MORE WITH LESS

Towards an Affordable Munich

April 2021

Delft University of Technology Master of Architecture Urbanism and Building Sciences, Urbanism Track 4407997

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INTRODUCTION



Image 1.01: Apartment viewing in Munich

PERSONAL RELEVANCE

born in and spend most of my practical experience I had the life. During my first five years chance to work on developing an of practical experience in an industrialised, modular building architectural office, I have witnessed an unprecedented in- tion company. I encountered crease in real estate prices. I the many restrictions within the came to realise, that with every building industry that is preventyear, chances of becoming a ing further industrialisation like homeowner in the city I grew in other producing industries. up in are getting slimmer. The Nevertheless, I can see the pocity is not only rapidly attracting new people, but also new capital in search for a safe yield, all in competition for the ever scarcer supply of housing.

My interest lies in understanding the underlying economic and political preconditions of affordable housing. At the same time, I have been always fascinated by the ordinary design assignments. The design of affordable or social housing is seen by many as such an ordinary assignment, due to the abundance of restrictions and limited leeway. I regard it as the supreme discipline exactly because of that.

Munich is the city I have been During the last two years of my system for a private constructentials of industrial production on cost efficiency and would like to explore and test these systems within the task of providing more affordable housing in the city of Munich.

Image 1.02: Magazine headline, left (source: www.stern.de) Image 1.03: Poster, Documentary Film "PUSH" (source: www.pushthefilm.com)



Image 1.04: Newspaper Headlines (Source: www.faz.de) Frantfurter Allgemeine 30.05.2019 - Aktualisiert: 02.06.2019, 22:04 Uhr https://www.faz.net/-gqe-9niko

Mehr Eingriffe in den Markt

Warum der Staat die hohen Mieten bekämpfen sollte

Immobilienmärkte funktionieren anders als Lehrbuchmodelle. Eingriffe in den Mietmarkt sind weniger schädlich, als oft behauptet. Gefragt ist ein intelligenter Mix der Instrumente, meint ein Ökonom im Gastbeitrag.

Von SEBASTIAN DULLIEN



Image 1.05: Newspaper Headline (sources: www.sueddeutsche.de)

18. Juni 2015, 7.39 Uhr Sestale Ungleichheit **Immobilienboom spaltet Deutschland in Arm und Reich** - Seit mehreren Jahren steigen in Deutschland die Preise für Wohnungen und Häuser stark an. - Wissenschaftler der Uni Bonn haben nun untersucht, wer von diesem Immobilienboom profisiert und wer nicht. - Ein Ergebnis: Von steigenden Häuserpreisen profisieren vor allem die reichsten zehn Prosent, während Menachen mit geringen Einkommen von böhreren Mieten *Von Alexander Hagelühen* Süddeutsche Zeitung

SOCIETAL RELEVANCE

The sharply rising real estate prices in German metropolitan areas, has not happened unnoticed by the public. Soon newspapers all over the country picked up more stories about the negative effects of rising prices on the lives of residents. It soon became apparent that the not only marginalised groups assisted with social welfare, but an increasing share of the middle classes are affected. Moving up the social ladder by becoming a homeowner is becoming increasingly difficult for more, especially young and even highly educated people. The few extracts of media coverage in this section demonstrate the sense of urgency of the lack of housing affordability.

Image 1.06: Publications regarding affordable housing



Image 1.07: Experts regarding urbanisation, real estate markets and housing



SCIENTIFIC RELEVANCE

Experts on various levels and relevance of the topic. with different scientific background are concerned with the Finally, the concern with the topic of affordable housing, il- topic of affordable housing is golustrating its multi-disciplinary ing through a renaissance in the nature. On a global level, Saskia field of architecture and urban-Sassen is particularly interested on the effects of increasing globalisation, privatisation, marketisation and financialisation on of the post-war period continlocal housing. She identifies the ued in their tradition. The great city as the new urban frontier number of publications and exin which multinational corporations compete with individual residents alike for valuable resources.

ism, after classical modernists pioneered their relevance for the topic and fellow colleagues hibitions by architects and architectural publishers during the last few years underlines

this notion.

Many scholars with real estate management background, who are aware of political developments and their effects on housing, are becoming increasingly critical of current housing policies in European countries. Two professors of Delft University Technology, Marja Elsinga and Marietta Haffner, are leading experts in the field of housing affordability. Their numerous contributions to the body of knowledge over the last dec-

Image 1.08: Population growth, household size & dwellings in Munich (source: www. muenchen.de)



Image 1.09: Interest rates & housing vacancy in Munich (source: www.statista.de)





PROBLEM FIELD

Munich is a city in demand. It offers an Furthermore, low interest rates and attractive living environment, thanks lack of trust in alternative types of into its geographic location close to the alpine region and surrounded by recreational nature, offering a variety of social and cultural activities and economically prospering with lots of job opportunities. Next to a growing number of highly educated people seeable outcome. In order for the city moving to the city in order to enhance to stay inclusive to all income groups, their living standard, is a majority with moderate incomes, dependent on employments offered within the city, upon which the functioning of the city depends on equally. Furthermore, a growing number of the socially marginalised, victims of globalisation and economic competition, but also war refugees are seeking for a place and space to live within the city.

vestments means housing is attracting more profit seeking capital, leading to its increasing commodification and speculation with it. The housing market is currently an unequal battle of different interest groups, with foreit needs to react and provide answers.

plied by the city are becoming increasingly scarce. The continuous retraction of the state from the housing market lead to a sharp decline of social and affordable housing. Many eligible for social welfare cannot solely rely on the state anymore for housing provision. The compete with the lower and upper middle classes and highly educated, temporarily residing professionals for rental housing. Rental housing, on the other hand, is in competition for space with a growing share of homeownership, accessible only to affluent citizens.

