
Restoring canals in the city center

A well-considered decision?



Femke Zijlstra S2921006
Spatial Planning & Design — Bachelor thesis
University of Groningen
Faculty of Spatial Sciences
13/12/19

Abstract:

The aim of this thesis is to get insight into how the decision to restore a city-canal fits in the contemporary use of the city center. In this the focus lies with the visions of planners versus the perception of citizens and stakeholders on the reopened city-canal. Different purposes of reopening a city-canal are discussed. The use of a city-canal to improve place identity and create a living room effect within a city center seem to be the main reason to reopen a city-canal. These objectives are strong related to the value people attach to it. However, when a municipality makes the decision to reopen a city-canal, it is the question whether these values are taken into account. Based on interviews amongst municipalities and surveys amongst citizens and stakeholders of the same municipalities, the participation during the decision process and the perception of the reopened city-canal were tested. There can be concluded that citizens and stakeholders do not participate during the decision making as can be expected according to the decision model of De Roo & Voogd (2014). Even though participation is desired concerning the objectives of the various city-canal reopening projects.

Table of contents

1 Introduction	3
1.1 Background	3
1.2 Research problem	3
1.3 Structure of the thesis	4
2 Context	4
2.1 Climate change & adaptation	4
2.2 Mobility	5
2.3 Globalization	5
2.4 City center as a living room	5
3 Theoretical framework	6
3.1 Need for urban identity	6
3.2 Conditions by creating an urban identity	6
3.3 Place-making	6
3.4 The 'Decision Model'	7
3.5 Conceptual model	7
4 Methodology	8
4.1 Three cities	8
4.2 Operationalization expert interview	9
4.3 Operationalization survey	9
4.4 Data analysis	10
5 Results	10
5.1 Meppel	10
5.2 Drachten	11
5.3 Zaanstad	13
5.4 Comparison cities	14
5.5 Connecting practice with theory	15
6 Conclusion & Discussion	15
7 References	17
8 Appendices	19

1. Introduction

1.1 Background

In the middle ages, public works like dykes, canals, bridges and streets were a main tool to manage development and facilitate the economy (Van der Cammen et al., 2012). Canals were used as main infrastructure and had an important role regarding sewerage. The industrialization and urbanization had a destructive effect on public health and the urban growth resulted in crowded slums (Van der Cammen et al., 2012). Where the canals once were an important part of the main infrastructure, their function started to shift towards an open sewage system. People were dumping their food waste and feces in these canals (van Rooijen, 1995), meanwhile the poor used the same canals as their drinking water source (Van der Cammen et al., 2012). With growing population density the amount of dumped material grew along, which caused epidemics of, for example, typhoid and cholera (van Rooijen, 1995). During the Industrial Revolution in the 19th century, a series of revolutionary innovations in the field of hygiene, transport, and economy came along, accompanied by a strong population growth (Van der Cammen et al., 2012)

Alongside the industrial revolution, there was a transport revolution going on which caused a large shift in modes of transportation (Van der Cammen et al., 2012). Boats as a means of transport were slowly being replaced by engine driven means of transport (van Rooijen, 1995) and the city-canals were closed to make room for roads (Van der Cammen et al., 2012). The hygiene issue and the transport revolution were two main drivers for cities to close their city-canals from the late nineteenth century until the mid-twentieth century (van Rooijen, 1995). However, the past few years a trend of reopening these city-canals has emerged.

As humans develop, change and modify themselves, so do places and the structuring of these places (Cheshmehzangi, 2015). Cities are continuously developing due to processes such as globalization, urbanization and technological development (Rotmans & van Asselt, 2000). All these processes influence how a city is shaped, in the present, in the past, as well in the future. According to the Raad voor de leefomgeving en infrastructuur (Rli; Council of living environment and infrastructure) (2014). Besides to the change of the built environment and shifts in functions and facilities, there is a shift in how cities are being used, perceived and appreciated. Several visible trends regarding the transforming city center have appeared. For example e-shopping negatively influences the amount of in-store shopping which causes a decrease in retail stores, that has become visible by the growing vacancy within a city center (Weltevreden & Rietbergen, 2009). Despite the continuously transforming city-centers, the need to give meaning to a place remains (Horlings, 2016) also in a city-center. There is a growing desire for place identity as a way to give a place meaning (Cheshmehzangi, 2015). Thereby the city as a visitors place becomes evident when you walk through the center with an increasing amount for leisure opportunities (Platform31, 2018). The city as a place for leisure and as a place showing its own identity may lead to a revaluation of water in the city-center.

