Downtown is rising Up!

The revitalization of the city centre of Hengelo

Harmen Wolthoff
Master of Science Thesis
Downtown is rising Up!

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Preface

City centres are important places in the city. This is the place where the origin of the city lies and it is often the most visited area of the city. It is not only for the inhabitants, but also for the visitors from outside the city is this the most attractive place of the city.

However, city centres have changed drastically during the decades of their existing. As well in their function for the city as in the spatial and programmatic characteristics. These changes are the cause that some city centres do have problems to fulfill their task to be a central and/or attractive place for the city. In this design and research project, the aim is to solve the problems which were caused by the changes in the city centre. As location is chosen for the city centre of Hengelo, Overijssel in the Netherlands. This city centre had and has to deal with several problems and changes which are threatening the location and function of the centre in the city.

Keywords

City centre – Post war rebuilt – City vitality – Urban regenration - Retail emptiness

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Part I
Problem Analysis

1. Introduction

In this introduction, the reasons are explained why this thesis is made. In the problem field the urge is stated why solutions have to be found for problems which are occurring in city centres. This is the base for the research question which is formulated at the end of this chapter.

1.1 Problem Field

1.1.1 Amount of m² retail supply

In the year between 2005 and 2012 the amount of retail square metres grew to 27.9 billion, which meant an increase of 25 percent. As a result, the ratio inhabitant/retail square metres increased from just under 1.4 in 2001 until 1.6 in 2012, which means that retail stores (with their m²) grew faster than the population of the Netherlands (DTNP, 2013). The main aggressor of this rise is the rapid growth of peripheral stores located at the borders of cities (see 1.1.2).

This rise went along together with the healthy economic welfare growth during the first years of the 21st century. But now, after (and during) the economic recession, the spending pattern of the consumer declined and so the ratio of available retail space and consumerism became under pressure. As a result, the balance between consumption and consumer (supply and demand) is disturbed and many companies and stores went bankrupt, which lead to vacancy in the amount of retail floor space (DTNP, 2013).

1.1.2 Rise of peripheral stores

From original point of view, the main shopping district of cities has always been the city centre. This changed after the Second World War with the rise of suburbs and the improvement of the mobility of people, what caused a shift of the marketplace from town centre to shopping centre (Cohen, 1996).

While the town centre did remain its original commercial function, the competition of the new peripheral stores grew year by year. In the 21st century, large shopping malls at easy accessible places (i.e. near highway exits) are not neglectable in cities anymore. The amount of retail floor space of peripheral stores grew with 35% between 2001 and 2009, while the floor space of stores located in the city centre stayed behind with only 12 percent. Overall, the city centres do still posses the largest part of available retail floor space in cities (DTNP, 2010).

In perspective of the city centre, peripheral shopping centres do have often a better and larger accessibility radius. This attracts companies like IKEA and Hornbach, large stores who do not fit in a city centre. But it is also an attractive location for stores like Media Markt or BCC, stores who also can be located in the city centre. And especially these stores can function in a city centre as an attractive point and a reason for consumers to come to the city centre.

1.1.3 Rise of the online market

People do not have to go anymore to a store to get their groceries or new pair of shoes or trousers. Since the year 2000, the market rate of internet has grown from less than 1% towards over 5% in 2012. And the expectation is that it will grow even more due to the improvement of logistics and techniques and the fact that more and more consumers are familiar with the concept (DTNP, 2013).

The uprising of the internet does also have effect on the stores who are currently in the city centre. Stores do have to find solutions to cope and collaborate with the uprising digital changes (Inretail, 2015, Trendbureau Overijssel, 2014). This will be further elaborated in chapter 2.1.14.

Figure 1: Rise of internet purchases (DTNP, 2015, p. 9)

In the first chapter, the problem field and problem statement are introduced together with the main research question. This part show the general urge of the topic of this thesis. After this, the methodology of the thesis will be explained with the research questions. The last part will introduce the location of this graduation thesis and explain why especially this site is chosen to investigate.
1.2 Problem Statement

In the most cases, city centres are the urban core of a city. In historical perspective, it is the place where the first people came together to live and here the first place of commercial activities took place (Cohen, 1996). Through the years, cities and city centres have changed, due to changes in mobility and changes in shopping behaviour (internet, department stores) (Trendbureau Overijssel 2014).

Smook (1984, p. 225) states that “changes rise because such as buildings and urban structures have to keep functioning in social, cultural but most of all in economic point of view. If the changes are being counteract, the natural process of degradation will follow.”

This problem can be seen in the city centre of Hengelo. Walking around, empty stores draw more attention than the used ones. The increasing amount of empty stores (Hengelo’s Weekblad, 2013) do seem like the ‘natural process of degradation’ already started in Hengelo.

Harzman states that this cycle of adaptation goes together with the repetitive search of city centres to tackle dilemmas of on one hand the context and use and on the other hand form and structure (2006).

An example is the rise of the automobile: Has the centre adapt to it or not? The car mobility has also changed the function of the city centre for the city. By the increasing of mobility, inhabitants are no longer dependent on the facilities in their own town, nor the location of these facilities. This has the result of large store and shop facilities like IKEA next to highway exits for good accessibility (not only for the city itself) and surrounded by large parking lots. This new kind of competition for city centres can not only be seen in its function, but also as a result in the programmatic component of the centre.

Now in the 21st century, malls rise on city edges, also in Hengelo. How can the city centre cope with this new kind of competition of the internet and large department stores and what is the role of the city centre in this? And what are the possibilities to reconquer and/or maintain its from origin historic position in the city?

This has to be questioned in order to prevent the “natural process of degradation” in Hengelo, just because the fact the shops can do without a city centre, but a city centre can not do without shops (DTNP, 2010).

1.3 Research Question

This problem statement is the basis for the main research question which will be answered in this thesis:

Which spatial programmatic interventions are most appropriate in order to revitalize the city centre of Hengelo?

In the next chapter, the sub-questions are formulated and elaborated. Also the methodology is spread out of how these questions will be answered and how they do relate to each other.

2. Methodology

In this chapter, the methodology of this thesis is elaborated. At first the sub research questions will be explained together with the proposed aim of each question. After this, an overview is given of the used tools which are being used for the investigations of the sub-research questions.

2.1 Sub-research questions

To find a good and diverse answer for the main research question, four sub questions are formulated. Each sub question address a different aspect and/or angle of investigation of finding answers. Also these questions are arranged in order of importance of answers which possible can be used.

1. What is the future for a city centre of cities like Hengelo?

2. What is the position of the city centre of Hengelo in the urban fabric of the city and his region?

3. What are the spatial and programmatic demands of the retailers, inhabitants and municipality for the city centre of Hengelo?

4. How can the spatial and functional characteristics of the post-war rebuild area be used in the revitalization process of the city centre of Hengelo?

2.1.1 Aim of sub research questions

1. The first question gives answers based on a theoretical background. This framework address phenomena which have influences on the future image of cities and city centres. This literature based information is used to place the urban structure of the city in a certain context. Also current developments at the location can be criticized and evaluated by this literature review.

2. Hengelo is part of an urban region in the east of the Netherlands, as can be seen later in the analysis. This is why it is import to map the position of the actual location, its city centre, in relation to the city and the region. By mapping several urban layers of the city, like infrastructure, education, public facilities, an overview can be made of elements which are well arranged within the city, but also of elements which are lacking in the city.

3. The city centre is a place where many different kinds of people, businesses and public authorities have an interest. Sometimes the interests are the same, but other times they differ totally from each other. This shows the complexity of the situation, because all the different desires have one thing in common: they apply on the same location. This question has the aim to bring the different wishes together and compare them to each other. Also it gives an answer of how people are using the city centre. What are their movements and what are the popular and thus most crowded places in the urban fabric?

4. As part of an urban intervention, knowledge of the spatial aspect of the location is crucial. Especially at a location which has specific spatial characteristics, as in building typology and urban fabric, of the Dutch rebuild period after the Second World War. To come with an objective conclusion, in this part a case study is used to compare the location with an other Dutch city centre which was rebuild in the same decade, and so have many spatial characteristics in common.
2.2 Methodology approach

In this paragraph the tools are explained which are used during the examination of the research questions. With each kind of tool the methods are described of how it is been used and what kind of product the result is. At last an overview is given of how these result have been used is this thesis.

2.2.1. Literature Study

The literature study is the main component of the answer of the first sub research question. Also is literature used to clarify some elements of other sub research questions. For example explanation is given over the working of the computer program Space Syntax (more information in 2.2.6) and the spatial characteristics of the urban environment.

- Methods:
  - Use of different sources of literature (books, articles, reports, MsC thesis)
- Products:
  - List of urban trends reflecting city centres
  - List of future focus topics for cities
  - Paper for Theory of Urbanism
- Use of result:
  - Framework for urban analysis
  - Framework for strategic vision

2.2.2 Urban Analysis

The second sub research question is answered by an urban map analysis. Organized within a literature based framework, an overview of the city is given on three scales: the region, the city and the city centre. This because the urban (economic) fabric and its spatial programmatic characteristics of a city centre does not only have influence on the location itself, but also on the city and even the region.

- Methods:
  - Mapping of different aspect of the city centre, city and the region
- Products:
  - Overview of socio-economic structure of the location
  - Framework for strategic vision

2.2.3 Behaviour Research

The behaviour research is together with the actor analysis part of the answer to the third sub research question. Spatial consultancy agency DTNP from Nijmegen, the Netherlands, made a survey based on questionnaires about the movement behaviour of people in city centres in middle size cities. About 1600 people were interviewed in Bergen op Zoom, Zutphen, Weert, Gouda, Meppel, Etten-Leur, Helmond, Oosterhout, Oss and Hengelo about their movements, kind of transportation and visited locations. In Hengelo, 143 city centre visitors were interviewed and the outcomes of that is used in this thesis.