The places and spaces on offer, sup-

Image 1.10: Sale prices, rental prices & wages in Munich (source: www.muenchen.de)

From the quantitative data illustrating

population, urbanisation, construction and real estate market dynamics, the problems regarding affordable housing in Munich can be summarised with the following statements:

PROBLEMSTATEMENT

MAIN PROBLEM:

Munich has a lack of affordable housing.

SUB-PROBLEMS:

SUPPLY

DEMAND

COSTS

10W

Decreasing spatial supply for housing in Munich.

Increasing spatial demand for housing.

Increasing construction costs of realising housing in Munich,

MEDIUM

What is the state of affordable housing in Munich?

What are the current strategies for implementing affordable housing in Munich?

Analysis:

HIGH

Theory:

What are the spatial potentials to increase supply of more affordable housing in Munich?

What are current spatial demands for housing and what are the potentials to decrease it?

building systems offer in decreasing the cost of affordable housing?

Design:

How to increase supply of affordable housing in Munich using potentials of densifying existing municipal housing estates with the means of urban planning and design?

and architectural design?

How to decrease construction costs of affordable housing using the potentials of industrialised building systems with the means of architectural design and enaineerina?

Image 1.11: Research objective (source: author)

	Lack of Affordable Housing!		
:	Decreasing Supply	Increasing Demand	Increasing Costs
QUESTION	How to Accommodate More Affordable Housing?		
SUB-QUESTIONS	How to Increase Supply?	How to Decrease Demand?	How to Decrease Costs?
AIMS	Increase Supply!	Decrease Demand!	Decrease Costs!

18

RESEARCHQUESTION

The main research question is directly deducted from the problem statement and illustrates a relatively broad investigative approach.

MAIN RESEARCH QUESTION:

How to accommodate more affordable housing in Munich with the means of urban and architectural design.

The sub-research are categorised according their part within the research, narrow the focus and suggest possible research aims.

SUB-RESEARCH QUESTIONS:

What potentials do industrialised

How to decrease the demand for housing using potentials of spatial optimisation with the means of urban

RESEARCH AIMS

MAIN AIM:

Accommodate more affordable housing with the means of urban and architectural design.

Sub-Aims:

Increase supply of affordable housing with the means of urban and architectural planning and design!

Decrease demand for affordable with the means of architectural design and engineering!

Decrease construction costs of affordable housing with the means of architectural design and engineering!



SUB-QUESTION How to Increase Supply? How to Decrease Demand? How to Decrease Costs?

METHOD Literature Review Expert Interviews Mapping / GIS **Density Analysis** Typo-Morphological Analysis **Case Study Analysis User Demand Analysis** Best Practice Exploratory Design Criteria Based / Parametric Design

Image 1.12: Methods (source: author)

	Lack of Affordable Housing!		
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AIMS	Increase Supply!	Decrease Demand!	Decrease Costs!
METHODS	Literature Review Mapping / Density Analysis / Ownership Analysis / Case Study Analysis Explorative Design	Literature Review Typological Analysis / User Demand Analysis / Best Practice / Explorative Design	Literature Review Case Study Analysis / Best Practice

METHODOLOGY

PROPOSED RESEARCH APPROACH

Both quantitative and qualitative methods are used to conduct the in answering the respective research questions.

Data Collection

In the following section the main methods with examples of respective types of sources for gathering the necessary information are stated.

LITERATURE REVIEW

Quantitative data is used mainly to understand and illustrate the dynamics of urbanisation and its degree from the following sources:

European, federal and state statistical offices (population, income)

Building, planning and social directorate of the Municipality of Munich (urbanisation, social housing)

Construction industry reports (construction activity and costs)

Real estate reports (real estate prices)

Qualitative data provides the theoretical basis for understanding related concepts and strategies in use from the following sources:

Journal articles (affordability from global and european governance perspective)

Monographies and anthologies (affordability from national and municipal planning perspective, positions to housing policies)

State and municipal reports (housing policies and proposed strategies)

EXPERT INTERVIEWS

research, according their relevance In order to provide a deeper understanding of the topic and its nexus with superordinate spatial and socio-economic conditions, expert interviews are conducted. The interviews also serve as a reflection on the interpretation of the literature review and in addition provide hints to possible strategies and solutions and their feasibility.

> Prof. Dr.ir. Marja G. Elsinga and Prof. Dr. Marietta E.A. Haffner (Affordability)

> Max Bögl (Industrialised building systems)

BEST PRACTICE EXAMPLES

The strategic framework as well as the specific spatial interventions are based on a catalogue of existing solutions.

Existing and proposed strategies for increasing supply (expansion, transformation and densification) in Munich

Existing and proposed strategies for decreasing demand (minimalisation, externalisation and optimisation)

Case study: maxmodul industrial building system

MAPPING / GIS

Maps provide the spatial component for subsequent analysis of potentials for intervening and were collected from the following sources:

OpenStreetMap (main data source for vector graphic information as basis for spatial calculations)

Google Maps (main data source for raster graphic information in order to illustrate the context)

Field Work - Photography and Sketching (additional data source for explorative context interpretation)

After collecting data from the respective sources stated in the previous section, it can be processed and analysed using the following methods:

STATISTICAL ANALYSIS

Basic methods of statistical analysis are used to process and illustrate quantitative data in order to reveal extend, trends and relationship different patterns between phenomena.

MAPPING / GIS

The collected map materials can now be used as a basis for analysing and visualising the context spatially according to related topics, like density, public transport, housing typologies, ownership and public transport in order to reveal potentials for intervening.

