
<td>city grid, axis, wall</td>
<td>1910/1916/2007</td>
<td>The station is located close to the main city grid of the railway station. The station was aligned with the main axis running from north to south, with the main entrance to the north-northwest. The station is not following the orientation of the building (north to south axis). The station uses the traditional Codes of the former fortification of Wujiang city, which borders the location of the railway station.</td>
</tr>
<tr>
<td>Tianjin West Railway Station</td>
<td>Hongqiao</td>
<td>GMP</td>
<td>2 conducted interviews, video recordings, architectural drawings, and photographs (self generated)</td>
<td>city grid, axis, edge (half) rectangle</td>
<td>1910/2008</td>
<td>The station is located north of the city centre as a monumental structure reflecting the urban district along the north-south axis. The building and its entrance plaza are aligned north-south, with the main entrance to the north-northwest. The station is following the orientation of the building (north to south axis). The station uses the traditional Codes of the former fortification of Wujiang city, which borders the location of the railway station.</td>
</tr>
</tbody>
</table>

*Figure 100e: Matrix of codes, analysed Railway Stations*
Figure 100f: Matrix of codes, analysed Railway Stations
### Railway Stations

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
<th>Architect</th>
<th>Image</th>
<th>Available data</th>
<th>Code occurrences</th>
<th>Explanation and interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shanghai Hongqiao Railway Station, Shanghai Hongqiao Zhan (上海虹桥站)</td>
<td>Minhang, Shenlong Road</td>
<td>Liu / Hunter Douglas</td>
<td><img src="image1.jpg" alt="Image" /></td>
<td>1 conducted interview, video recordings and photographs (self generated)</td>
<td>n/a</td>
<td>(South orientation, activity) Part of the Comprehensive Transportation Hub (Hongqiao hub) The station is located on the main urban axis, is integrated, mostly underground, in the Comprehensive Transportation Hub. The entrance building is south oriented with alignment to the north-south axis. This transportation hub, which includes one of the largest airports, a bus station, and a metro station, follows a functional design approach with displaying the basic visual level codes of orientation and layout.</td>
</tr>
<tr>
<td>Beijing West (Beijing) Railway Station (北京西站)</td>
<td>Fengtai District</td>
<td>3rd National bureau of Chinese railway stations</td>
<td><img src="image2.jpg" alt="Image" /></td>
<td>1 conducted interview, video recordings and photographs (self generated)</td>
<td>G1, South-Centration, identity, urban hierarchy</td>
<td>(Macro level aligned on the main north-south city axis, visual north-south orientation, Micro-5th element (the &quot;empty&quot; space in the center), G1 (energy flow thought to be in the building from north to south). The entrance building building has three levels of analysis illustrates the strong conventions that this building can be seen. The station is one of the largest, most modern railway stations and functions as a business, a transportation hub and a &quot;city gate&quot; for visitors arriving in Beijing via this railway station.</td>
</tr>
<tr>
<td>Guangzhou East Railway Station, Guangzhou East Railway Station (广州东站)</td>
<td>Tianhe District</td>
<td>Regional bureau of railway stations &amp; Luoj</td>
<td><img src="image3.jpg" alt="Image" /></td>
<td>3 conducted interviews, architectural drawings, video recordings and photographs (self generated)</td>
<td>G1, South-Centration, identity, urban hierarchy</td>
<td>(South axis) This transportation hub is located directly north (on the main north-south axis) of the Guangzhou CBD. The station as well as the Main level are strongly rooted in the Chinese building traditions.</td>
</tr>
<tr>
<td>Shenzhen West Railway Station</td>
<td>Nanshan District</td>
<td>n/a</td>
<td><img src="image4.jpg" alt="Image" /></td>
<td>n/a</td>
<td>n/a</td>
<td>(Not operating at the time of the research study, in the process of being demolished).</td>
</tr>
</tbody>
</table>

**Figure 100g: Matrix of codes, analysed Railway Stations**
Abstract of the research

The aim of this research is to contribute to a better understanding of the urban complexity of Chinese cities by reading and decoding their urban texture through the lens of contextuality in urban design.