- Methods:
  - Open questionnaire
- Products:
  - List of movements of visitors
  - Overview of visited locations
- Use of result:
  - Framework for strategic vision
2.2.4 Actor Analysis

Beside the behaviour of people in city centres, the actors play also an important role in the city centre. By making an overview on different scales, requirements and preconditions of different actors are arranged per scale. Per scale
- Methods:
  - Use of municipality reports, inquiries and research

Products:
- Overview of preconditions and requirements of actors arranged on different scales
- Use of result:
  - Framework for strategic vision

2.2.5 Case Study

To judge the spatial qualities of the city centre, as comparison case study is set up. As reference location the city centre of Nijmegen is chosen. However they differ in size (as city and as city centre), the spatial conditions of each city are almost the same. This because both city centres were destroyed, and thus rebuild after the second world war with similar urban and architectural ideology. The different spatial street typologies will be compared to the number of empty retail stores, so a list can be made of emptiness per street typology
- Methods:
  - Mapping of different street typologies
- Products:
  - Comparison between similar street typologies in Hengelo and Nijmegen
  - Stocktaking of relation between street typology and store emptiness
- Use of result:
  - Framework for strategic vision

2.2.6 Space Syntax

Beside the aesthetic spatial quality, there is also the urban spatial connectivity. As part of the case study, the spatial connectivity of Hengelo and Nijmegen are being compared in relation with the program located in the city centre. Also a comparison is made between the connectivity and the movements of people and the emptiness of stores.
- Methods:
  - Space Syntax maps of the axial analysis and the angular analysis.
  - Overview of located stores, passenger movements and emptiness
- Products:
  - Maps
- Use of result:
  - Framework for strategic vision

Figure 3: Scheme of project with relation between part (by author)
2.3 Aim and End product

2.3.1 Aim

The main aim of the thesis is to find a solution for the emptiness of retail floor space in the city centre of Hengelo. This means that not only the location will be examined on how things should be different, but also to come with an answer or recommendations of what the replacement should be like.

2.3.2 End product

The end product of this graduation plan is a thesis. This thesis contains the results on the sub- and main questions which are be answered by using the tools described in the chapter before. The final part of this thesis contains the final product, a strategic plan for the city centre of Hengelo. This plan is an answer of how to deal with the emptiness of retail store space in the centre. To summarise there is below a short review of the final products:

- Strategic plan for the city centre of Hengelo
- Three key projects within the plan

2.3.3 Definition of a strategic plan

In the field of urbanism, strategic planning is a kind of planning where strategic projects are set up to achieve policy objectives at different policy levels. The aim of these projects is to make a large-scale impact on the transformation and innovation of spatial, economic and social development. This in perspective of a wider context than just renewal of housing blocks (Stouten, 2010). In this process, a broad strategy is needed, combining investment, physical intervention and social measures. This means that the planning must take account of different levels of scale, with different time schemes and involving of different sectors of urban planning (Carter, 2000). This shows the reason of the clear division of sub research questions, which all take account for the differences of actors or the implementation of scale differences in the investigation.

3 Location

3.1 The Region

The region of Twente lies in the east of the Netherlands against the German border. As part of the province of Overijssel, it contains the 1st (Enschede) 4th (Hengelo) and 5th (Almelo) largest city of the province (Databank Overijssel, 2014).

Of the total population of the province of Overijssel, 1,139,697 inhabitants, live 626,339 inhabitants in the district of Twente (55%). Of this total 312,002 inhabitants live in one of the three big cities. This means that almost 50 percent (49.8%) of all people who live in the region of Twente and a quarter of all the inhabitants of the province live in Almelo, Hengelo or Enschede (Databank Overijssel, 2014).

In the future, also the population will face the process of ageing. The population in the area of 30 years decline, while the population of 60+ will increase. However, the region has several facilities and factories who can help to make the increase as less as possible by generating enough potential workplaces and economic prosperity in the future.
3.2 The City

Hengelo is one of the three major towns in the east of the Netherlands, together with Enschede and Almelo. The importance of the city is shown by its central location in the region and the presence of crossings of railways and later highways.

In historic context, the city is a very young one. In 1802 Hengelo became an independent village and in the beginning of the 19th century the textile industry settled in the village. This changed after 1850 when the firm of Stork settled in the town and the village was connected to the railroad Almelo-Salzbergen and later on the connections to Enschede and Zutphen.

The result was a rapid growth of the Stork factory as a metal industry plant and also the rise of the electric-technical industry like Heemaf, Hazemeyer and Hollandse Signaalapparaten.

This change caused the major difference between Hengelo and other industrial cities in the Netherlands. Due to the shift from textile to electric and metal, Hengelo became a city with high educated employees and the directors of the Stork factory stood closely to the employees, which resulted in one of the largest town villages built for employees in the Netherlands, Tuindorp ‘t Lansink.

After the opening of the Twentekanaal in 1935, the industry moved from the railway towards the canal in the south of the city. The result was a large industrial area on both sides of the canal with as major factory the Royal Dutch Salt Industry, now known as AkzoNobel (Rutte, 2014). This shows how important was and is the industrial influence on the city of Hengelo.

3.3 The City Centre

The industrial position and its importance is the reason why the city centre of Hengelo (by accident) and train station (original target) was destroyed by bombardments of the American-British army on 6th and 7th of October 1944 in the Second World War (Bosma & Wagenaar, 1995).

However the city was drastically grown due the industrial plants, the city centre was the still the same when the village was raised around 1800. Before the bombardment, the city of Hengelo was a rural incoherent set of houses in a green surrounding with some villas and farms. This image became more and more under pressure due the expansion of the city caused by the arrival of the industrialisation. The factory of Stork (metal industry), the railroad and its train station together with the central location of the city in the area increased the importance of the city and the size of the city. After the bombardments, which cleared the whole city area, the opportunity came for the city to transform the rural village in to a modern city centre which should fit the new age (Bosma & Wagenaar, 1995).

This fact was the driving force of the design of the new centre, designed by W.R. van Couwelaar and C. Pouderoyen. Already in 1945, Hengelo was one of the first cities in the Netherlands which sent his rebuilt plan to the national government in The Hague.

The map of the city centre was changed so the centre would have better infrastructure connections towards the new built city expansions. The main structure of the rebuild with its facades enclosed spaces was traditional, but the openness of the street scape provided influences of the modernistic movement (Abrahamse en Rutte, 2014).

This together with new wider street, three new squares, a new grid shaped street pattern and a clear contrast of a compact centre against the more open city outskirts, the city centre transformed drastically in relation of before the war (Bosma & Wagenaar, 1995).
4 Relevance

4.1 Social Relevance

On the right are two articles out of the local newspaper in Twente, the Twentse Courant Tubantia. The first shows the programmatic problems in the city centre. The title implies that the city centre is a “Swiss cheese” of empty stores spread out over the whole area. This article was written after a conference held in June 2014 in Hengelo about how to deal with problems in city centre in Overijssel. Several cities like Enschede, Deventer, Kampen, Goor, Almelo and also Hengelo showed their proposals and interventions to each other of how to deal with this problem.

The city centre retail community (Stichting Centrummanagement Hengelo) hired, with approval of the municipality, a consultancy office to come with a plan to reduce the problem in the centre.

In October 2014, Seinpost presented its plan, made with direct contact with the retailers, to the city and municipality.

In here lies also the problems of the intervention. Seinpost made its plan only advised by retail owners, not inhabitants. The result is a plan based only on square metres, program changes and economic profit (mostly for the shop owners). The spatial consequences of the interventions are not mentioned as well as the demands of the inhabitants of the city for the city centre.

4.2 Scientific Relevance

“Three of the most important issues facing planning at the beginning of the twenty-first century are how to accommodate substantial growth in the number of households, how to revitalize cities, and how to create more sustainable urban areas.” (Heath, 2001)

As stated by Heath, revitalize of urban areas is an important issue for future development of cities. Also, as shown in the problem analysis, there is written about this topic by many writers with all an own point of view or ideologic of how it has to be done. This project can be a cases for implementing this theory in practice.

Also Hengelo is as already mentioned, not the only city with a city centre which is rebuilt after the Second World War. In the future, the case and design of Hengelo can be a precedent for other cities of how to deal with their city centre. All in the Netherlands (and outside) you can find post war neighbourhoods which are being regenerated and revitalized by dwelling cooperations and municipalities. However, a city centre is harder to tackle. In this way, this project can be an example for it.
Part 2
Research

5 Theory

What is the future for a city centre of cities like Hengelo?

The future of the city centre is a well discussed topic within the urban field. To examine this, several topics can be highlighted and are highlighted by many authors. In this chapter a theoretical base will be given of what a city centre is and what the current conditions are which are applicable to it right now in the 21st century.

5.1 Current urban trends for cities.

The attractiveness of cities and city centres has been and still is an urgent topic in the current time of urbanism. One of the first who mentioned this was Gaille, by redefining the definition of Myrdals backwash concept formed in 1963 (1980). Related to the urban network of cities, the spread-backwash effect is conditioned by: (1) the distance from/to the core, (2) the size of the core, (3) the growth of the core, (4) the existing spatial distribution of development, (5) the existing spatial distribution of sociopolitical power, (6) the presence of smaller urban places in the periphery and (7) the structure of the transportation and communication networks (Gaille, 1980). In short, the backwash effect is declining of rural population and employment caused by increasing of economic activity in city centres (Partridge, Bollman, Olfert, & Alasia, 2007). In history took this effect place caused by the industrialization and the grown welfare of cities.

Currently, this effect is still happening shown by the fact that between 1960 and 2000 the number of metro areas over 100,000 in the developing world grew by 185% (Henderson & Wang, 2007). In the Netherlands, the biggest growth of cities is expected for a period until 2025 for the Randstad area (Amsterdam, Rotterdam, Utrecht, and The Hague) and the province of Flevoland. Also there is a growth prediction for solitaire strong economic cites like Groningen and Zwolle and city agglomerations in Noord-Brabant (Breda, Tilburg, Eindhoven), Gelderland (Arnhem, Nijmegen) and East-Overijssel (Almelo, Hengelo, Enschede) (Planbureau voor de Leefomgeving, 2010).

In this chapter, answers will be given on the sub-research questions. Per question an overview is shown which elements are applicable and essential for understanding the problems and solutions which the questions address.
5.2 Sustainability in city centres

Cities are looking for solutions of how to cope with the urban trends which are occurring right now. Already back in 1987, Brundlandt predicted that half of the world population would live in cities by the year 2000 (Jenks et al., 2003). To host all the people, cities have to adapt preferably in a way that is sustainable. This link between sustainability and urban form is strong, but it is not straightforward (Jenks et al., 2003). Elkin et al. (1991) describes this sustainability as “a form and scale (which is) appropriate to walking, cycling and efficient public transport, and with a compactness that encourages social interaction”. This have to fit in the concept of compaction, what occurs in existing cities by processes that intensify developments and bring in more people to revitalize them (Jenks et al., 1991). By creating more density in the city centre, it can be seen as a reaction on the urban trends which are described in the previous paragraph. More people are willing to come and to live in the city centre (Ravenscroft, 2000) and in the Netherlands changes are predicted in the demography of the population (Cammelbeeck, 2013).