EXPLORATIVE & CRITERIA BASED DESIGN

After establishing possible locations, design interventions will be investigated through explorative and criteria-based design methods. A generic catalogue with different typologies serves as a toolbox to select site-specific interventions. Best practice examples serve as an evaluation of the interventions



CONCEPTUAL FRAMEWORK

The conceptual framework illustrates the relationships of the main concepts used in the research. The main concepts related to the topic of affordable housing investigated in the research are the definition, history and instruments of affordability, housing policies, density, industrialised and modularised building systems, as well as user demands and preferences.

ETHICAL CONSIDERATIONS

Q: Does your proposed strategy affect disadvantaged groups unfairly?

The proposal aims to help disadvantaged groups by increasing supply of affordable housing through densifying neighbourhoods of existing municipal housing corporations. Although densification provides also potentials for improving the existing urban environment, some disadvantaged tenants in the adjacent existing housing stock might be also negatively affected by some aspects of densification.

Q: Are there risks that your proposal deepens spatial injustice?

If yes, why and what could be done to limit /remediate injustices?

The proposal to increase supply of affordable housing through densifying neighbourhoods of existing municipal housing corporations aims to improve the urban environment in those selected areas. But urban upgrading is often associated with gentrification. My proposal relies on the social responsibility of housing corporations to keep their housing stock without selling and protecting their existing tenants in adjacent dwellings and allocating new dwellings to people in need. However, densification and urban upgrading on smaller scale can have a knock-on-effect on a larger

gentrification of privately owned housing in the surroundings. Other possible locations for interventions provide the possibility for densifying without changing, or for that matter, improving public space, for example with rooftop extensions. Arguably, this intervention can degrade to a certain extend the living environment for existing tenants in terms of liveability.

Q: Are the benefits and burdens of development promoted by your strategy fairly distributed?

The proposal aims to shift the current imbalance of unfair distribution of space within the city from profitoriented housing only accessible to affluent citizens, towards non-profit oriented housing accessible to lowerand middle-income groups. In this process however, institutional power of public housing corporations can impair opportunities for productive individuals, that would like to fulfil their aspirations of owning property in the city of Munich based on their merit.

Q: Are silent stakeholders taken into account?

Silent stakeholders can be largely identified as the existing and new tenants in the affected neighbourhoods. Existing tenants should be

of densification by improvement to their living environment, according to their needs, as well as with a voice in the process of densification. New tenants are unknown, and their preferences based on statistics and predefined user profiles. They should be considered by offering them a flexible and adaptable living environment, that they can change to their needs.

Q: Does your strategy cater for broader frameworks (SDGs. New Urban Agenda, European Urban Agenda, Paris Agreement, Green Deal for Europe, Dutch Energy Transition Strategies?)

As the proposal aims to improve access to affordable housing for lower- to middle-income groups, it is primarily concerned with the notions of inclusivity and resilience, embedded in most broader frameworks. The method of densification also provides for enhancing environmental sustainability.





Image 1.01: Apartment viewing in Munich

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Von SEBASTIAN DULLIEN



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Stødeutsche Zehung

Immobilienboom spaltet Deutschland in Arm und Reich

Seit mehreren Jahren steigen in Deutschland die Preise für Wohnungen und Häuser stark an.
Wissenschaftler der Uni Bonn haben nun untersucht, wer von diesem Immobilienboom profitiert und wer nicht

• Ein Brgebnis: Von steigenden Häuserpreisen profitieren vor allem die reichsten zehn Prozent, während Menschen mit geringen Einkommen von höheren Mieten belastet

Von <u>Alexander Hagelüken</u>

19. Juni 2019. 7:39 Uhr Se

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What are the spatial potentials to increase supply of more affordable housing in Munich?

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How to increase supply of affordable housing in Munich using potentials of densifying existing municipal housing estates with the means of urban planning and design?

How to decrease the demand for housing using potentials of spatial optimisation with the means of urban and architectural design?

How to decrease construction costs of affordable housing using the potentials of industrialised building systems with the means of architectural design and enaineerina?

Image 1.11: Research objective (source: author)

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RESEARCHQUESTION

The main research question is directly deducted from the problem statement and illustrates a relatively broad investigative approach.

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What are the current strategies for implementing affordable housing in

What potentials do industrialised

RESEARCH AIMS

MAIN AIM:

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Sub-Aims:

Increase supply of affordable housing with the means of urban and architectural planning and design!

Decrease demand for affordable with the means of architectural design and engineering!

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EXPLORATIVE & CRITERIA BASED DESIGN

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CONCEPTUAL FRAMEWORK

The conceptual framework illustrates the relationships of the main concepts used in the research. The main concepts related to the topic of affordable housing investigated in the research are the definition, history and instruments of affordability, housing policies, density, industrialised and modularised building systems, as well as user demands and preferences.

ETHICAL CONSIDERATIONS

Q: Does your proposed strategy affect disadvantaged groups unfairly?

The proposal aims to help disadvantaged groups by increasing supply of affordable housing through densifying neighbourhoods of existing municipal housing corporations. Although densification provides also potentials for improving the existing urban environment, some disadvantaged tenants in the adjacent existing housing stock might be also negatively affected by some aspects of densification.

Q: Are there risks that your proposal deepens spatial injustice?

If yes, why and what could be done to limit /remediate injustices?

The proposal to increase supply of affordable housing through densifying neighbourhoods of existing municipal housing corporations aims to improve the urban environment in those selected areas. But urban upgrading is often associated with gentrification. My proposal relies on the social responsibility of housing corporations to keep their housing stock without selling and protecting their existing tenants in adjacent dwellings and allocating new dwellings to people in need. However, densification and urban upgrading on smaller scale can have a knock-on-effect on a larger

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Silent stakeholders can be largely identified as the existing and new tenants in the affected neighbourhoods. Existing tenants should be

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Q: Does your strategy cater for broader frameworks (SDGs. New Urban Agenda, European Urban Agenda, Paris Agreement, Green Deal for Europe, Dutch Energy Transition Strategies?)