1.2 Research problem

In the past decade, around 35 municipalities (and counting) in the Netherlands reopened a canal or have plans to restore a canal in their city center (Platform Stadsgracht Wageningen, 2008) which has been closed for over half a century (Van der Cammen et al., 2012). The aim of this thesis is to get insight into how the decision to restore a city-canal fits in the contemporary use of the city center. In this the focus lies with the visions of planners versus the perception of citizens and stakeholders on the reopened city-canal.

The main research question of this thesis is:

- "How does the decision to restore a city-canal fit in the contemporary use of the city center?"

The following sub-questions will be relevant in order to answer the main question:

1. What is the contemporary use of the city center and how does the reopening of city-canals relate with these trends and developments?
2. What is the planners vision behind the decision to restore a city-canal and how is this decision made?
3. How do citizens and stakeholders of the city-canal perceive the reopened city-canal?
4. How does the decision to reopen a city-canal connect to human perception?

1.3 Structure of the thesis

The thesis will continue to discuss the current use of the city center by describing various trends and developments within the city center. This contextual chapter will touch upon trends like *climate change adaptation, change in mobility, globalization* and the *city center as living room*. In addition, the developments and trends will be linked to reopening city-canals. The following chapter will compose a theoretical framework using different concepts and theories in order to see how the decision to reopen a city-canal connects to human perception. A visual representation of the concepts and theories will be given at the end of the chapter in the form of a conceptual model. This model will be used to connect outcomes of the empirical part of the research with the theory. Chapter 4 discusses the methodology used conducting this research. The different methods used during data collection and data analysis will be explained. The next chapter will show the gathered data and results, followed by chapters that contain the discussion and the conclusion.

2. Context

Various contemporary developments and trends which can be linked to reopening city-canals will be discussed in this chapter. This helps to provide insight in possible motives for cities to reopen a city-canal. Thereby, it shows the possible functions of the reopened city-canal.

2.1 Climate change & adaptation

The contemporary debate on climate change and adaptation requires urban planning attention. Urban regions are considered as vulnerable place to climate change due to the gathering of cultural, social and financial capital (Lankao & Qin, 2011). The complex system of a city needs urban planning adaptation in order to tackle future climate change problems (Kim & Lim, 2016). So does the Intergovernmental Panel on Climate Change (IPCC, 2014) agrees to this and consequently recommends governments to come up with a '*climate-resilient pathway*' within their planning strategy.

Storing water surplus

Due to climate change, there is an increased frequency and intensity of rainfall in the Netherlands (Brockhoff et al., 2019). The large share of impermeable surfaces in urban areas make cities in particular vulnerable to pluvial flooding as rainwater does not infiltrate into the soil (Mees et al., 2013; Brockhoff et al., 2019). A peak in rainfall runoff can exceed the drainage capacity of the water system, which results in a flood (Zhou, 2014). 'Accommodating water' is key to the proposed planning solutions (Wiering & Immink, 2006). A city-canal can offer a manner in which excessive water runoff in urban areas can be accommodated.

Decreasing the UHI effect

Due to the predicted global rise in temperature, a growth in heat stress can be expected (Kleerekoper et al., 2012). The urban heat island effect (UHI effect) is a well-known consequence of this increase in temperature. In this phenomenon the urban air temperature is higher than the temperature of the surrounding rural areas (Ward et al., 2016; Kleerekoper et al., 2012). Kleerekoper et al. (2012) describes a few cooling techniques within the spatial planning dimension. In this way, urban design can be used to diminish the UHI effect (Kleerekoper et al., 2012).

Implementing larger water bodies functions as heat buffer as water mass absorbs heat, the environment will cool down due to the process of evaporation (Kleerekoper et al., 2012). Restoring a city-canal in the city center should have a positive effect on the city's temperature.

2.2 Mobility

As mentioned in the introduction, city-canals were used as primary infrastructure during the middle ages in the city (Van der Cammen et al., 2012). After the industrial revolution the city-canals made place for roads (van Rooijen, 1995). Nowadays more cities are coming up with a car-free zone within the city center to create a safe and bike-friendly environment for visitors (Platform31, 2018). It is possible that the exclusion of cars has made room for city-canals again. Another reason to restore city-canals could be the possibility for transport over water, for tourists or perhaps suppliers.

2.3 Globalization

Globalization is an economic, cultural and political process. As Castells (2002) states, the global network is changing the way we perceive, organize, manage, consume and produce. This, accompanied by the globalization of the media, caused the globalization of tourism and business (Castells, 2002). According to Castells (2002) a city has to be competitive and productive to stand out. The question remains, however, how a city can stand out and what it can do to place itself on the map. When cities are part of the global network, they have to be rooted in *locality* and *identity* (Castells, 2002).