Experiences of western professionals in China show how important the question of contextuality, and therefore the factor of cultural sustainability in planning and city building, has become for successful long-term urban development. They also prove how much room for improvement of knowledge of non-Chinese experts there still is even though the Chinese market has been explored quite successfully by architects, urban designers, and city planners within the rapid process of Chinese urbanisation. This research is in the realm of the overarching question ‘What makes Chinese cities different from the ones European and North American observers are accustomed to?’.

The research offers a critical look at the repeated evaluation of Chinese cities declaring that the large – so called global – cities of China have lost their “Chinese-ness” in the process of becoming global metropolises. This thesis attempts to account for the complexity and subtlety of the cultural realm in which the present research is set and in the attempt to do so, selected elements of the physical environment in China are analysed in order to focus on the assumed withdrawal of Chinese contextuality in the rapid urbanisation process. Through that, selected part of the Chinese urban physical built environment is examined and processed in order to make it readable and accessible for non-Chinese observers. The basis of this research is a case study-based urban hermeneutic research approach used to analyse the specifically selected city components in the seven largest Chinese cities. The data for the research has been generated during the field-work (photos, videos, expert conversations, architectural drawings, marketing/presentation materials [videos, renderings, brochures]), complimentary to that, primary and secondary literature review forms a crucial part of the body of research data. The selected cities and city components (city halls, CBDs, railway stations, including their spatial context within their respective cities) are decoded, analysing the architectural and urban semiotics traditionally used in the Chinese context, which is closely connected to the Chinese philosophy, building traditions, and contextuality (cultural, geographical, topographical, historical, just to name a few). Space in this research is approached not merely as a collection of all the physical objects that surround us but, following the core notions of Chinese philosophy, rather as a great whole, of which the physical is a part.

Beauty can only be achieved through harmony (two of the most sought-after qualities in the Chinese culture); this ancient, holistic Chinese concept embraces and connects human interaction with the natural and man-made environment as equally important components. These concepts, mirrored and manifested in the built environment, compose a layer of the built space that is invisible to an unfamiliar observer. The intangibles of space have been at the fundament of the Chinese city-building and architectural doctrines for millennia.

The present research touches upon this deep cultural embeddedness and, since the built environment is a major vehicle for cultural messages and symbolism, tries to make these connections more legible for a non-Chinese observer. Moreover, by showing the links to ancient, rich culture, the dissertation challenges the notion of omnipresent globalisation that razes local contexts; a claim that is not only brought up in the context
of Chinese urbanisation but across the world where rapid city development is taking place.

The approaches and the selection of cases presented in this research can only be understood as a start of – or a contribution to – a significantly more advanced research in understanding Chinese cities. For a true understanding of the challenges and the complexity of the Chinese built environment, a bridge between the Chinese and the non-Chinese needs to be strengthened so that the vast knowledge gaps could be transgressed. This dissertation strives to provide not only a perspective for further future research approaches but also a different angle on conducting urban research in culturally significantly different spatial settings.
Zusammenfassung der Arbeit

Das Ziel dieser Arbeit ist es, zu einem besseren Verständnis der urbanen Komplexität Chinas beizutragen. Die chinesische städtische Struktur wird mit Hinblick auf die Kontextualität und aus städtebaulicher und stadtplanerischer Perspektive analysiert.

Die Erfahrungen westlicher Beteiligter am Chinesischen Urbanisierungsprozess verdeutlichen, wie wichtig Fragen der urbanen Kontextualität sind und darüber hinaus, wie weitreichend Faktoren wie kulturelle Nachhaltigkeit in der Stadtplanung und im Städtebau für eine langfristig nachhaltige Stadtentwicklung sind. Obwohl chinesische Städte und der chinesische Markt bereits seit einigen Jahrzehnten in praktischer wie theoretischer Hinsicht untersucht und analysiert wurden, existiert hier weiterhin ein wissenschaftliches Desiderat, insbesondere aufgrund des Prozesses der rapiden chinesischen Urbanisierungsphase der letzten Jahrzehnte. Das Forschungsvorhaben der vorliegenden Arbeit geht daher der folgenden Frage nach, was chinesische Städte gegenüber denjenigen der westlichen Hemisphäre andersartig macht.