The latter is very interesting for city centres, because the level of mobility of people decreases while they get older (van Dam, 2013). With the proximity of a location with many (retail) facilities and a growing need of dwelling space for elderly people, city centres and closely located neighbourhoods are potential places to increase the density to fulfil this needs.

5.3 Future focuses for cities:

To create the ideal human urban environment in cities for their inhabitants, there are several focuses for cities so they can accomplish it. The Dutch government has in the form of “Raad voor Leefomgeving en infrastructuur” four topics formulated where cities can pay attention to its future policy:

- Knowledge and economy
- City and flows
- Public space and public domain
- Transformation (Regeneration) (Rli, 2014)

Each of these topics (and changes within these topics) have effect on the current situation of cities. Even changes in city centres can have effect on each of these topics, so it is important to keep them in mind for interventions for these thesis. Also these topics can have effect on the current urban trends for cities which are discussed in the next chapter.

5.4 Role of the city centre for cities

In the 21st century, city centres develop more and more towards a ‘funtown’ and large shopping malls rise on the edges of the cities. Shopping in the city centre has become an important way of entertainment and bars, restaurant, festivals and events help to verify that image (Harzman, 2006). This kind of attractiveness is a response on the upcoming market of e-shopping. People have to be seduced to come to the store, because they can find what they want more and more easier on the internet. Commerce have become a major part of how city centre do occur.

City centres do more and more alienate of what they used to be in historic perspective, caused by the upcoming commerce and mobility. However, the role of a city centre for the city is still very important and it has several elements which its opponent, the mall, does not have (Harzman, 2006).

At first, the centre is a place for social interactions. It is a public space where everyone can meet everyone. It is a place where you can come even when you do not have to shop and just want to meet people. A large concentration of people is, whatever the reason is, by Jacobs one of the elements of a successful, vivid and liveable place or city centre (1961). The other elements are as many diversity in function, a fine mazed street pattern and differences in age and condition of buildings.

Also city centres are the place for cultural diversity. The centre is for everyone, regardless ethnicity or social status. Also tourist and visitors from the hinterland of the city do cause differences in variety of people who use the city centre.
5.6 City centre Regeneration

There are several tools to apply regeneration within a city centre or in general a city neighbourhood. On the right, Tallon lists nine elements which can be used or implemented within a regeneration strategy for a certain area. These elements can be a guideline towards an approach of how city centre can be improved, as well spatially as programmatically and politically. This difference in ways of regeneration is further elaborated in the next sub paragraph.

5.6.1 Revitalization in city centres

Heath states that revitalization of cities is one of the major tasks of urban planners in the 21st century (2001). This is also shown by the large amount of essays and books written of how to revitalize city centres.

However, there is not just one way of revitalization. Programma, culture and policy are several themes who are used to give a direction in how to revitalize and often are they closely related to each other. Urhahn on Bobig (1994) state that flexibility, complexity (mix of functions, densities and changes), identity and strategy for conditions for a vivid urban surrounding. Each of this condition separately (and combined) is examined by several authors.

Heath (1997) addresses the 24h-concept. This concept is concerned with how night-time economy and so change in policy (and program) can help to create safer city centres and can bring new dynamism to street, especially after 5 o’clock.

On cultural level, Montgomery (1990, 1995) and Griffiths (1995) state how identity and cultural revitalization policies (Bromley, Tallon and Thomas, 2005). This need is also stated by the growing number of population and urban trend of recentralization (see current urban trends).

5.7 Programmatic changes in city centres

As mentioned before, the internet is a major threat to the future program of city centres. People buy more and more items and groceries online, so the traditional store is no longer essential to fulfill the needs of the inhabitants. This means that stores are searching for new ways and possibilities to persuade consumers to the store and the centre. Inretail has investigated of how stores can adapt towards the changing society and demands of it. They created a list of six new typologies of (arrangement of) stores (Inretail, 2015):

1. Surprise and Shop
2. Travel and Shop
3. Story and Shop
4. Work and Shop
5. Service and Shop

The reason of these topics is because they are all related to the shop function of stores, but they all differ in gradation of it. Some are more depending on the shopping theme, others are not. In the next paragraphs each typology will be elaborated of how they cope with the new set relation between consumerism and the digital world.

5.7.1 Surprise and Shop

This typology is for cities and city centres where the consumer is keen to come and with the aim to surprise them. A visit to the centre has to be an equivalent of a day to a theme park, but with leisure on a higher level. Large department stores and specialty stores provide in needs of the consumer, so a visit can be seen as a ‘perfect day out’. However, due to the needed (large) program, there can be only one city centre in a region who can meet to these requirements.

5.7.2 Travel and Shop

This is an uprising typology, because peoples speed of life has grown rapidly. Everyone is on their way to anywhere. In this pace of life, some grocerisies has to be done quickly and efficient. This is why this typology is often situated near train stations, airports or highways. This change of social behaviour create opportunities for convenience stores.

5.7.3 Story and Shop

The main result of this retail typology are the pop-up stores. These (small) stores provide pure play web stores, start-ups or well-known artists an opportunity to sell their merchandise. By creating a coherent story for the consumer, the consumer will recognize the stores. A different equivalent of the typology, are the large malls. Factory outlets like IKEA sell a story where the consumer is attracted to. By ‘story branding’ the mall or department store creates an identity to convince the consumer to do their retail shopping at his place.

5.7.4 Work and Shop

A new place where supply (many people together) and demand (retail stores) do meet are the so called ‘working places’, like office buildings, university campuses or hospitals. In here is not traffic the generator, but work. Small places with vending machines or selling pre-ordered customized lunches can fulfill the new possibility for stores or entrepreneurs to reduce the gap between supply and demand.

5.7.5 Service and Shop

The service and shop typology is mainly focussed on the shopping centres in the neighbourhood. Service possibilities in close range of home do increase the social coherence. A complete assortment for the daily needs of inhabitants in food as well in non-food products is crucial. A mix between supermarkets, hairdressers, pharmacy, day care do fit the described typology.
5.8 Behaviour of people in city centre

Together with the programmatic changes in city centres, the shopping behaviour of the inhabitant is changing also. DTNP has divided four typologies of shopping behaviour which are occurring in city centres of today and possible in the future (2015c):

- Recreative (Recreatief)
- Competitive (Vergelijkend)
- Groceries (Boodschappen)
- Focussed (Doelgericht)

This does infect the programmatic side of retail stores. Not only the kind of shopping has effect on stores, but also the movement of the consumer through the city centre. This movement determines where stores are located and what the hot-spots are for retailers to settle their stores. After a survey of DTNP together with the Radboud University of Nijmegen, the conclusion was that consumers are moving very clear though the city centre (DTNP, 2015c). The idealistic 8-shaped routing is not standard in shopping behaviour, however city centre management focuses on this for ages.

Also they determined that the average distance of people who are willing to move during shopping is 640 metres. Within this, they made a differences between typology of shopping. People who are recreative shopping will cover a distance of 850 metres, while the more focussed shoppers is willing to cover 570 metres (DTNP, 2015c). And also they discovered that people stick in the part of the centre where they arrived (by bus, bicycle, car). This means that the accessibility of shopping areas take also an important place in the way of behaviour of visitors to the city centre.

5.9 Conclusions

In this chapter, answers are given to the question what the future trends and changes are for a city centre. By addressing different fields of elements which are applying on the inner city, a broad overview of tendencies is given.

In the first place, the world of retail is changing and so the physical appearance has to change along with it. New typologies of modern retail stores are rising, as well on the internet as well in stores. This upcoming digital world of shopping is searching for a physical shape and place in the traditional retail based city centre. In the current condition internet can not be ignored by retailers, so facilities have to been created to cope with this changing trend.

Secondly, densification is an useful tool to revitalize city centres. In first instance it is an answer to the amount of demand for dwelling facilities in cities and their city centres. Secondly, the demography of the Netherlands is changing and in the future there will be more and more people with an age above sixty-five. In this part, the immobility of people do increase as a result that they want to have all the facilities they use nearby. Because most of these facilities are situated in city centres, this part of a city is suitable to create place and space for this target group.

Densification is a concept that fits in the broader framework of a regeneration tool which can be used in city centres: change in program. City centres do have a large diversity of kinds of program like public facilities, stores, dwellings, bars and restaurants. By locating each program carefully in its area within the centre, areas can be programatically changed so the rare space can be used more efficiently.

As a basis for this change, use of the public space is a major key factor. This is why understanding walking patterns of consumers is crucial. By changing the retail area towards the routes of the shopping consumer, space can be found where for example the dwelling densification can take place.
6 Urban Analysis

What position does the city centre of Hengelo in the urban structure of the city and the region?

In this chapter contains the map analysis of the city of Hengelo. Divided in four sub-chapters, the city is analysed in three scales, the region, the city and the city centre. The four chapter are arranged by topics mentioned by the rapport “De toekomst van de stad” (The future of the city), made by the “Raad voor de leefomgeving”. This rapport states that there are four main topics which cities have to focus in order to be sustainable for future decades. In random order they adress the follow topics: (1) Economics and knowlegde, (2) The city and flows, (3) Transformation, and (4) Public space and domain (Rli, 2014).

By translating the analysis of the current situation in to these four topics, a clear overview can be given of programmatic and spatial suggestions who can be changed or improved for future developments.

6.1 Knowledge and economics

6.1.1 Education and income

Hengelo is one of the three major towns in the east side of the Netherlands. After Enschede Hengelo is the second largest town in Twente. Also is it the city with the highest average income per household. After the municipalities in the hinterland of the cities, Hengelo’s income is higher than the income of citizen of Enschede or Almelo. The explanation lies in historical roots. Hengelo has always been a city of high development industries. Which started with Stork, has ended now with for example Thales Radar equipment and AKZO/Nobel. However, while the city has big international major companies, it lacks the educative facilities. All the departments of high educated schools (university, vocational) are located in Enschede.
6.1.2 Economic Districts

Hengelo has two major industrial zones and several small ones. They have in common that they are situated around the major high level city access points, like the highway (car), railway (train) and canal (boat). However, they are separated from each other and so the city lacks inner city connections between the economic districts.

With inner city developments the city tries to improve the relation between the economic districts, especially in the south area by redeveloping a former inner city brown field areas. In the future, the next step can be to improve the relation on the north wing of the city.

6.1.3 Public facilities

The public facilities for and in the city are more spread. The major ones, like the hospital, athletic stadium and conference centre are located along the railway lines. But the educational buildings are more random spread in the city. This is due the local function of the schools for the city.