Urban identity

Putting a city on the map is a trend which can be seen in an increasing amount of Dutch Municipalities (Platform31, 2018). Cities aim to emphasize their (historical) identity and qualities, Platform 31 (2018) calls it the 'DNA' of a city, which preferably should be authentic and personal. Cheshmehzangi (2015) links this to spatial planning by stating that identity has become a comprehensive theme and concept in making new places and built environment. Next to the global scale, urban identity is important on a smaller scale. Citizens should be able to identify themselves with their city in order to feel at home.

2.4 City center as living room

Building on the concept of creating an urban identity and experiencing the city, there is a shift going on, from a city as a 'place to buy' to a 'place to be' (Platform31, 2018). The social-spatial structure of the city is changing, the city center as place of public interaction is becoming an important function (Engelsdorp Gasterlaars & Hamers, 2006). The share of retail in a city is decreasing whilst the share of food facilities is growing. Locals are more likely to get away from home in order to visit local restaurants, terraces or shopping streets (Engelsdorp Gasterlaars & Hamers, 2006). In addition, there is a transition in how people want to make use and how they perceive the city-center (Platform 31, 2018). An inner city should be a vital, multifunctional and attractive place which is embraced by its visitors and users (Platform 31, 2018). Functional use of the inner city shifts towards a broader use of the inner city. Instead of seeing an inner city as a place for shopping, the inner city is more often seen as a place for leisure (Platform 31, 2018). People are replacing their own living room for the city center.

Experiencing the city

The way citizens and visitors want to experience the city is becoming more important (Platform31, 2018). According to Pine & Gilmore (1998), consumers desire experiences instead of goods. The city responds to this by offering visitors experiences, for instance in the form of theaters, cinemas, galleries and dining places (Pine & Gilmore, 1998; Platform31, 2018). The need to expand and express cultural capital is increasing amongst the younger generation (Platform31, 2018).

3. Theoretical framework

All the above mentioned trends regarding transforming city centers can play a role in the motivation of a municipality to reopen a canal. However, when studying different visions of municipalities reopening a city-canal, it becomes evident that identity and attractiveness of the place plays the biggest role in reopening a city-canal. For example, the municipality of Zaanstad says that the reopening of the 'Gedempte Gracht' will *"improve the quality of experience"* (Gemeente Zaanstad, 2003, p.21). Furthermore does the municipality of Meppel say that the reopening of the 'Gasgracht' would *"contribute to the character of the city-center"* (Gemeente Meppel, 2008, p.43). This chapter aims to identify the need for urban identity and the conditions for urban identity. Next, the concept 'place-making' will be discussed. To finish, there will be a discussion about how the sense of identity and the living room feeling can be achieved with a top-down intervention in the living environment using the institutional design model of De Roo and Voogd (2014).

3.1 Need for urban identity

Cheshmehzangi (2015) and Boussaa (2017) both state that growing globalization is a main driver for urban areas to create their own urban identity. Boussaa (2017) claims that there is a growing recognition for an individual city's need to create an own urban identity, driven by the aim to attract global markets. Both trade and tourism play a big role when attracting the global market (Boussaa, 2017). According to Cheshmehzangi (2015) the need for distinctiveness is an important concept when defining urban identity. Different terms of urban identity for instance 'placeness', 'image of a place', 'sense of place' and 'spirituality of place' are all linked to distinctiveness (Cheshmehzangi, 2015). Summarizing, the need for an urban identity lies with a municipality's need to distinguish their city from other cities, in order to put their city on the global market. A city-canal can be of characteristic value for a place if there is a link with, for example, the history of the place.

3.2 Conditions for creating an urban identity

Both Boussaa (2017) and Cheshmehzangi (2015) state that the built environment is an important factor when creating a unique urban identity. According to Boussaa (2017), urban identity is often embodied by using historic distinctive urban forms, architectural styles, design solutions and ornaments. Boussaa (2017) adds to this that, next to built heritage, values related to memory and identity should be considered as the essence of a city's identity. Boussaa as well as Cheshmehzangi refer to Edward Relph when stating that the meaning of a place is not just anchored in the physical settings, activities and objects of a place, but in how people experience the place. Cheshmehzangi and Boussaa have different views on the scales on which urban identity is carried out. Cheshmehzangi (2015) talks about 4 different scales varying from individual to spatial level. While Boussaa (2017) talks about scales from specific physical places till wider city regions, claiming that authenticity of a city can be reached when branding every main street. Combining their ideas, the conclusion can be drawn that creating an urban identity should entail a place unique built environment, the experience of citizens and visitors of a place and, regarding the scale, the holistic approach of both built environment and human experience.