Die Forschungsarbeit hinterfragt die Schlussfolgerung, dass der stattfindende Globalisierungsprozess den lokalen Kontext sowie die Traditionen und Spezifika unwiederbringlich zerstört, indem die Verknüpfung der facettenreichen chinesischen Kultur mit der Umwelt aufgezeigt wird. Darüberhinaus kann dieses Forschungsvorhaben
als ein Anfang verstanden werden im Rahmen eines signifikant umfangreicheren und holistischen Vorhaben für Wissenstransfer und einem tieferen Verständnis chinesischer Städte.
研究摘要

本研究旨在从城市设计的脉络视角对现代城市的本质进行解读，从而对中国城市的复杂性取得更好的理解。西方专家在中国的经验已体现出地方特色，即城市计划和建设过程中文化的可持续性，在成功的长期的城市化建设过程中的重要性。他们的经验也证明了，虽然在中国快速的城市化进程中，建筑学家、城市设计者以及规划者们已经相对成功地开拓了中国市场，但非中国专家在此领域研究仍有很大的进步空间。本研究主要针对的问题是“中国的城市与欧美学者熟悉的中国城市到底有何不同之处？”

本研究的重要发现是，对中国城市多数被评论为，中国的国际化大城市在全球化进程中已经失去了“中国特色”。本文考虑了文化因素的复杂性和微妙性，这也是本研究的基础，从而对中国的物理环境因素进行分析时，在不考虑中国的脉络性这一假设下着眼于快速城市化进程中。这样就可以为非中国的学者们解释某些特定的中国城市的发展和进程。本研究是基于案例分析的诠释方法，对中国七大城市的特定城市因素的分析，研究中涉及的数据都来源于现场工作[照片、视频、专家对话、建筑图纸、宣传材料（视频、建筑透视图、宣传手册）]；另外一些主要和次要的文献评论也是本研究主体的数据支撑。以选择的城市和城市要素（市政大楼、中央商务区、火车站及它们在各自城市中的空间布局）作为切入点，分析了中国传统的城市和建筑特征，这与中国的哲学思想、建筑传统以及其他脉络因素（文化、地域、地形地貌、历史等）息息相关。本研究中提到的空间概念不仅仅是我们身边物理物质的集合，更是包含了中国哲学思想的核心观念，物理空间只是其中的一部分。

'和谐'产生'美'（两个在中国文化中最受追捧的特质）这个悠久又宏观的概念表达的是人与自然和人与人为环境的互动是同等重要的要素。这些理念在环境建设的过程中也得以映射和体现，但对一个不熟悉此概念的观察者来说却很难发现。空间的无形特征是中国城市建筑的基础，也是几千年前的建筑学原则。本研究试图触及这一深层次的文化根植性，由于环境的建设是文化信息的重要载体，因此本研究也试图为非中国的学者们提供其中的联系，而且本文通过展现现代与过去丰富的文化联系，挑战了现代无所不在的全球化会打破地方特色这一观点，这不仅产生于中国的城市化过程，更是出现在全球所有实现快速城市化发展的地区。

本论文呈现的研究方法和选择案例仅仅是研究中国城市的开始，或者说是对中国城市更深层次研究的一些贡献，为了更准确地理解中国环境建设的挑战性和复杂性，中外学者应共同协作，跨越巨大的文化鸿沟。本论文致力于为未来研究方法提供观点，及对城市研究中面对不同的文化环境提供不同的视角。
This thesis challenges the claim that Chinese cities have been losing their Eigenart (intrinsic logic, local identity) in the era of globalisation by searching for traditional urban and architectural codes used in the built space. Following the question of what makes Chinese cities different from the ones European and North American observers are accustomed to, this thesis employs an innovative, urban hermeneutics approach of decoding the Chinese built space. One of the main goals of this research is to be valuable and accessible to those interested in the astonishingly vast topic of Chinese urbanisation. Representing both practice (architecture and planning) and academia (urban research), it is the aim of this dissertation to contribute to a better and holistic understanding of Chinese cities, their frequently-invisible layer of ‘Chinese-ness’, the cities’ Eigenart.

This work is a multi- and transdisciplinary effort that can elicit not only the interest of architects, urban designers, urban researchers, semioticians, ethnographers, sinologists, and economists, but also those who travel and observe urbanisation processes across cultural realms.