As the proposal aims to improve access to affordable housing for lower- to middle-income groups, it is primarily concerned with the notions of inclusivity and resilience, embedded in most broader frameworks. The method of densification also provides for enhancing environmental sustainability.

Image 1.14: Historic housing matrix (source: author)

	PREMODERNISM	CLASSICAL MODERNISM	POST-WAR MODERNISM	POSTMODERNISM	PRESENT
EVENTS	Industrial Revolution Land Enclosures	WW I The Great Depression	WW II	The Oil Crisis Fall of the Iron Curtain	The Global Financial Crisis
ECONOMIC PARADIGMS	Neoclassical	Neoclassical / Keynesian / Socialist	Keynesian / Social Market Economy / Ordoliberal	Neoclassical / Neoliberal / Monetarist	Neoliberal / Moneytarist / Neokeynesian / Circular, Common Wellbeing
HOUSING SYSTEMS	Market Economy	Cooperatives / State Social Housing	State Social Housing / Unitary Market / Object Based Subsidies	Market Economy Homeownership Promotion / Subject Based Subsidies	Homeownership Promotion / Object Based Subsidies Subject Based Subsidies
ACTORS	Church / Charities / Philanthropist	Municipal Housing Companies / Large Cooperatives	State Housing Companies	Private For-Profit Sector	Large Private Corporations / Municipal Housing Companies / Small Cooperatives
AUDIENCE	Working Class	War Refugees / Working Class / Nuclear Families	Broad Society / Nuclear Families	Upper Middle Classes / Nuclear Families	Marginalised Groups / Elderly
URBAN TYPLOGIES	Compact City / Perimeter Block	Garden City / Functionalist City / Superblocks	Functionalist City / Free-Flowing Space	Urban Reconstruction / New Urbanism / Superblocks / Single Family Neighbourhoods	Compact City / Open Block
ARCHITECTURAL Typologies	Parcelated Apartment Block	Superblock / Slabs	Slabs / Solitairs / High-Rise	Superblocks / Catalogue Single Famly Houses	Slabs / Urban Villas
DWELLING TYPOLOGIES	Communal Apartments / Shared Rooms	Minimal Family Apartments	Family Apartments	Single Family Houses	Accessible Apartments / Micro-Apartments / Cluster-Apartments

AFFORDABILITY

ABSTRACT

This paper discusses relevant definitions of affordable housing in order to aim for a common understanding of the topic. This common understanding consists of two dimensions – the reasonable economic burden and housing quality. Both dimensions can be examined from a qualitative and quantitative perspective. A qualitative perspective consists of social norms, depended on specific historical, geographical and cultural context and determines quantitative thresholds of affordability. A historical overview of the most important developments in regard to affordable housing in Munich helps to extract applied strategies and analyse them in accordance to their future relevance. Finally the most important strategies extracted from the historical analysis are reviewed and categorised according to their relevance to planners and policy makers.

Image 1.15: Affordability definition (source: Haffner & Elsinga 2015)



1.0. INTRODUCTION

A combination of decade-long privatisation. marketisation and financialisation processes, low interest rates and subsequently high demand for real estates as secure type of investment model, expiring social housing obligations and a general retreat of the state from the housing market and renewed urbanisation and population growth in metropolitan areas, led to a renaissance of the housing crisis in Munich. After overcomina an unprecedented shortage of housing after the world wars, the history of affordable housing took many ideological turns.

In the first part of this paper, review of existing definitions of affordable housing will showcase a pluralism of meanings. The second section of the paper intents to provide an overview of historical developments and their link to historic events and economic paradigms in regard to affordable housing, in order to identify successful strategies for the future.

In the last section, gathered insights from the first two sections are synthesised to create an overview of possible governance and planning strategies in order to implement affordable housing in the future. in detail each individual strategy and policy, but to link relevant criteria of affordable housing in order to draw a bigger picture and create a practicable overview for policy makers and planners.

2.0. DEFINITION

There is no consistent definition of affordable housing in literature (Moore & Schindler, 2017). Some even challenge the term and propose to replace it with housing affordability (Stone, 2006), Although housing affordability might indeed be more precise in expressing a specific measure from a neutral perspective, the term affordable housing should not be dismissed on formalities alone and is particularly relevant for defining a common goal. A common understanding is often seen as a precondition for analysing and subsequently tackling the lack of affordable housing (Löffler, 2016). This paper on the other hand acknowledges not only the existence but also the relevance of varying and competing views.

Although omnipresent media coverage might create the impression that lack of affordable housing is a nationwide, if not global issue. It is always rooted in specific places with conditions that can greatly differ. According to economic or political context, or which perspective of the many actors involved is considered, different, even competing definitions can become more or less relevant. Despite the pluralism in meanings, some common ingredients of which the topic of affordable housing consists of can be observed.

2.1. AFFORDABLE, PUBLIC, SUBSIDISED OR SOCIAL HOUSING?

Despite their different meanings, the term affordable housing is often used in public debate as a synonym to related terms, like public, subsidised or social housing. Therefore, this chapter intends to first clarify the boundaries between these terms.

Social housing provides the narrowest definition. It is a form of publicly funded housing programme, intended to accommodate a prioritised social group. Most western countries have a specialised social housing programme, separate from the rest of the housing market, intended as safety net for the most vulnerable social groups.