3.3 Place-making

Gianotten (2010) states that the way visitors experience an inner city emanates from their perception of the spatial and functional use of the place. Hereby a person's experience of the inner city plays an important role in the appreciation of the city center as a place to be (Gianotten, 2010). Vanclay (2008) says that the process of making a 'space' into a 'place' entails the process of giving meaning to a space. In some cases this means changing the way people feel about a place in order to make a 'bad' place into a 'good' place (Vanclay, 2008). Next to political-economic processes and practical aspects like innovation, management and knowledge, the role of individual and shared

beliefs and values is significant when it comes to shaping a place (Horlings, 2016). According to Horlings (2016) it is important to engage all the relevant stakeholders when it comes to defining what is needed in the context of giving meaning to place. However, Vanclay (2008) states that landmarks and significant features in a land- or cityscape can be an important foundation for personal meanings which contribute to the sense of a place. A reopened city-canal can be such a feature where people ascribe value to, in order to improve the sense of the place.

3.4 The 'Decision Model'

The reopening of a city-canal is a non-autonomous process, it is a hard intervention of the municipality on the built environment. It was stated at the beginning of this chapter that the aim of the municipality, when reopening a city-canal, most often is the improvement of the urban identity or attractiveness of the city center. However, when it comes to identity and attractiveness of the city center, the experience and appreciation of visitors and users can not be neglected. De Roo and Voogd (2014) created the decision model (figure 1), this model connects the nature of policy issues with the appropriate handling of these issues. De Roo and Voogd (2014) raise three questions at the base of the decision model. The first question is "What must be achieved?" (p. 274); this concerns acting purposefully in planning and policy, displayed on the vertical axis of the model (De Roo & Voogd, 2014). The second question asks how the aim of the first question can be achieved; this concerns decision-oriented acting concerned with the rationalization of policy choices (De Roo & Voogd, 2014). This perspective is displayed in the diagonal axis of the model. The final question asks who is involved, concerning institution-oriented action, displayed on the horizontal axis (De Roo & Voogd, 2014).

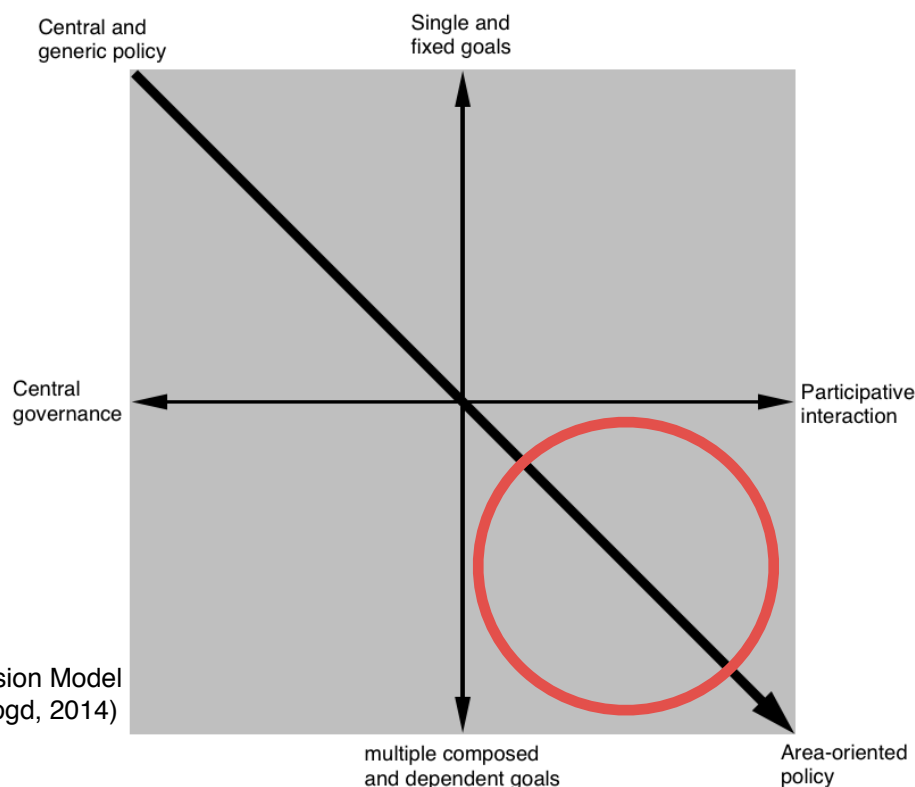


Figure 1, Decision Model (De Roo & Voogd, 2014)

3.5 Conceptual model

To determine where the issue of reopening canals is positioned in the decentralized policy spectrum, an answer to the questions of the decision model should be given. Therefore the purpose of reopening a city-canal should be clear. In addition, the extent to which citizens and stakeholders participate should be determined. Subsequently the goal and participation must be plotted in the decision model. A visualization of these concepts and theories is given in figure 2.