In the city centre, the major public facilities are the police station, the library, the theatre and the city hall. Absent in this list, are the municipality offices. The inefficiency of the separation of city hall and its offices is one of the programmatic problems in the city.

6.1.4 Public facilities

Within in the city centre, the public buildings are located on the edges of the city centre. In a circle around the main shopping district, no-one takes a central position within the centre itself. As result are the commercial activities and program the most central function in the centre, not one of the public facilities or kind of program.

6.1.5 Neighbourhoods

The city of Hengelo is divided into nine neighbourhoods, this includes the city centre. Each of one has its own characteristics on different social and economic level. The most interesting neighbourhoods are the new built neighbourhood in the 1980s and 2000s, but also the city centre itself. It has by far the less inhabitants and ratio of inhabitants/household, but also one of the highest rate of average household income.
6.2 City and Flows

6.2.1 Infrastructure

The city of Hengelo is together with Almelo and Enschede part of an international partnership with the German cities Münster and Osnabrück which stands already for over 17 years. Together they form the citytriangle MONT (Münster, Osnabrück, Netwerkstad Twente). Hengelo has as a city a central position in the Netwerkstad Twente and so the city has a lead function in the Dutch part of this partnership.

On a larger scale, the MONT triangle takes in a ‘bridge-position’ between large economic systems of the Randstad in the west, the Ruhr area in the south and the city triangle Hamburg-Bremen-Hannover and even Berlin and Warsaw in the east.

In the region, the city of Hengelo has a central position. All the major high level infrastructure lines are coming together at the city.

6.2.2 Inhabitant growth

In the future, the demographic change of Hengelo levels towards 2040. This because the major growth of inhabitants will be located at an adjacent municipality, Borne. This can not last forever, so the city has to look for alternatives for housing inhabitant in the future in the city itself.

However, future prognoses shows that the number of the city inhabitants stagnates for the next years, while the number of municipalities in the direct surrounding increases. This in contrast to the north part around Almelo, where the surrounding municipalities shrink while the city grows.
6.2.3 Bike traffic

Hengelo is a radial built city. The city centre is indeed the centre of the city. The whole city lays within a radius of four kilometres away of the city centre. This means that a cyclist with an average speed of 16 km/h within 15 minutes can arrive in the city centre from any neighbourhood in the city.

6.2.4 Car traffic

Also by car is the accessibility of the city very good. With four highway exits in the north, east, west and south, the access of the city is equally divided.

However, the easiness of getting from the highway to the city centre differences between the four access points. Cars from the west and south-east meet only one traffic light before conming on the city ring. Cars from the east, north or south do meet three traffic light or roundabouts before arriving in the city.

6.2.5 Public Transport

The public transport in Hengelo is well spread over all the neighbourhoods of the city. All the buslines are arranged like a gloverleaf over the city with the central station as central meeting point and transition hub between bus and train.

In the city centre, all the buslines are concentrated on the westwing of the city centre. The result is that (possible) places of busstops are limited in the city centre.
6.2.6 Accessibility

The accessibility of the city centre does differ between different kinds of transportation. While the access point of the public transport are limited but well placed at centre entrances, parking places are more spread around the city centre. But the best option for entering the city centre is to come by bike. There are several possible points of entry and the bike is allowed in the heart of the centre, while the car and bus are not.

6.3 Transformation

6.3.1 Causes of city growth

In history, the region of Twente has always been one of the Netherlands. Real growth of cities came with the industrial revolution. Cheap labour, cheap soil and plenty (natural) resources provided together with the industrialisation the opportunity for cities to grow. In majority, all the cities rose by the uprising of the textile industries. Hengelo however is an exception. This city grew by impulse of the mechanical and electric industries. While later all the textile industries went bankrupt, Hengelo’s industries were still flourishing. This feeling of difference is still present in the region and can be seen as the reason of failure of the idea to merge Hengelo, Enschede and Borne in one major municipality called Twentestad (Wennekes and Broekmans, 2002).
6.3.2 City growth

As explained before, Hengelo is a rural city which rapidly grew by the rise of the industrialization. As in many cities, until 1900 the highest building in the city was the tower of the local church. Due to expansion of the city and its transformation of building heights, this became under pressure.

The WTC location of east Netherlands is located in Hengelo next to the main train station. Plans for an own tower in the Hart van Zuid plan area are made, but in the current economic time period the feasibility is nearly zero. Also many citizens are worried about the size of the new buildings, which is dramatically shown in the picture below. This shows that building height is still a major struggle point for cities and its future developments.

6.3.3 Program and identity

Around the main train station, on the south side of the city centre, fulfill offices and companies the program. Due to the easy accessibility on a high level (car and train) and low level (bike) it is a popular place for companies to locate. It shows the transformation of the city from physical industrialisation towards the digital economic age. The question is how cities, and thus also Hengelo, do respond on this. On the city level by organizing building heights, and on the street level.

An idea of a group citizens was to bring the last Hotlo-ship engine, made by Stork, back to Hengelo (picture on the right). The plan did not succeed, due to the financial consequences, but it shows how cities can deal with this transformation of kind of industries.
6.4 Public Space and Domain

6.4.1 Water (City)

Hengelo is originally founded on intersections of roads and small canals. These roads do still exist, but the canals are devaluated and almost dissapeared during years. Caused by urbanization and its demand of 'dry feet', a detour canal was dug to reduce the overload of water within the city.

Together with two new made major ponds, the detour canal overtakes the orginal function of the small canals to provide the waterflows in and through the city.

6.4.2 Greenery (City)

The green borders of the city are limiting the city for further expansion. Shaped by the highway and agriculture regulations, the city has to search for examples of inner city development to deal with future predictions.

Also the city has pocket park within the city. The parks are soliture and do not have any connection with each other or the outskirts of the city.

6.4.3 Water (City centre)

As can be seen on the higher level, the small canals in the city of Hengelo do now have to provide the drainage just for the city itself. But more clear can be seen the neglected position of the canals in relation to the urbanity. Especially in the city centre, canals are hidden behind and between buildings or under ground.

Currently, several communities in the city are now lobbying for solutions to reveal these streams. This in order to improve the quality of the city and also to give the city back its origin historic context.

6.4.4 Greenery (City centre)

Around the city centre there are two parks located. The large one, the Sint Berhardplaatsoen has a public role for the whole city, while the small a neighbourhood function has.

However, neither of those two has a direct connection with the city centre. As a result they do not share any relation with each other.
6.4.5 Public space

The original rebuild plan of the city centre of Hengelo was formed around three squares with each their own set program and function. An arrival square in front of the train station, a market square for all the business and a representation square in front of the city hall. Today, the squares have kept more or less their function, although the representative function made place for a leisure function and the shops with their businesses are spread all over the city.

Through the years, the centre changed and more squares and open spaces occurred in the city centre. With the set program for the original squares, the new ones have to find their place in the urban fabric.

6.4.6 Urban fabric

Due to the rebuild, there is a clear difference between the post- and prewar urban fabric in the city centre. The Enschedesestraat is the dividing line between the two part. The curved, single solitary street pattern can easily be separated from the fine mazed, rectangular grid of the street pattern which was build after the Second World War.

6.5 Future plans and projects

6.5.1 Hart van Zuid

As stated, Hengelo is an industrial city. This can not only be seen by the current large factories, but also by the large inner city redevelopment of former industrial areas. The Hart van Zuid project concerns the revitalization of the former Stork factory plant in the south part of the city. It stretches from the station area all the way south to the current industrial area around the Twente canal.

It provides a new direct connection between the city centre and its train station and the industrial area of Twentekanaal, one of the economy districts of the city. Due this direct connection, there is a new opportunity for offices and companies to (re) locate their business in the city centre (around the train station) and still have a strong connection with the economic district zone (or vice versa).

Also it a great opportunity for the city to revalue the historical industrial heritage. So is the former Stork-iron foundry transformed in a large municipality school, the Dikkersfactory in a new lo-
6.5.2 Lange Wemen

The project Lange Wemen is a large inner city revitalization project which is now under construction. In the plan, there is place for a new office building for the municipality, a new shopping centre, houses and a new square facade at the Burg Janssenplein with leisure program.

In the municipality there is a lot of discontentment about the plan, especially about the extra m2 of retail floor space which is planned. This is one of the causes that the original plan is under pressure and so the financial feasibility is very uncertain.

6.5.3 Top op Bisschoff

The project “Top on Bisschoff” was an ideacontest for architecture firms of how the problem of the Markt square could be solved, held in 2010 by the BNA kring Twente in cooperation with the architecture institute Twente.

The reason of this competition is the mismatch at the Marktsquare between open space and the building height and facades. The square is too open and big for the height of the facades. This problem is well-known and often addressed by the original designer, van Couwelaar.
6.5.4 Plan of Seinpost

As response on the problems of retail floor space emptiness in the city centre, consultant agency Seinpost B.V. has made a plan to deal with the growing emptiness. This plan contains a new plan of programmatic division of functions in the centre, so a new zoning plan of program was created.

However, within this plan the spatial consequences of the changes are not mentioned or investigated. Also the city and its centre have problems with its profiling. According to shop owners, the city (and its centre) lacks a clear image towards outside the city.

Figure 49: Newspaper article of study of Seinpost B.V. for the city centre (T.C. Tubantia, 2015)

Figure 50: Map translation of the study of Seinpost B.V. (by author)

6.6 Conclusions

As in the analysis, the conclusions will be summarised on basis of the classification which is been used.

Knowledge and Economy

Several programmatic attractors are lacking in the city centre which can help to reinforce the current program which is located in the city and in the city centre. The offices of the municipality are located not next to the town hall, but in a large office building on the edge of the city. Also facilities are missing which can support the high-tech industries which Hengelo does have. The presence of a dependance of the university or vocational school can enlarge the relation between knowledge and industry, but with the arrival of students the young population can be an answer to the greying of the population.

City and movement

The city and its centre are good accessible by any kind of transportation from everywhere. Due to the central position of the city in the regional network and the radial lay out of the city, the city centre of Hengelo is in geographical point of view not only the central area of the city, but also of the region.

Due to its location, the city is attractive place to live. To cope with the growing number of inhabitants the city now relies on the expansion capacity a surrounding village. This cannot last forever, so the city have to find a way to deal itself with the growing number of inhabitants.

Transformation

Hengelo is a proud city because it differs from other large industrial cities in the direct surrounding. However, some aspect of flourishing cities are not desired in the city. Where in many cities do advertise themselves with high rise buildings, these are not directly desired in the city. This means that there have to be found a balance between the need of houses and the available space in the city.