In contrast to social housing, subsidised housing represents a unique form of social housing programme in German speaking countries. The housing market is not divided, and subsidies to are given in exchange to temporary obligations of a fixed below market rent. After a typical obligation period of 25 years, the dwelling can be offered on the free market.

The term public housing is not limited to a certain target group, but consists all buildings developed by or in ownership of state or municipal housing associations. The goal is an active involvement of the public sector on the housing market to either ensure adequate supply in quantity and quality, to have a dampening effect on market prices, or steer preferred urban developments.

The ascent of term affordable housing came parallel to the state gradually retracting from the housing market and as the term social housing fell into disrepute after being closely associated to unsuccessful modernist housing estates. Therefore, affordable housing is not limited to any particular form of ownership or funding, but rather emphasises the intended outcome.

2.2. BURDEN VS. QUALITY

Affordable housing can be understood through its inherent two dimensions. Reasonable economic burden on the one hand and housing quality on the other (Haffner & Elsinga, assessed through qualitative or quantitative perspectives. There are several quantitative indicators of the reasonable burden, but the most used is the expenditure-to-incomeratio, the relation of housing costs to disposable income. Experts justifiably argue that it is necessary to consider all additional costs affiliated with housing. However, the indicator is not fully conclusive regarding affordability and additional information such as income group, city or region and living expenses are necessary to provide a clear picture.

OBJECT SUBSIDIES

Modernisations

Rental Anartments

Homeownershin

Another relevant measure is the minimum budget, which includes typical living expenses. This measure is more conclusive but cannot be applied universally and requires a time and place specific consideration. In addition to quantitative indicators, only a qualitative perspective can determine respectable thresholds. Social norms and standards play a major role and vary with cultural, historic and economic context (Haffner & Elsinga, 2015). There is however an apparent 3.0. lack of standardised thresholds. The currently used rules of thumb are notoriously vulnerable to dismissal. Attempts to standardise thresholds would be a welcome contribution in tackling the issue but should be regularly scrutinised and updated within local real estate markets by the

Image 1.16: Housing policies (source: Mundt 2015)

	HOUSING		
	PROMOTIONS		REGULATIONS
IR	ECT	INDIRECT	Protection against Eviction
	SUBJECT SUBSIDIES	Income Tax	Rent Caps
	Allowances	Property Tax	Building Codes / Norms
		Wealth Tax	
		Inheritance Tax	

In contrast to reasonable burden, housing quality is heavily regulated, not few even say it is overregulated, contributing to the lack of affordability byinadequatelyincreasing construction costs. Almost every physical feature of a dwelling is regulated by norms and standards or building codes. Such regulations affect size, technical equipment, materials and finish of dwellings, but also protective safety and wellbeing measures, such as stability, fire resistance, sound and thermal insulation.

A quality standard is a guarantee of a commonly agreed acceptable minimum and a representation of social welfare, but it is also a scattergun approach, not taking into consideration individual needs and preferences. Some regulations represent minimal requirements to ensure the wellbeing of individuals, others to limit use of resources and social impact (Drexler, 2017),

3.0. DEVELOPMENT

3.1. PREMODERNISM

The main events leading to the predominant economic paradigms and influencing specific housing policies and practices can be traced back to the industrial revolution,

CITY ANALYSIS



BUILT DENSITY

This map shows the ground coverage of buildings on their respective plots, in order to investigate spatial potentials for increasing housing supply. Notably dark are industrial areas due to the German building codes.



All subway, suburban railway and tram stations are shown in this map in order to estimate accessibility of potential sites.

PUBLICTRANSPORT



UNDERUSED LAND

Remaining spatial potentials of farmland (greenfield), fromer industrial and military areas (brownfield) and currently underused commercial areas (greyfield), are shown in this map, in order to inform about spatial potentials for affordable housing through expansion (greyfield) and transformation (brownfield, greyfield).



EXTENSIVE INFRASTRUCTURE

This map informs about spatial potentials of overly extensive carrelated infrastructure, as well as underused railway land. The foreseeable future might provide spatial potentials through transformation of theses spaces. Affordable housing will be in competition for claiming space with other sectors and needs to provide potential prospects.

Especially large highway entries and crossings, that may prove obsolescent in the future can provide new spatial potentials.

Public housing associations are still the largest landlords in the city of Munich and can offer potential competitive advantage in creating affordable housing in comparison to for-profit actors, due to their ownership of existing land and buildings within the city. This map shows the existing housing stock of the two municipal housing associations GEWOFAG and GWG.

PUBLIC HOUSING

URBAN TYPOLOGIES

In this map, the urban fabric is categorised by its built and unbuilt typology. Seven main urban typologies regarding housing can be identified in the city of Munich:

From mapping densities, public transport, built and unbuilt typologies, underused land and public landowners, six main intervention areas emerged for which different methods of increasing affordable housing supply are applicable:

TRANSFORMATION

DENSIFICATION

COMPLETION

SUPPLY 2040

<u>PROJECTS</u> Transform

<u>SUPPLY 2040</u>

DEMAND 2040

SUPPLY 2040

PROJECTS Conclusion







SUPPLY 2040



<u>POTENTIALS</u> Transform - Military



<u>POTENTIALS</u> Transform - Railway



<u>POTENTIALS</u> Transform - Industry

<u>SUPPLY 2040</u>



<u>POTENTIALS</u> Transform - Commerce



<u>POTENTIALS</u> Transform - Highways



84

<u>POTENTIALS</u> Transform - Carparks



<u>POTENTIALS</u> Transform - Selected



<u>SUPPLY 2040</u>

















SITE SELECTION A96 - Westpark

SITE ANALYSIS



PRIMARY ROADS



SECONDARY ROADS











METRO COVERAGE



TRAM COVERAGE



BUS COVERAGE



GREEN



20 m² Parks/Resident

CITY PARKS AND LARGE NATURE AREAS



LOCAL GREEN AND POCKET PARKS



SPORTS AREAS



PLAYGROUNDS



NURSERIES



SHOPPING



BUILDING TYPOLOGY

PARK HOUSING









HOSPITAL

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HOSPITAL

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GARDEN CITY HOUSING








WESTPARK



CONCLUSION

STRENGHTS

- GOOD COVERAGE WITH PUBLIC SERVICE
- QUANTITY OF RECREATIONAL GREEN

WEAKNESSES

- HIGHWAY MAJOR BARRIER, SOUTH AND NORTH DISCONECTED
- LONG DISTANCES, TRAVELLING TIMES
- LOW QUALITY OF RECREATIONAL GREEN DUE TO NOISE AND AIR POLLUTION
- SCARCITY OF SHOPPING, CATERING AND CULTURE

OPPORTUNITIES

- EXTENSIVE UNDERSUSED (LOST) DEVELOPABLE SPACE SURROUNDIN G AREA
- LOW DENSITY
- DIVERSITY IN URBAN AND HOUSING TYPOLOGY
- ALIGNING DEVELOPMENT WITH FUTURE MOBILITY GOALS
- LOCAL INITIATIVES IN FAVOUR OF SOLVING NOISE POLLUTION
- NO / VERY LITTLE BUILDING DEMOLITION NECCESSARY
- INFRASTRUCTURE IS PUBLIC LAND,

THREATS

- HETEROGENOUS OWNERSHIP IN CLOSE PROXIMITY TO DEVELOPMENT
- TEMPORARY COMPENSATORY TRAFFIC MEASURES
- COMPLEX PLANNING
- HIGH RESTRUCTURING COST



PROJECT BOUNDARY

DEFINED BY

- PLOT BOUNDARIES
- HIGHWAY SURROUNDINGS
- CLEARNACE SPACES







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Dronning Eufemias gate, Oslo

St. Joan Boulevard, Barcelona

PRIMARY CONNECTION

KEEP DISTANCE FROM PRIVATE PROPERTY



AFFORDABILITY MEASURES:



LEGENDA



New

PUBLIC TRANSPORT

EXISTING SITUATION





PUBLIC TRANSPORT

COMPENSATE LOSS OF CA. 50% OF CAPACITY AND INCENTIVISE USE OF PUBLI TRANSPORT





AFFORDABILITY MEASURES:





Dronning Eufemias gate, Oslo

St. Joan Boulevard, Barcelona

• MAINTAINING CURRENT ACCESSIBILITY BY CAR







ADDITIONAL CONNECTIONS

 INCREASING WALKABILITY AND CYCLABILITY WITH QUITE PEDESTRIAN STREETS







NODES, TYPES

- THE BOULEVARD BECOMES AN ATTRACTION LINE
- NEW POINTS OF INTERESTS VARY BA CHARACTER AND HIERARCHY OF EXISTING ROADS AND SURROUNDINGS



AFFORDABILITY MEASURES:



LEGENDA



BUSY



- ORIENTED TOWARS BOULEVARD, / BOULVARD EXTENSION
- HIGHLY FREQUENTED
- VIBRANT ATMOSPHERE
- MULTIMODAL HUB

TYPICAL FUNCTIONS:

• LARGER SHOPS, WORKPLACE, CINEMA QUITE



- ORIENTED INWARDS
- CONNECTS LINEAR PARK & BOULEVARD

CALMER ATMOSPHERE

• WELL CONNECTED IN LOCAL SLOW TRAFFIC NETWORK

TYPICAL FUNCTIONS:

• CAFES, RESTAURANTS, HEALTH AND EDUCATION

BLOCK REGULATIONS. FORM

- Define closed and open block sides
- Closed to define public spaces and accommodate lively ground floor
- Open to interelock with linear park



AFFORDABILITY MEASURES:





LEGENDA



Open

BLOCK REGULATIONS. HEIGHT

• Varying height and density according surrounding buildings and nodes



٠

AFFORDABILITY MEASURES:





LEGENDA











GROUND FLOOR PROGRAMME

- Shopping on boulevard-side
- Learning, nursing in side streets
- Living on park.side



AFFORDABILITY MEASURES:







Living







BLOCK TYPOLOGY

- Main block types
- Defined by 3 linear zones







LEGENDA



• Full overview of blocks





• Distribution of building types





STREET PROFILE

- Boulevard as extension of living room towards south and kitchen with baywindows towards north
- Shopping in 1st row
- Learning and nursing in 2nd row



PARK-GATE

- End of Boulevard
- Starting point of cultural and cooperative cluster



SPATIAL QUALITY

• Loggia as transition space from living room to boulevard



Tour Bois le Pretre by Frédéric Druot, Anne Lacaton and Jean-Philippe Vassal, Paris

caption

USERS	Urban Corner	Urban Infill	Park Infill	Park Corner	Townhouse	Thick Point	Com
Families			Х	X	X		
Singles and Pairs	X	X	X		X	X	
Students	X	X			X	X	
Public Officers	X		X				
Elderly			X	X		X	
ACTORS							
Public Housing			X		X	X	
Cooperatives			X			X	
Community Builders		X			X		
Private Housing Companies		X	X	X	X		
Employers	X	X		X			



Χ

URBAN CORNER

QUALITY

- smaller appartments for young professionals, benefit from proximity to facilities
- urban proximity
- minimum circulation space
- •
- prefabricated logias and baywindowsas affordable qualitative private outdoor space
- modular grid
- Apartments always lit from 2 sides if bigger than 1 bedroom