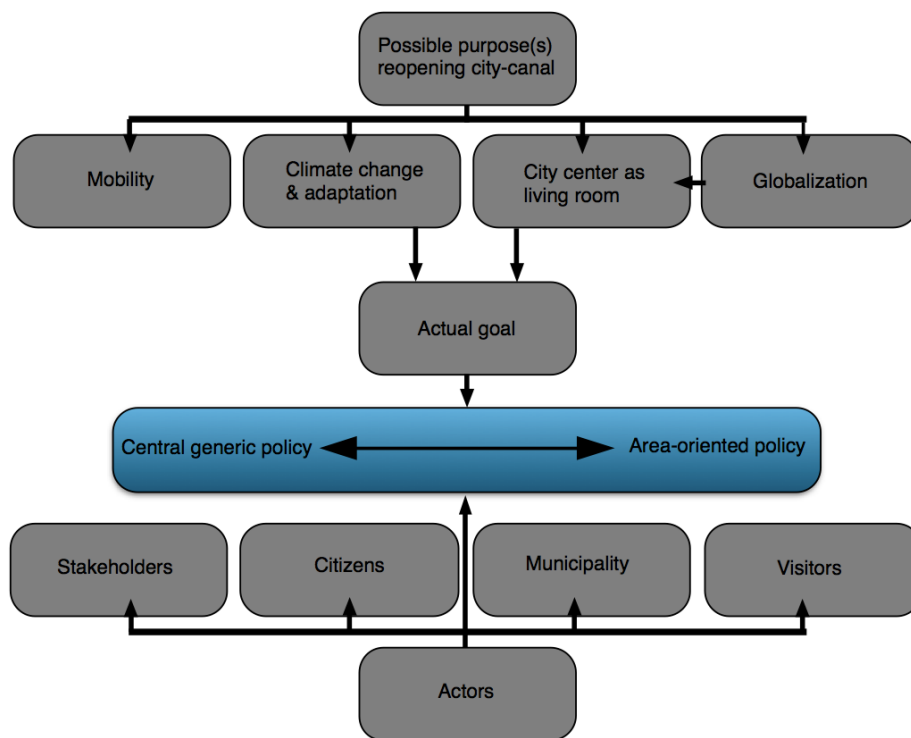


Figure 2
Conceptual Model

Expectations

Municipalities mainly aim to increase both identity and attractiveness of their city center with the reopening of a city-canal. However, a larger waterbody can function as climate change adaptation measure, intended or unintended. These purposes can be considered as multiple dependent goals since the reopening concerns different correlated goals. As experience and appreciation of the involved people is important as it concerns subjective goals like identity and attractiveness, therefore participation of those involved can be expected. Regarding the decision model, the issue of reopening city-canal can be placed somewhere in the red area (figure 1). One can expect that the issue of reopening city-canal asks for a more area-oriented approach. To be able to confirm this, the side of the municipality as well as citizens & stakeholders has to be investigated.

4. Methodology

In order to come up with an answer to the second and third sub-questions, a case study of three different cities in the Netherlands is conducted. Various types of qualitative research methods were executed. The following section explains which three cities have been chosen for this study and why. Subsequently a clarification is given about which qualitative research method has been used per sub-question. Furthermore, the choice for a method of data analysis will be explained. A reflection on the ethical considerations and data collecting process can be found in the appendices.

4.1 Three cities

The cities of Meppel, Drachten and Zaanstad have been selected as case study subjects. Three different data sources will increase the validity of the research material can be compared amongst the three. The cities of Meppel, Drachten and Zaanstad all recently (past 11 years) opened up a (piece of) canal in the city center at the location where a canal had previously been located. All stated in their plans to aimed at creating a more attractive city center improving the character of

the city. However, what makes them more interesting were the varying strategies of the municipalities to reach their aim.

4.2 Operationalization expert interview

To get insights into the answer to the third sub-question (*"What is the planners vision behind the decision to restore a city-canal?"*) an interview has been conducted with experts of the concerned municipalities. The interview guide can be found in the appendices. For this purpose a semi-structured interview approach was employed. In a semi-structured interview it is easier to ensure the interviewer stays on topic (Longhurst, 2010). In this case questions about the vision and ideas of the experts regarding restoring city-canal and questions about function of the restored city-canal were the primary focus. However, a semi-structured interview gives the participants and interviewer a chance of exploring the subject further than the questions allow (Longhurst, 2010), which seems appropriate regarding the openness of the research question.