Public space and domain

Due to the rapid growth of the city during the industrial revolution, nature became inferior in relation to the urban structure of the city. Nowadays, nature in the city is often mentioned as an important element to enhance the living conditions in the city. So Hengelo have to find possibilities to establish this, for example in the city centre.

Current projects

There are several project happening right now or have been studied on. The interesting part is that some are totally counteract each other. The project of Lange Wemen suggest to expand the total retail floor space while the problems in the city centre and the studie of Seinpost show that this has to be diminished. Also the “Top op Bisschhoff” shows possible solutions to cope with the needed densification of the city centre with respect to the slightly high rise prohibition of the city.

At the next page an overview is shown of the whole outcome of the analysis, arranged by theme and scale.
**Figure 5.1 Summary of conclusion of the urban analysis (by author)**

- Access only from three points: Train- and bus station are not the PT access points nearest the city centre.

**Public transport:**
- Parking space for bikes central in city centre.

**Bike access:**
- Public program as a layer around commercial program city centre.

**Public Buildings:**
- Gathered on the edge of the main city.
- Dividing the city centre into different parts with different identity.

**Bike infrastructure:**
- Rezoning of program in city centre.

**Car infrastructure:**
- Central around railway line.
- Education spread in city.

**Public buildings around shopping program.**
- Parks in centre neighbourhood, but not connected.

**Green:**
- Neglected behind buildings or underground.
- Business areas around major infrastructure.

**Water:**
- Problems with finance.

**High Level Infrastructure:**
- Central position and highway cause suburb malls.
- City as central point all high level infrastructure.

**Lange Wemen:**
- Revitalization of former Stork factory area.
- Higher education located in least central.

**G荷:Cities**
- Central position and highway cause suburb malls.
- City as central point all high level infrastructure.

**Transformation, 7.1 The retailer**

The city of Hengelo does have a strong
electronic and domestic stores.

On the edge of the
city, three major participants are being reviewed.
Center.

The information of what individual retailers want is now on different scales. The information is divided into three scales: local city and city region.

The consumer must comply the needs of the large department stores instead of compete.

**7 Actor Analysis:**

*Scale*

<table>
<thead>
<tr>
<th>Centre</th>
<th>City</th>
<th>Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retail owners</td>
<td></td>
<td></td>
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</tbody>
</table>

7.2 The inhabitant

The city centre of Hengelo is a well discussed topic for the inhabitant. Compared to other similar city centres, the city centre of Hengelo scores high on safety and accessibility. On the city centre itself, inhabitants are more critical and negative about the centre than the visitors. And another difference is the kind of transportation which has been used to come to the centre. Visitors come by car, inhabitants by bike. Also as well as the visitor as the inhabitant do have the opinion that a clear routing is lacking through the city centre. In the opinion of these actors this could be solved by giving different places in the city centre a clear different program and create a strong connection between the different location. So each place is different from the other and legibility of the way towards it is more clear.

7.3 The municipality

In contrast to the urban analysis, the municipality is focusing on only the intermediate vocational education. This means that the municipality has resigned with the fact that Enschede is better location for high education institutes. As well as the inhabitants, the municipality agrees to the lack of routing and legibility in the city centre. However, they suggest that this can be solved by strategic high rise buildings. This to provide dwellings for elderly people of 65+ in the city centre. This in combination of better integration of water and greenery should lead to better spatial qualities in the city centre with a new programmatic central point in the centre which can be the main attraction area in the area.

7.4 Visitors behaviour

For a research study for human shopping behaviour in city centres, DTNP from Nijmegen did a questionnaire in several middle-big cities in the Netherlands, including Hengelo. At Saturday 12 April and Wednesday 16 April 2015, they questioned 85 visitors of the city centre about their movements, shopping behaviour and way of accessibility. As result, seen in pictures below, the movement of people is centralized around the market square. One of the reasons of the centralization is the presence of the Markt on Saturday and Wednesday in the city centre.

Also differences can be seen in the number of visitors arrived by car and bike and the number of visitors arrived by public transport or feet. Also can be seen that the people who came by bike have almost all the same starting point, while the visitors by car have more different starting point (or place where they parked their car).
Also the questionnaire asked for the places where the visitor went. The market and the HEMA store were the most visited places. Also the kind of transportation of how the visitor came to the city centre was asked. The two main used vehicles were the bike and the car. Also was asked for the reason why the visitor was in the city centre. Was it for groceries, leisure purposes, for competitive shopping, or straight to the point shop in shop out. All these data gives information of how people like to come to the city centre and were the places or stores are which the most people visited.

7.5 Conclusions

- Retailers

  The best opportunity to cope with the retail emptiness is to create programmatic zones so each part of the city, and thus the retailer, can create their own identity to persuade people to come to their location. But all these identities and programs should not be in conflict with the set program of the large peripheral department stores. Peripheral stores and city centres do have to differ from each other so the can supplement each other. When stores in the city centre do compete with the large mall, sooner or later the large mall will always win.

- Municipality

  Dwellings are needed in the city centre. Especially for the target group of elderly people. But the municipality does not give a preference of location of where or how. Or maybe other target groups are also welcome in the city centre. This modification does cooperate with the need of a repositioning of the main attraction point of the city centre, where everyone comes together. The programming of the city centre is so divers, that this does lack in the city centre.

- Visitors and inhabitants

  There is a lack of routing and guidance in the city centre. People do not see a clear sub-succent routing of for example retail stores. Every place in the city centre does look the same, specially and programatically.

  Arrival of consumer in the city centre is per mode of transportation one place. Most of the people do arrive by car or bike and these starting points are located at opposite locations from each other. As a result the movement of consumers does take place in the area between the two starting points in the area between the Markt square (car starting point) and the Enschedesestraat (bike starting point).

8 Spatial Analysis

In which way can spatial and functional characteristics of the post-war rebuild be used in the revitalization process of the city centre of Hengelo?

As stated in the introduction, the city centre of Hengelo was bombed during the Second World War. This means that it had to be rebuilt, like Rotterdam and Nijmegen and thousands of other cities. The result is that in the city centre two areas can be discovered: an area with the urban layout before the war and the new built area which has strong characteristics of post war modernism. The reason for the modern approach in rebuilding the city centre was caused by the rapid rise of the Stork factory and its city expansion, so the layout of the old rural city centre did not fit anymore to the size of the city (Bosma & Wagenaar, 1995). The post war rebuilt plan had to provide a city centre who was suitable for the new city who was transformed out of a small village.

Through the years, more and more criticism rose on the design approach and its effect on the public space of this modernism movement. One of the first texts where the modern movement was discussed was of Robert Venturi in his "Complexity and Contradiction in Architecture" (1977). In this book he stated for renewal of the historic content in the designs, something that was neglected by the modernism movement and the demolition drive. That history is now an import issue in architecture and urbanism illustrates the rise of Monument committees to protect the historic and cultural heritage in cities.

Another point of criticism on post-war rebuild is the zoning principle and the car dominated design. These factors had led to a paralysing uniformity which was deadly for the complexity and variety of traditional cities (Jacobs, 1961). Not only the architecture and planning methods of the modernist movement are criticized, but also its effect of it on the public space. The ideology of the movement led to generalization of the spatial types and it ignored the social and psychological needs of a diverse city. It showed that urban and architectural design not only have a fundamental impact on the use and viability of public space, but also that an aesthetic vision of public space, with neglecting other factors, can be dangerous (Carmona, de Magalhães, & Hammond, 2008).

In the context of the city centre of Hengelo, this has to be taken in mind. Although the (historic) value of modernistic city centre is hard to understand and validated, it gives a city an identity. So the question is how revitalize the city centre with respect to the often unappreciated value and spatial characteristics of the modern rebuilt centre.
8.1 Post war rebuild

In the Netherlands there are six city concepts of this rebuilding period, which fit to the modern or traditional principals of rebuilding cities which did occur in the time after the war (Hebly & Boekraad, 2004):

The set out city
The AUP (Amstersdams Uitbreidings Plan) of 1935 is the imagination of the modern city expansion. It is a plan designed as one, but realized as separate pieces. Divided by water, highways and different program, the total plan was realized in different ways.

The slightly modernistic rebuild city
The word ‘modernistic’ makes clear which design style fits this concept. However, the word slightly implies that this concept is a kind of mixture between modern and traditional. This is caused by Willem van Tijen who stood between both sides. The ideology of the CIAM is mixed with the ideology of the Garden movement of Ebenezer Howard and then adapted towards Dutch standards. An example of this is the neighbourhood Zuidwijk in Rotterdam: a mixture between the rural Vreewijk and the urban Oude Noorden.

The traditional rebuild city
The root of this city concept lays deeply in the design principals of the Delftse School. Here everything has its hierarchy place, from the urban structure towards the architectonic detail. This concept fits most of the time in rebuilding plans of small (rural) villages, but also in the city. An example is Plan Zuid I in Den Bosch.

The aesthetic rebuild city
In this city concept there is no focus on one particular style, but on the aesthetic elements and repertory of the open city. The urban relation of scale and rhythm of the public space together with the size of the buildings and greenery provided a high quality neighbourhood. The neighbourhood of The Hague South-West of Dudok was designed in this concept.

The production rebuild city
At the end of the rebuilding era, around 1970, the production of house building is at its highest point. Building corporations built houses quickly and efficiently. The result were big gallery flats, present in almost every Dutch municipality. The most famous and modernistic example is the Bijlmermeer in Amsterdam, designed by Siegfried Nasuth.

8.2 Building typology of Hengelo

8.2.1 The old city

There are few streets left in the city centre who have survived the bombardment in the Second World War. They are recognizable by the single buildings per plot and a building line which differ per building. Also the buildings are all different from each other, except the sloping roof. Also these streets are not straight and so they stand out in addition to the post war rebuild.
8.2.2 The new city

After the bombardment, a part of the city centre was totally demolished and so had to be rebuilt. The spatial characteristics are a set straight building line, flat roofs and an uniform building height of 3 layers. Also the used grid in the rebuild area provide straight streets in where the set building line and heights even more are recognizable.

In building typology, the post war rebuild is built with and for a clear program. On the ground floor shop spaces and above dwellings. This difference can also be seen in the layout of the buildings by the clear separation between the two, which is coherent in all the buildings, small or big. So the difficulty for this thesis is to find a way in where there can be made changes in the program within the fit typology of all the buildings.