ECONOMY

- efficient floor plans
- compact volume, smaller facade ratio

BENCHMARKS

- Living space/Gross space = 76%
- 71 residents
- 39 m² GFS / person
- 27 m² apartment space / person



FLOOR PLANS



Top Floor



Regular Floor



Ground Floor

DWELLING TYPES



1 Person



2 People



3 People



3 People





PARK CORNER

QUALITY

- bigger appartments for families
- quiter safe routes to playgrounds and nurseries
- Q: lit from 2 sides

ECONOMY

- minimum circulation space
- efficient floor plans
- compact volume, smaller facade ratio

BENCHMARKS

- Living space/Gross space = 83%
- 114 residents
- 32 m² GFS / person
- 27 m² apartment space / person



FLOOR PLANS



Top Floor



Regular Floor



Ground Floor

DWELLING TYPES



1 Person



2 People



3 People



4 People



5 People





QUALITY

- suitable for cooperatives, smaller households, communal living. as an anwer to separated micro apartments
- combines privacy of a microapartment to communal living by sharing facilities, people can afford more of those facilities, bigger space. in this way space is more efficiently used
- wider range of facilities (shared workshops). each room has a bathroom and a pantry kitchen.
- different sizes (4-8)

ECONOMY

- thick building, because you can utilize the deep space
- Extremely compact

BENCHMARKS

- Living space/Gross space = 83%
- 196 residents
- 45 m² GFS / person
- 32m² apartment space / person



FLOOR PLANS



Regular Floor



Ground Floor

DWELLING TYPES



1 Person



2 People



6 People



⁸ People








CONCLUSION



PHASES



LEGENDA

Phase 1

Phase 2

Phase 3



CONCLUSIONS

KEY FIGURES

CITY

Residents: 20.000 Residents

Apartments: 10.000 Apaprtments

NEIGHBOURHOD

Gross Floor Space: 1.060.000 m²

Density:1,94 fabric scale / 5,42 average plot scale

Living Space: 600.000 m²

Shopping Space: 60.000 m²

Learning Space: 60.000 m²

Office Space: 60.000 m²

BUILDING:

Types: 8

Spatial efficiency: 80%

30 m² apartment space/person

CONCLUSIONS

EVALUATION

Affordability criteria helpful guidelines in planning process

- Balancing qualitative and economic criteria
- Early design choices have exponential impact on development costs for example, proximity and travel distances, but also on development costs
- Urban design significantyl influences development costs also on architectural level (compactness) and housing quality (proximity
- Qualitative criteria quite universal and not only linked with affordability
- Balancing act between cost and quality could lead to making informed decision about both

CONCLUSIONS

OPPORTNUNITIES on the scale of:

CITY

- Acommodating significant amount of affordable housing
- Improving density of public transport and incentivising use of it
- In line with city visions regarding mobility transition

NEIGHBOURHOOD

- Crating a new inclusive Sub-centre
- Improving existing physical conditions reducing noise, air pollution
- Improving access to amenities, public transport
- Accommodating a variety of public spaces and building typologies
- Reconnecting neighbourhods seperated by highway

BUILDING

• Urban preconditions determine affordability to a large extend - plot size, building envelope, efficiency of use of space

THREATS on the scale of:

CITY

- Traffic management
- Planning complexity time and stakeholders

NEIGHBOURHOOD

- Conflicting interests of stakeholders, especially neighbours
- Highway green serves currently as green, although noisy and polluted. recreational space

BUILDING

- Building for tenants is building for yet unnknown people and their unnknown demands
- Potentials for prefabrication are already largely determined on urban scale - grid, orthogonality, standardised sizes

Graduation Reflection

AR4U100 Graduation LAB: Cross-Domain Studio City of the Future

Kai Fabian Temkovitz

4407997, Main mentor: Maurice Hartveld 2nd mentor: Tania Herdt 3rd mentor: Alper Alkan Board of Examiners delegate: Ype Cuperus

The graduation process has been an excruciating experience full of personal and academic failures. I did not live up to my own nor to the expectations of my mentors, friends, and relatives regarding all planning, process and products. Nevertheless, I will try to reflect best as I can on five different aspects regarding the graduation phase.

The relationship between research and design.

A product of design does not exist in empty space. It is surrounded by the environment, used by people and subject to economic conditions and productive processes. Some sort of research is inevitable to inform any design. The question therefore is not if, but how research and design are linked. From my professional experience I can confirm the ubiquity of research in any given design task. Although in my opinion, research in practice is too often conducted in the dark and selected to confirm specific design choices retrospectively. Although, every information shared, regardless how strategically selective, if it presents true knowledge is more contestable and comprehensible than any information kept in the dark.

Academia aims to reveal this hidden personal research process to the public and make it contestable, by applying scientific methods of inquiry. This can greatly enhance the understanding of the design process beyond the circumstance of traditional notions of individual genius and experience and make it more accessible to professionals as well as the public.

March, 2021

The relationship between the graduation topic, the City of the Future studio topic your master track Urbanism and the master programme Architecture, Urbanism and Building Sciences.

THE RELATIONSHIP BETWEEN THE GRADUATION TOPIC AND THE CROSS-DOMAIN STUDIO CITY OF THE FUTURE

The studio is motivated by urgent social, local issues directly affecting the main study topic like housing demand, social inclusiveness, new economy and transitions in areas of automation and digitalization influencing the process of housing production.

The approach of the cross-domain studio is beneficial in understanding a multidisciplinary topic like affordable housing. While knowledge in the field of Management of the Built Environment is necessary for understanding the superordinate economic conditions and political decisions affecting urban development, explorations in the field of Architecture can provide answers regarding specific spatial implications on the human scale.