The sample

Each municipality had been approached to conduct an in-depth interview. As there is not an abundance of experts in this field, at least one interview per municipality has been conducted. At the municipality of Meppel two experts were interviewed at the same time as they complemented each other's field. At the municipality of Smallerland (Drachten), an opportunity came by to interview three different experts in two different interviews. As two interviews increases the validity of the outcome, this opportunity was taken. At the municipality of Zaanstad, one expert on the subject was interviewed.

4.3 Operationalization survey

In order to get an answer to the fourth sub-question (*"How do experiencers of the city-canal perceive the reopened city-canal?"*) a survey amongst the experiencers of the restored city-canal was conducted. The aim of this sub-question is to investigate to which extent the vision of the municipality corresponds with the perception of experiencers. As a government institution is responsible to meet the public interest (Woltjer et al., 2014), the human perception and appreciation plays an important role in this part of the research. A survey with closed- and open-ended questions was composed that can be found in the appendices. The closed- and open-ended questions within the survey are focused on how the experiencers perceived the city-canal, but more important is the question why they experienced it in this way. Although surveys are predominantly seen as a quantitative research method, in this way it could be addressed as a qualitative way of doing research.

The sample

The target-group of the survey was limited to the inhabitants, entrepreneurs and shopkeepers located next to the city-canal. This made the population relatively small and made it easier to question a relative big part of the population. Regardless of the relative small population, conducting short interviews would have cost too much time. This was the reason to choose a partly open question survey instead of short interviews. Table 1 gives the number of participants per municipality. The length of the concerned restored city-canal is mentioned as this partly determines how many participants you can expect. Smallerland opened up over more than 1 kilometer of city-canal, but since this study concerns the city center, the last 250 meters were included in the sample.

Table 1

Municipality	Number of Participants	Length Restored Canal in meters
Meppel	7	85
Drachten	9	250
Zaandam	16	500

4.4 Data analysis

The interviews were coded as were the open questions of the surveys. The coding-system used can be found in the appendices. The closed questions were analyzed using descriptive statistics.

5. Results

In this part of the thesis the results per case study will be presented. A small description of the situation in the concerned city will be given. Both the municipality and experiencers of every city will be addressed and compared. Next the results will be linked to the theoretical framework. A comparison between the cities will be made at the end of this chapter.

5.1 Meppel

Meppel is a small city in the Province of Drenthe and reopened a piece of city-canal (85 meters), the 'Gasgracht', in the year 2008. Meppel is planning to reopen another piece of canal (140 meters) in the extension of the Gasgracht and currently is investigating the social and economical feasibility of this plan.

5.1.1 The municipality

At the municipality of Meppel, two experts in the field of spatial planning were interviewed about both the current situation and the possible future situation of Meppel's city-canals. The interview was conducted October 28th, 2019.

Decision making

The decision to reopen the Gasgracht in 2008 came from the coalition agreement of the city council. The biggest party in this council, Sterk Meppel, arose from the movement against the closing of the city-canals during the 20th century. After the reopening of the Gasgracht, this party has committed itself to start the investigation into the reopening of another piece of city-canal. This investigation will be done using a societal cost-benefit analysis (Maatschappelijke Kosten-Baten Analyse). Doing this the municipality entered into a discussion with the stakeholders during a walk-in evening on June 18th, 2019. This evening was primarily intended to ask them how they think the investigation should be structured and not their opinion about the plan. In addition, although there was a curiosity towards the effect of the already reopened city-canal, the effect was not investigated yet.

Vision & Function

The main reason to restore the city-canal was getting back a part of Meppel's history, a purely nostalgic consideration. During the interview with the two experts of the municipality, there was a lot of speculation of possible benefits and functions of the restored city-canal. The stimulation of the entrepreneurial climate, making the place attractive and attracting classic ships were amongst the few examples. However, the experts state that a specific function of or vision for the city-canal was not described in their plan. Thereby the experts state that it is not clear when the reopening creates an added value to the city center.

Future perspective

According to the expert of the municipality, it is a political wish to completely extend the city-canal and complete the canal belt. Maybe then the canal has a more clear function, bringing more excitement into the area where citizens and stakeholders could benefit from. However, there is no sight of a concrete plan to make this wish real. As the municipality experts say themselves, they still have a lot to investigate.