On the scale of the urban block, the buildings are arranged together by four rules:

1. One straight building line
2. Closed urban block with back entrances to a service street
3. Per lot a own facade fit to the building typology described above
4. Per lot a own type or shape of roof
9 Emptiness and Space

9.1 Hengelo and Nijmegen

The case study is a comparison study between two city centres, the centre of Hengelo against the centre of Nijmegen. Although the two cities are totally different from each other in size, morphology, demography, they have some urban elements in common. Like Hengelo, the city centre of Nijmegen was also bombed and rebuild after the Second World War. Morphologically the cities are complete different, but in this case study there is only looked just at the street, its width, its shape and its connectivity.
As in Nijmegen, the city street and its profile are designed to handle different kinds of transportation possibilities. As a result, these are the streets with the highest number of people passing by. Characteristic for this street profile is the separation between slow and fast traffic. To visualize this separation, trees are planted along the road to express this.

**Figure 69: Principal section of the city street**

**Figure 70: Map of city streets**

**Figure 71,72 City streets in Hengelo** (all by author)

As in Nijmegen, busses are still part of the different kinds of vehicles which are using the streets in the city centre. To create an open view in the shopping districts for safety purposes, trees are lacking in the main shopping street where the busses are. But the separation of high and low level traffic is still visible by differences in pavement.

**Figure 73: Map of city streets**

**Figure 74,75: City streets in Nijmegen** (all by author)

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Hengelo

Together with the city streets, these streets are the widest of all streets in the city. With the absence of different mobility, the pedestrian is the only user of the wide street. The space of the street was used in the redesign to create a lively centre on the street where visitors and inhabitants could meet and sit on terraces.

Nijmegen

Like in Hengelo, there are two streets who meet the spatial requirements of the square streets. However, the program on the street is the mirror image of the supposed design. The open street is not along the facades of the buildings, but in the middle. And the leisure elements are located on the edges of the street.

Facts:

- **Streets:**
  - Hengelo: 2
  - Nijmegen: 3

- **Empty stores:**
  - Hengelo: 5
  - Nijmegen: 6

- **Facade length:**
  - Hengelo: 336m
  - Nijmegen: 957m

- **Percentage empty:**
  - Hengelo: 20%
  - Nijmegen: 8%
Hengelo

The typology of the narrow street is the most represented of all in the city centre. The street in Hengelo do have all the same urban layout: a set strip in front of the facades and a variable width in the middle of the street.

Nijmegen

The narrow streets in Nijmegen do differ from each other. The width is a coherent factor, but the urban layout and materials do differ. Also the location of the typology is different from Hengelo. In Nijmegen, some narrow streets are part of the core of the shopping district of the city centre, while in Hengelo the streets are located on the edge.

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Hengelo

Exemplary for the reconstruction period, was the introduction of the delivery streets in the urban pattern. Designed for delivery purposes for shops, the street now are neglected spaces in the city centre. In Hengelo the streets are narrow and have almost only backentrances and -sides of buildings.

Nijmegen

Also in Nijmegen, delivery streets are present in the urban grid. But due the size of the urban block, the innerstreet have more space and function. Some are used as parking facilities for inhabitants or store owners and others are totally transformed into innerblock livingstreets with houses. Also are some streets paved with the same pavement as in the regular streets.

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Figure 84: Principal section of the service street
Figure 85: Map of service streets
Figure 86,87: Service streets in Hengelo

(all by author)

Figure 88: Map of narrow streets
Figure 89,90,91: Narrow streets in Nijmegen

(all by author)
Hengelo

Like many other cities, also Hengelo has malls and inner building streets. Spread over three locations, stores are located along a roofed street, better known as malls. The streets are forbidden for bicycles and closeable after opening hours.

Nijmegen

Unless as Hengelo, Nijmegen has only one mall located in the city centre. With the build of the Mariakennestraat and the Moenenstraat, the mall became part of the main shopping route through the city centre. However, the mall has two levels of stores. By passing by, the visitor only uses the ground floor level, which causes emptiness of store space on the first floor.

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Hengelo

As already showed in the urban analysis, there are three major squares in Hengelo with each its own function. The minor squares do lack a clear function and are not clear connected with the major ones.

Nijmegen

Nijmegen does have several small squares who are having more or less the same public function. Around all the squares bars and restaurants are located who determine the happenings in the space with their terraces.

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Figure 99: Principal section of the squares
Figure 100: Map of squares
Figure 101,102: Squares in Hengelo (all by author)

Figure 103: Map of the squares
Figure 104,105,106: Squares in Nijmegen (all by author)
The historical street

Hengelo

Within the city centre of Hengelo, several areas do differ from each other caused by differences of building lines. In Hengelo it is the main difference between the buildings build before the Second World War and build after it. Unfortunately, the city centre of Nijmegen does not have streets who match this typology. The buildings which survived the bombardment, are spread over the city centre. But they are well integrated in the new city plan which was made back then.

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9.2 Conclusion

Because the size of the cities do differ a lot, the size of the investigated area differs also between both cities. Hengelo has an average empty ness of retail floor space of 20% (Gemeente Hengelo, 2014), Nijmegen has 10% (Gemeente Nijmegen, 2015). Surprisingly, these number do agree with the percentage of facade length, with some outlines on several typologies. For example, in the narrow street in Hengelo the emptiness rate is 32% and in Nijmegen in the Passage it is 23%.

In relation to Hengelo, the narrow street does have the most emptiness of facades. And compared with Nijmegen, both cities have almost the same facade emptiness in the Square street, but this typology is more used in the centre of Nijmegen, what has the result of a lower percentage.
10 Emptiness vs Location

In this chapter, the emptiness of stores will be related to the spatial connectivity of the city centre. Also the relation is examined between the spatial connectivity and the flow of visitors and the location choice of main retail stores.

10.1 Space Syntax

To examine the relation between the emptiness of stores and the accessibility and reachability, a computer program is used. Space syntax is a program that calculates the integration of street networks and its extrinsic properties of space (van der Burgt, 2015). This understanding is important, because physically cities are just stocks of buildings linked to each other by space and infrastructure. But functionally, this network of space and infrastructure provides the economic, social, cultural and environmental processes of this city (Hillier, 1996).

10.1.1 Theory of Space Syntax

The program just investigates the relationship between human society and space from a perspective of a general theory of structure of inhabited space which can be applied in all diverse urban forms: buildings, settlements, cities or even landscapes (Bafna, 2003). In the case of a city, the space syntax program calculates the integration of infrastructure. By just calculating, an objective result is given which does not take notice of all the socio-economic and demographic influences at the location. This means that it does not show architectural typologies or styles and it does not take notice of spatial qualities of the urban design (van der Burgt, 2015). How this objective calculation have impact on human society without take notice of it, is explained in paragraph 10.1.3. In 10.1.2 the methods are described which were used in the investigation of the spatial integration the urban network in relation to its influences.

10.1.2 Used Space Syntax Maps

Axial analysis maps

These maps are the most basic maps of analysis of the space syntax program. Every street in the city is represented by a single line. The program calculates per street how many turns (direction switches) it takes to reach other streets. Figure 114 shows an example of the basics of the analysis. The red line is the line which can be reached with the lowest number of turns, and so the best connected street and highest integrated street of the map. In every situation, this street is called the main street. The streets...
Angular analysis maps
As mentioned before, the axial analysis maps show a rough estimation of the integration of streets in the city. The angular analysis adds two more aspects to the analysis. At first the analysis analyses the lines as segments, not as a whole line. A whole line can cross one or more other lines. The part of a line between two crossings is one segment. Secondly, the analysis take in count the angle streets make. People use directions with the least direction changes. Within this kind of analysis, one variable can be added, the radius. A large radius analysis shows the integration of streets for fast transport models like cars and bikes. A small radius analysis shows the integration of streets on a low scale, which matches the movement radius of pedestrians.

10.1.3 Application on project
The most integrated streets are the place where the most people shall come, because these are the street which are the easiest to access. This means that the configuration of the street grid influence the movement rates through an urban street net and where economic activities take place. As a result, programmatic attractors, such as shops, retail and large firms tend to locate themselves along the most integrated streets (Hillier et al., 1993, p. 61). Figure 115 shows the relationship between configuration, attraction (the location of shops) and movement. It shows the relation between the built environment (configuration), movement and attraction. Movement and attractors influence each other, while the urban configuration is static. The effect of more people in a street, is that it attracts shops to locate along these streets. The more shops locating along a street, the more they attract people. It gives a multiple effect process, but it does not infect the shape of the urban fabric. After all, movement and attractors can not influence the configuration of the street network (van Nes, 2011).

In this part of the case study, Nijmegen and Hengelo are compared to look if the theory match the real situation. Above the space syntax maps, three other layers are added, 1) the emptiness of retail space, 2) the location of main attractors and 3) the movements of visitors.

10.2 Space Syntax & Emptiness
In this analysis, the spatial analysis maps of space syntax are combined with the location of all empty retail stores in Hengelo and Nijmegen. Both in Nijmegen en Hengelo, most of the empty stores are located at street which are less integrated. (the blue streets). As explained in 10.1.3, the less integrated streets are the most difficult for visitors to reach.

10.3 Space Syntax & Location retail stores
For this map analysis, the location is mapped of general (major) retail stores who can be found in both cities. One outcome is that supermarket do choose a location with is easy accessible on a higher scale, by car for example. Beside this, there are two tendecies recognizable. First stores do settle along street with the highest integration, which automatically provide consumer passing by. Secondly, retail companies do cluster to make each other strong. By clustering together companies do persuade people to come deliberately to their area, because people can than can choose to which store they will go.

10.4 Space Syntax & Visitors movements
In this comparison, the space syntax map is combined with the consumer flows which were counted for the Binnenstadmonitor (City centre monitor) of both municipalities (Gemeente Nijmegen, 2015, Gemeente Hengelo, 2014). Both movements observations are colliding with the fact that the most visitors are passing by at the most integrated streets.
Figure 116-118: Space Syntax maps with store emptiness of Hengelo (by author)

Figure 119-121: Space Syntax maps with store emptiness of Nijmegen (by author)
Figure 125-127: Space Syntax maps with retail companies of Nijmegen (by author)

Hengelo

Nijmegen

Local Angler Analysis

Metric Radius Low Scale

Metric Radius High Scale

Metric Radius Low Scale

Local Angler Analysis

Metric Radius High Scale

Metric Radius Low Scale

Metric Radius High Scale

Local Angler Analysis
Figure 128-130: Space Syntax maps with consumer movements of Hengelo (by author)

Hengelo

Figure 131-133: Space Syntax maps with consumer movements of Nijmegen (by author)

Nijmegen
10.5 Conclusions

In this part conclusions are given regarded the two focus points of the case study: Typology and Accessibility. This conclusion will focus on the situation in Hengelo.