THE RELATIONSHIP BETWEEN THE GRADUATION TOPIC AND THE URBANISM TRACK

The integrated planning, design, science and engineering approach of the track is a major focus of the Urbanism track is to combines several scales; from regional strategic visions to neighbourhood redevelopment projects, which is reflected in my graduation project, which starts examining the conditions for affordable housing on city scale, embedded within national and global political and economic framework, subsequently turns the focus on a specific neighbourhood to investigate specific spatial potentials and finally explores affordability on a human scale.

The graduation project is concerned with local trends such as congestion, mobility, urban renewal and densification, as well as to global trends like globalisation, especially its financialisation aspect, demographic trends and the energy transition, namely the transition from cardominated infrastructure. All these trends are a main interest in the master track.

THE RELATIONSHIP BETWEEN THE GRADUATION TOPIC AND THE ARCHITECTURE URBANISM AND BUILDING SCIENCES PROGRAMME

The programme is mainly reflected in the graduation project through the traditional Dutch multi-disciplinary way of working, which in essential in investigating a broad topic like affordable housing. I share the same ambition in my graduation project with the programme of blending scientific knowledge and skills from design practice to explore innovative ways to create a more sustainable development. This can be exemplified in investigating untapped spatial potentials of extensive car infrastructure to tackle a city-wide issue of lack of affordable housing, while simultaneously improving local environmental conditions.

Elaboration on research method and approach chosen by the student in relation to the graduation studio methodical line of inquiry, reflecting thereby upon the scientific relevance of the work.

Both quantitative and qualitative methods are used to conduct the research, according to their relevance in answering the respective research questions

LITERATURE REVIEW

Quantitative data was used mainly to understand and illustrate the dynamics of urbanisation and its degree from the following sources. Qualitative data provided the theoretical basis for understanding related concepts and strategies in use. Retrospectively, the data could have been gathered in a more methodical and consistent way, although, admittedly, I do not feel I possess the necessary skills to do so yet.

BEST PRACTICE EXAMPLES

The strategic framework as well as the specific spatial interventions are based on a catalogue of existing solutions. They serve also as benchmark for evaluating own design choices, by comparing key performance indicators like density and green distribution. In my opinion, if applied consistently, it could provide a valuable method of comparison. Although Individual conditions in each project require a careful consideration of extracting spatial parameters. For example, density can be calculated on multiple scales, like plot, block, fabric or higher level. Densities between different levels are scarcely comparable and it is essential to apply the extend of measure consistently.

MAPPING / GIS

Maps provide the spatial component for subsequent analysis of potentials for intervening. The collected map materials can now be used as a basis for analysing and visualising the context spatially according to related topics, like density, public transport, housing typologies, ownership and public transport to reveal potentials for intervening. Unfortunately, open GIS data in Munich is not as abundantly available, as in the Netherlands and proved to be time-consuming hindrance in the research process. Most information is not official and needs to be treated with cautions, nevertheless, even if lacking in precision, it fulfilled the purpose in obtaining an overview of local conditions.

EXPLORATIVE & CRITERIA BASED DESIGN

After establishing possible locations, design interventions will be investigated through explorative and criteria-based design methods. A generic catalogue with different typologies serves as a toolbox to select site-specific interventions. In hindsight, I regret the decision to not focus more and earlier on design, which at the time was driven by an uncertainty over the acquired research.

Elaboration on the relationship between the graduation project and the wider social, professional and scientific framework, touching upon the transferability of the project results.

Drawing from the past, the topic of affordable housing seems to be a recurring issue of urgency within larger societal and economic cycles. Broad scientific interests with it varies accordingly. The existing body of knowledge of the topic of affordable housing can be roughly categorised according to respective disciplines in knowledge concerned with policies ensuring affordability and knowledge concerned with the quality of housing and the means of its production. While the former is a domain of management of the bulit environment, the latter is a focus of architecture. While urbanism proclaims inclusivity and equity even more fervently than architecture, the topic of affordable housing seems to be ominously absent.

A cynical suspicion haunts me, that as urbanists are primarily concerned with qualitative aspects of the built environment, any obstacles to this objective, like economic conditions, are dismissed or regarded as outside its sphere of influence out of convenience. Regardless of the success of my research, I intended to explore possibilities to tackle the issue of affordable housing with the means of urbanism.

The ubiquity of extensive car-infrastructure in today's western cities, not too dissimilar to each other, means that the knowledge gained in exploiting its untapped spatial potentials can be conceptualised in different locations and therefore start a discussion of combining the need for affordable housing with improvements of the built environment to fit better current societal requirements.

Discuss the ethical issues and dilemmas you may have encountered in doing the research, elaborating the design and potential applications of the results in practice.

The main ethical dilemma I encountered while researching was to the lack of knowledge of my audience, people negatively affected by the lack of affordable housing. Quantitative information does not reveal the stories, motivations and struggles of individuals. Only an extensive survey could fill this gap, which I felt, was not within my means. This knowledge gap leaves a space to be filled by assumptions and preconceptions of individual needs and requirements, risking to thwart initial intentions.

The same can be said during the design elaboration as a continuation of the research. This knowledge gap was still left empty, possibly negatively affecting design considerations. Another worrying factor was the absence of other disciplines and the constraints that they pose. I felt that the design was conducted in the Urbanism-bubble and my intended multi-disciplinary considerations were not really questioned by representatives of other fields.

Regarding a potential application in practice, design often cannot resolve all, in my case imaginary, conflicting interests of stakeholders. One way or another, some interests will be prioritised. It seems, that the pursuit of equity requires sometimes the deliberate deviation of it to the advantage of marginalised groups, and yet I cannot be certain this assumption is either true or right.

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