5.1.2 Citizens & stakeholders

Statistics

Table 2 shows the background of the respondents. Graph 1 shows how the respondents in general experience the reopening of the Gasgracht and how they would experience the reopening of another part of the city-canal. Although it is difficult to draw conclusions from such a small amount of respondents, graph 1 shows that 5 out of 7 respondents experience the reopened city-canal as negative. These are the same people that would, as probably expected, experience another reopening as negative.

General Experience

When analysing the open questions in the survey, a few things stand out. Almost all respondents seem to have an idea of how the reopened city-canal contributes to the city center of Meppel. Varying from the improvement of the character of Meppel till emphasizing the history of Meppel. Furthermore it is noted that the canal forms an extra contribution to the city center when something happens on or near the water. The presence of boats or events like the arrival of Sinterklaas are given as examples. How is it possible that most of the stakeholders experience the reopening as negative? For many the costs did not outweigh the benefits. Although the city-canal gives a nice view, the respondents complain about the smell the stagnant water has. Also entrepreneurs who have been there a long time missed out on revenue during the construction process. Even though events on or near the water were regarded as positive, they rarely occur which is considered as a pity.

5.1.3 Municipality vs. citizens & stakeholders

Five out of seven respondents did not know about the plans of the municipality regarding the reopening of the city-canal. However, during the interview there was already concluded that the municipality had no clear vision. How is it possible to convince your stakeholders of your plan without having a specific plan? According to multiple respondents it would help to know what the exact plan and vision of the municipality was in order to understand what the added value of the reopened city-canal is. The downside of this story is that the decision of the municipality was determined by the coalition agreement of the city council, suggested by the biggest party. The party that was chosen by the citizens of Meppel, probably not the citizens and stakeholders of the reopened city-canal.

5.2 Drachten

Drachten is a large village that forms the core of the municipality of Smallingerland. The canal that used to run right through the center of Drachten was part of the so called 'peat route'. The canal ran from the Frisian lakes to Groningen and was closed in 1966/67. In 2015 the canal named 'Drachtstervaart' was partially reopened, this time to the center of Drachten and no further.

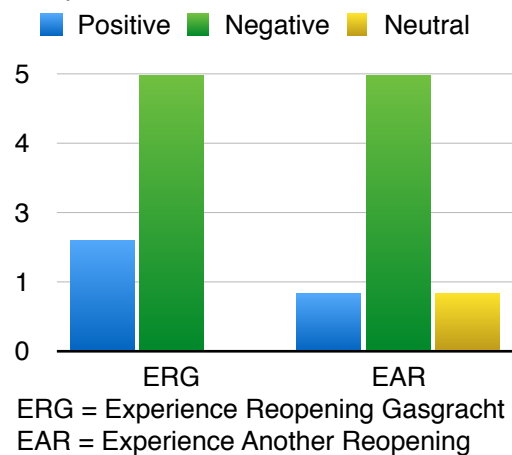
5.2.1 The municipality

At the municipality of Smallingerland (Drachten), three experts were interviewed during two different conversations. The first interview was on December 4, 2019 with an urban planner and a policy officer on the field of spatial planning, recreation & tourism. The second interview was held

Table 2

Local resident	1
Retailer	3
Entrepreneur	2
Catering industry	1

Graph 1



on December 9, 2019 with a senior project leader and policy advisor who was involved when the plan to reopen the Drachtstervaart was set up.

Decision making

The decision to reopen the Drachtstervaart dates back to the time when area-oriented working was not yet under discussion. The reopening was already mentioned around 1990 as something that was already decided to be done. The reopening was accompanied by a number of other activities such as the construction of the residential area 'Drachtstervaart', the remediation of a garbage dump, the drainage of Drachten's rainwater and sewer renovation. At the time there was a mixed response from the citizens and stakeholders, but it did not change the ambition to reopen the Drachtstervaart. According to the experts, generally there are many positive reactions to the reopening nowadays.

Vision & Function

The vision for the center of Drachten is to create an attractive, compact center with a unique identity. Reopening the Drachtstervaart fits this vision according to the municipality experts. They state that peat extraction and transport has played an important role in the origins of Drachten. By bringing back the Drachtstervaart, the municipality aims to bring back a characteristic aspect of Drachten to boost the identity of the place. Thereby, connecting the center with open water attracts watersport tourism. The Drachtstervaart contains a small harbor near the center. The urban planner states that water creates liveliness in a center and both interaction with the canal from the land and from the water is valuable. Terraces and cycle routes alongside the canal are examples of activities that attract people over land. Furthermore, the Drachtstervaart contains fixed berths for historic ships and in the winter light elements should improve the atmosphere of the center (figure title page).