Typology

The largest amount of empty retail stores and empty facades are located along the small streets. These shopping streets are the most vulnerable when the retail function in the city centre is under pressure. It can also be noticed that these typology lies on the edges of the city centre. In here lies a change to use this typology of the street better. This is not only for the small streets, also the square streets can have a better relation between the program inside the building and the space on the street.

Space Syntax

The city centre of Hengelo is well integrated in the network of the city as a whole. So it is not the cause of a bad connectivity that the emptiness of stores is high. The most movements of consumers are along the highest integrated streets. As a result, the most empty stores are located at the worst integrated streets. This because stores do flourish when people can easily access the location. To come with a solution, main stores do cluster together at semi-integrated places so they can persuade people together to come to their store location. Because when the consumer is there, he can easily switch from one store to an other.

Part 3
Strategic plan

In this part the strategic plan, the final product of this thesis, will be elaborated. The changes made in the programmatic structure of the city centre are made based on outcomes of the different analyses which have been made. With each intervention, a short overview will be given which conclusion from the analysis is the substantiation of the plan.
This strategic plan does change the programmatic lay out of the city centre. As an outcome of the analysis, the amount of retail floor space is too much, nevertheless the accessibility of the city centre is very good. Also lacks the city centre certain kinds of program which can strengthen the program which is currently present in the area. The main shopping area is now located between two point where the majority of visitors will start their shopping trip.

As a result program will be clustered and tighten up so each function is better concentrated and the routing, which was lacking, is clear for the visitor. This because the movement of visitors is guided by the program inside the buildings.

Also there is room for new kinds of retail stores, the stores with a close link to the digital world. This is situated in the street which connect the main shopping district directly to area with bars and discos, because this is a route that younger people will take who are familiar with the whole digital world. However it is a street which has a high empty rate (a small street), the new program will persuade peoples curiosity to enter the street so they can see the physical phenomenon of shopping 2.0.

As last the dwelling function is increased in the city centre so the area will cope the demographic and urban trends. By bringing dwelling activity in to the city centre, the area will be used also outside opening hours of stores. And to strengthen the possible persuasion for visitors to stay in the centre, an programmatic connection (blue) is made between the area where people are during the day (yellow) and the area where people are during the evening and the night (red).
11.1 Main shopping district

Shops and stores are located at places where the people are. The main shopping district is situated on the location where the most people do come or attempt to go. By increasing the total area where the consumer has to go, peoples flows will centralize so the number of passengers at one location.

Theory:
- Movement of people through the city centre is simple

Urban analysis
- 

Actor analysis
- Most movement in region between Enschede-sehenstraat en Markt
- 

Spatial analysis
- Despite good spatial connectivity much emptiness
- Too much m2 retail floor space

11.2 Transition zones

This typology of program has the intention to persuade the consumer to stay in the city centre. As a result, this typology can be used to create a bridge between the main location where people are during the day (shopping district) and where people are during the evening and night (bar, theatre).

The main component of this program typology are restaurant and dining cafés. This program suits the size of the public space were it is located: a square and a wide street with space for terraces.

Theory:
- Program to fulfil the timegap between afternoon and night

Urban analysis
- 

Actor analysis
- Lack of day horeca (small lunchrooms, bistro, lunch-cafés)

Spatial analysis
- One street typology is under used for its designed purpose
11.3 Evening program

These areas are the main leisure attractors of the city centre. After 22.00, these areas are the most crowded places in the city centre. In order to prevent the upcoming “leisuralization” of the city centre, the size and location of this program typology is kept the same as it was. Also because the night program of Hengelo is rated as one of the best elements of the city centre by the visitors.

Theory:
• -
Urban analysis
• -
Actor analysis
• Night program well appreciated
Spatial analysis
• -

Figure 137: Function suggestion of the evening program (by author)

11.4 Secondary Retail streets

These streets in the city centre are called in Dutch: “aanloopstraten”. The streets are often a transition zone between the main core of the shopping area and the rest of the city or neighbourhoods in the direct surrounding of the city centre. As a result, these streets do have more differences in the programmatic. A mix of shops, bars and (small) offices are located along the entrance roads of the city centre.

Theory:
• -
Urban analysis
• Situated on access points of bike visitors
Actor analysis
• -
Spatial analysis
• -

Figure 138: Function suggestion of the secondary retail street (by author)
11.5 New city centre program

In several different analyses, the outcome was that the current program in the city centre could be upgraded by adding different kinds of program. First the addition of the municipality offices next to the town hall. This will bring more visitors to the centre as all the office workers of municipality. Secondly, there is an opportunity for test cases of digital shopping. For this a location is chosen in a street between the shopping district and the bar district, because mostly younger public which are familiar with the internet and digital shopping will pass by. As last as a reaction on the disappearance of the high education institution, there is a possibility to reintroduce a dependance of the university of Twente. A small institution can be a meeting point between companies and high level technology of the industry in Hengelo and knowledge provided by the university.

Theory:
- Laboratorium for future-based retail stores

Urban analysis
- Add of program which strengthens the current program of the city centre

Actor analysis
- Municipality office is lacking in the city centre

Spatial analysis
- -

11.6 Daily groceries

This is the area in the city centre for the inhabitant. It is a place for daily shopping and groceries. However it is situated at the edge of the city centre, it is a main attractor of consumers because the only supermarket in the city centre is located here.

Theory:
- -

Urban analysis
- -

Actor analysis
- A well visited place for consumers to do their groceries

Spatial analysis
- Supermarket located at places with a good integration at a high level
11.7 Housing for starters

Young people do not mind to live in the city centre. The action and all the happenings are often a trigger for them to come to live in a city centre. Also they do not set high demand for their living environment. Two locations are designated where this typology of program can fit. The first is in a transition zone between the main shopping district and the main area where at Saturday night always the nightlife is. Also it is in the area where the testing area is of the digital stores, the “new shopping” area. This is because all the young people are well known with the internet and are familiar with the new retail typologies. The second is suitable for young families with a own business, the so called ‘freelancers’. This location is more elaborated in paragraph 12.1.

Theory:
- More people do come live in the city and the city centre

Urban analysis
- Hengelo has to cope with the rising demand of housing

Actor analysis
- -

Spatial analysis
- -

11.8 Housing for elderly

City centres are an ideal location for elderly people to live. Every programmatic facility (pharmacy, supermarket) which they possibly should needed is located in the city centre. The locations of this program are situated at places where always something happens. One looks out over the trainstation, a second one is situated along an entrance road towards the main city centre and a third looks out over a new park, as can be seen in paragraph 12.3.

Theory:
- More people do come live in the city and the city centre
- The city centre is an ideal location of elderly dwellings because of their immobility

Urban analysis:
- Hengelo has to cope with the rising demand of housing

Actor analysis:
- More dwellings in the city centre for 65+ elderly

Spatial analysis:
- -
12 Strategic interventions

Within the new zoning of program, there are three key projects which are crucial for the realising of the overall strategic plan. They have all in common that they rise the dwelling density in the city centre, but each location has a different target group of inhabitants. In the next chapters each key project is elaborated what the specific changes are and how they fit in the new programmatic set up of the overall vision.

The core of the key projects is to create more dwellings in the city centre. To accomplish this, several transformations are made in the current and future urban program of the city centre.

The intervention in the Nieuwstraat contains the transformation of current retail stores into home-work dwellings. By this, the total amount of retail floor space will be diminished and so more dwelling space will be available to fulfil the demand. The tool of densification is used at the Markt square. By raising the number of stories of the buildings also more dwelling floor space is created, but also the relation of space and facade is restored. Also it is an intervention which does fit the original intention of the urban planner, van Couwelaar, who designed the rebuild city centre after the second world war.

At the Kloosterhof, an alteration is made in the original plan of the Lange Wemen project. Instead of the original idea to increase the main retail area, the location is now also intended as a area for dwellings and it is a location which has a possibility to bring back nature in to the city centre.

Summary of key projects:

- Transformation of a shopping street to a street for dwellings. More dwelling space and less retail space.
- Raise of Markt square’s facade for densification and fulfilling of original urban concept.
- Reprogramming of Lange Wemen project. Dwellings instead of more retail floor space.

More dwellings in the centre means that there is more parking space needed. For the inhabitants of the Nieuwstraat, there is nearby an underused parking garage. For the Markt square, a new build parking facility is needed. The location of this is at the edge of the city centre at a currently vacant plot. Because the building at the Kloosterhof is entirely new, parking space can be created in the basement of the building.

As mentioned in paragraph 5.6, Tallon describes nine strategies to revitalize city centres. However, enhancement of housing stock and retail space transformation he does not mention. This lack shows that in the years between now and when the book was published, the revitalization tools suitable on city centre do have increased and changed through the years.
12.1 Nieuwstraat

The first key project is the transformation of the ground floor of the retail stores in the Nieuwstraat. As can be seen on the maps on the right, it is a narrow street. Due to the strict regulations of the urban plan, the plinth has to remain its former open retail facade. As a result, the most suitable target group are the so called 'freelancers' (zzp’ers, zelfstandigen zonder personeel). The number of this is increasing the last years (CBS, 2014) and a home is nowadays due to the digitalization not only a place to live, but also parttime an office, shop, bank, pharmacy or school (VROM, 2000).

As a result, the former retail space on the ground floor can be transformed to a work/live apartment. Due to the semi-public function of a office, the facade in the plinth can be remained.

Figure 146: Scheme of programmatic change (old situation left, new situation right) (by author)

Above: Figure 146: Map of current situation (by author)
Below: Figure 147: Map of future situation (by author)
As a result of the alteration in the ground floor program, the build size of the floor can be changed. The large floor space which stores needed, is now replaced with small offices which use less floor space that the original retail stores. As a result, a new courtyard is created for the inhabitants of the buildings. Also on the street in front of the houses things can change. Due to all the dwellings, it has become a living street were neighbours can sit without getting disturbed by passing consumers.
In figure 153 is shown all the entrances of the houses. There is a separated front door for the dwelling at the first and second floor as well as for the office on the ground floor. With this there is a possibility to rent the house but people are not obliged to take the office space below. The semi-public program of an office suits the urban typology of keeping the large former shopping windows. This gives in the future the possibility to retransform the office space back to its original program, the retail facility when the city needs more retail floor space.
12.2 Markt square

As stated in paragraph 6.5.3, there are several studies made on the facade height of the buildings on the Markt square. This because in the original rebuild plan of the city centre after the Second World War the central square was designed with higher facades than was build, due to financial shortage (Bosma en Wagenaar, 1995). As a result the ratio between the size of the square and its vertical limitation is in imbalance.

The new higher buildings fulfill the urban master plan of van Couwelaar in how the surrounding around the central Markt square originally should be. The height of the buildings highlights the importance of the square, because it is the biggest and most central located square in the city centre. At one point the original height of the building remains, this because its create a frame for a sight line to the highest building in the centre, the church tower. The effect of this can be seen in the section drawing on page 110.
The difference in the old and new situation does not have many influence on the footprint of the buildings. However, the design of the footprint differs. By combining the entrances of the apartments per two building blocks in the plinth, the number of entrances and thus the permeability of the plinth in here increases.

But as mentioned before, the biggest difference is the building height, as can be seen in the sections above. By this the relation between space and facade is restored again, precisely as it was designed in the rebuild plan of 1945.

All the apartments are situated two by two on one central staircase and lift installation. On the ground level there are three entrance points per two dwellings, one for the apartments and two for the stores in the plinth. The difference in program between can also been seen in the height of the levels: 3.5 m for the stores and 3 m for the dwellings above it. To fit in the urban typology of the city centre, each plot has its own facade layout and type of roof.
12.3 Kloosterhof

The location of the Kloosterhof is part of the masterplan of Lange Wemen. Originally, it was designed with the purpose to enlarge the retail floor space in the city centre. This is against the current conditions in the city centre shown by the high amount of existing retail floor space which is empty right now.

To realise this plan, the former municipality office is already demolished. This is why the location right now is a large open space, as can be seen in figure 145.

Aim of this intervention is to show a possibility to change the program of this location and to bring back nature in the city centre. At the location, the Elsbeek is currently hidden underground. A new route of the small canal can be changed so the water will come back to the surface and so the “Thiemsbrug” will be a “brug” (bridge) again.
Due to its specific location, the intervention has dwellings for different target groups. On the axonometry on the right, the picture above shows the entrances of the maisonette dwellings on the ground floor, while the dwelling itself is on the first and second floor. Also are these entrances faces towards the street. The entrances of the elderly dwellings on the ground floor are faced oppositely to the park side. Also the elderly apartments on the first and second floor are faced to the park with gallery access. The vertical movement between the parking garage below the surface and the gallery apartments is located at the place where both building directions come together.

To highlight this part of the buildings, the roof of this central point differ from the roofs of the other buildings. They do have a v-shaped roof to fit in the overall urban typology, while the roof of the central building block is flat.

The new created pond creates a natural border between the public street and the private front garden of the elderly apartments. By this, the new waterfront is accessible for everyone and can be used by both the inhabitants of the building, but also by the visitor of the city centre or people who want to sit down and eat their lunches.
13 Recommendations

In this thesis, the focus was aimed at the diminishing of the empty retail floor space in city centres and to find an answer of how the empty space could be reused. This programmatic revitalization tool is however not the only tool which can be used to revitalize city centres. As described in paragraph 5.6, there are more revitalization tools available which can do the same. If during this thesis the focus was not on the programmatic interventions, maybe a totally different design and solution would come out. This underlines the broad spectre where a city centre is located. It would be interesting to compare when someone sticks to the cultural revitalization of Montgomery (1990, 1995) or the more strategic option of Balsas (2000). If then the same result or familiar aspects will occur, a generic list of possible interventions can be set up of how to deal with city centres.

Another important aspect which is neglected during this thesis, is the economical perspective of the urban structure. By focusing just only on the program and the spatial implications, an intervention is set up which possibly cannot take place because of finance or lasting lease engagements. This is also an important actor which should be taken in mind. These two factors can change the whole perspective of the investigation and probably will come with diverse and different answers for the same problem.
Appendix 1: Abstract Literature review paper

**Future captured in history**

Why is it necessary to have knowledge of 1950s city rebuilding and expansion?

**Course AR3U022, Theory of Urbanism**

**MSc Urbanism, Delft University of Technology**

**Harmen Wolthoff**

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June, 2014

**14th Graduation Lab Urbanism Conference**

**Abstract**

Dutch cities pay more and more attention to the transformation or rebuilding of the 19th century inner city neighbourhoods and city centres built after the Second World War (de Boer and Lambert, 1987). This because of the future expectations of growing numbers of inhabitants and the decreased possibility of expansion of the city borders.

In this essay, the design styles of the 1950s are elaborated in order give an overview of what the basic principles are of the design choices for these city areas made then. Together with this, the aim of the paper is to make clear what the weak or strong points are of it found out by time and how these elements can cities help to cope with the urban trends and city transformations which are happening today.

The result shows that there already city concepts in use to deal with of this relation between the historic ideology and the future trends. However, these concepts need to be investigated more because the consequences on social, cultural or economical level are not well known yet enough to speak about totally successful transformation concepts.

**Key words**

Dutch design styles, urban regeneration, post war city expansion, Second World War rebuilding, Delftse School, het Nieuwe Bouwen

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**Introduction**

In this essay, the design styles of the 1950s are elaborated in order to give an overview of what the basic principles are of the design choices for these city areas made then. Together with this, the aim of the paper is to make clear what the weak or strong points are of it found out by time and how these elements can cities help to cope with the urban trends and city transformations which are happening today.

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**Conclusion**

In this essay, the design styles of the 1950s are elaborated in order to give an overview of what the basic principles are of the design choices for these city areas made then. Together with this, the aim of the paper is to make clear what the weak or strong points are of it found out by time and how these elements can cities help to cope with the urban trends and city transformations which are happening today.

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**Key words**

Dutch design styles, urban regeneration, post war city expansion, Second World War rebuilding, Delftse School, het Nieuwe Bouwen
Appendix 11: Example of questionnaire sheet of DTNP

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<th>Nummer</th>
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<tr>
<td>3</td>
<td>Algemene regio bezoek</td>
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<tr>
<td>4</td>
<td>Internettoegang bezoek</td>
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<tr>
<td>5</td>
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<td>7</td>
<td>Bepaalde regio bezoek</td>
</tr>
<tr>
<td>8</td>
<td>Veterinaire overwag</td>
</tr>
</tbody>
</table>

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Appendix III: Reflection P4

Reflection P4 Report

Name: Harmen Wolthoff
Student number: 1378651
Mastertrack: Urbanism
Studio: Urban Transformation and Sustainability
The Urban Fabric
First mentor: Paul Stouten
Second mentor: Akkelies van Nes
External examiner: Peter de Jong
Date P4: 01-10-2015
Project name: Downtown is rising up!
The revitalization of the city centre of Hengelo

Introduction

This reflection is for my graduation project about the revitalization of the city centre of Hengelo, located in the east of the Netherlands. Because the specific location is a small urban place, the studio where this project fits in is the studio of “The urban fabric”.

Relation project and social context

The social context is the reason why the topic of innercity revitalization is chosen, and also the location of the project. The inhabitants of the city of Hengelo are complaining about the high amount of retail store emptiness. This emptiness is a problem which occurs in many different cities caused by several urban and/or economic trends (economic crisis, demographical changes). So the aim for this thesis is to investigate what the options are to handle this urban phenomenon and what the possible answers are for this. Also it is an opportunity to investigate what kind of place city centres do have in the current urban structure and what the possible answers are for this. Also it is an opportunity to come with design solutions which can be reflected on both elements the other and both are necessary to have a clear set of information (and conclusions) in the end. This fits perfectly in the description of the theme of urban fabric, because the theme of urban fabric is strengthen the discipline of urban design as a technical discipline in terms of awareness of rising complexities of urban patterns and the development of tools for practical implication (Nadin et all, 2013).

Relation studio and subject

As mentioned in the introduction, the location is part of a dense urban context situated in the middle of the city. The perfect theme for this graduation project is so Urban Fabrics, the design of the urban fabric within a city. The aim of this research theme is to do research so we can understand how we can contribute to a more sustainable, attractive and vital urban design. The specific contribution of the theme of urban fabric is strengthen the discipline of urban design as a technical discipline in terms of awareness of rising complexities of urban patterns and the development of tools for practical implication (Nadin et all, 2013).

The aim of this thesis is find solutions for a city centre which does have problems with its attractiveness and vitality. This fits perfectly in the description of the theme of urban fabric, because the city centre needs improvement in the topics mentioned before.

Relation research and design

Research is an important part of an urban design. Many components of an urban design are based on information which cannot be found by just drawing maps or pictures. Also books, municipality papers or existing research papers are being used to formulate design principals. As can be seen in het scheme on the right, this design scheme contains three elements which are based on different kinds of research methods. An theoretic part which contains an overview of relevant for this subject written papers and books and/or government documents, an spatial part which contains drawings, maps and computer models and a requirements and preconditions part which contains information based on field work (questionnaires).

All these components together provides information of how the urban fabric of a specific place can be changed in to a well functional city centre. By formulation the sub research questions, each question was formulated in a way that they address each a different perspective in research and research tool. The result was a broad range of information which covers different aspect of a city centre. This helped a lot to understand the complexity of a city centre and it provided information of many different point of views. So the end result of all the different research was a large framework of information where the strategic design could be based on.

Relation methodology of studio and individual

As explained, in this thesis there are several different kinds of methodology tools used to provide the research framework for the strategic design. It shows the complexity in where urban design have to be made. In this complexity, the research group of Urban Fabric has two different kinds of approaches: quantitative and qualitative. The quantitative approach contains the informative side of the research, the non-physical information. By mapping and literature reviews and comparison information can be gained about the city centre. Besides this, this contains also the questionnaires based on different kinds of research methods. An theoretic part which contains drawings, maps and computer models and a requirements and preconditions part which contains information based on field work (questionnaires).

Figure 1: Article Twentse Courant Tubantia 17/6/14

Figure 2: Project scheme (by author)
Process of the graduation

My personal graduation track of this thesis was one which of many bumps and setbacks. The problem was not the location or choosing of topic, it was my personal interest. Someone told me that the graduation period is the last time to learn something before entering the real world. During the bachelor I was not good in the creative spatial aspect of design, so I wanted a first and second mentor who could teach me that. After two failed P2 presentations the conclusion was that I had difficulty with the spatial aspect of analysing and designing, something I already encountered in the bachelor. After this, I chose a new mentor couple which I do still have. This because in my opinion they focus more on the theoretical part of design, something which suits me better.

This long track of graduation made clear for me that I do not want to be a designer after this graduation. Personally I find it very interesting, but somewhere I lack the capability to do it. In the end it was a long, hard and difficult graduation track, but I think I know now precisely what I want to do in the future, and maybe more important, what I do not want to do.