Future perspective

There is an increase in activity around the Drachtstervaart, although it needs more time to expand as more can be achieved according to the experts. The municipality stimulates these activities, but entrepreneurs must respond to that by taking initiative. Thereby the municipality is working on a project to improve the waterfront of Drachten at the bigger waters connecting the Drachtstervaart, to make sure people are aware of the fact that they can visit Drachten's center by water. Next to this, plans to emphasize Drachten's history with 'skûtsjes' (Frisian historic sailing vessels) should strengthen the identity of the place. The Drachtstervaart will be used to display these ships and as a boarding place for tours with these ships.

5.2.2 The citizens & stakeholders

Statistics

Table 3 shows the background of the respondents. Graph 2 shows how the respondents in general experience the reopening of the Drachtstervaart. Also Drachten had a small number of respondents. Graph 2 shows how respondents experience the Drachtstervaart in general. In contrast to Meppel, the respondents of Drachten have more varying opinions.

Table 3

Local resident	1
Retailer	5
Entrepreneur	2
Catering industry	1

General experience

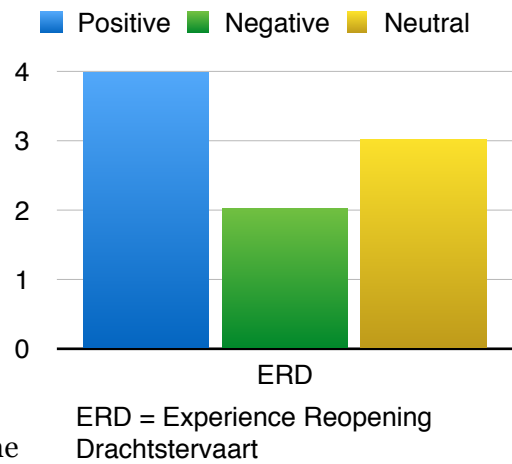
Analysing the open questions in the survey shows that the respondents know in what way the Drachtstervaart can be of value for Drachten. Differing from tourism to the connection with the identity and history of Drachten. In addition, the respondents experience that the canal contributes to the atmosphere of the center and street scene, especially with the illuminated skûtsjes in the winter or when the canal is used for an event. Reasons why some respondents are

not positive, is the fact that they are not convinced about the added value in contrast to the disadvantages they experienced. Examples are revenue loss during the construction process and the dump of bikes in the Drachtstervaart.

5.2.3 Municipality vs. citizens & stakeholders

Three out of nine respondents say they knew about the vision of the municipality regarding the Drachtstervaart. However, the remaining respondents also headed in the good direction when asked what the function of the Drachtstervaart is. When analyzing the answers of the survey, there is a slight sense of disappointment amongst the respondents. Even though respondents experience the contributions of the Drachtstervaart, they expected there would be more activity. On the other hand, the municipality stated that there will be more activity when entrepreneurs respond well to opportunities. According to the municipality, there used to be more communication between the stakeholders, which resulted in initiatives like placing decorative lightning and organizing small events. They added to this that there seems to be a slight setback in this partnership.

Graph 2



5.3 Zaanstad

Zaanstad is a bigger city in the Randstad and reopened a city-canal right through their main shopping district. The reopened city-canal is part of the big urban redevelopment project 'Inverdan'. The canal was restored in 2011 and is still called 'Gedempte Gracht' (Closed Canal in Dutch).

5.3.1 The municipality

On January 14, 2020 an interview with a program manager of the Municipality of Zaanstad was held. The expert was process manager during the Inverdan project and currently responsible for the development of the city center.

Decision making

The city council has decided to reopen the Gedempte Gracht as part of the Inverdan plan. An integral plan to redevelop the inner city of Zaanstad in response to a number of persistent social and economic problems concerning the city center. According to the municipality expert there was a lot of resistance regarding the reopening of the Gedempte Gracht, mainly concerning the amount of costs and construction activities. The municipality involved stakeholders and citizens by conducting different sessions where they were able to give the municipality advice about how the plan should be implemented. These recommendations were given to the designer of the final masterplan to be taken into account. A weekly consultation with stakeholders was held to ensure the construction process caused as little nuisance as possible. In addition, the municipality strictly supervised that the time schedule and budget of the masterplan were adhered to.

Vision & Function

The main purpose of reopening the Gedempte Gracht was to strengthen the relationship Zaanstad has with water and to make this relationship visible. Thereby the municipality expert stated that the addition of such a water element contributes to the positive atmosphere of the center. In addition, the importance of the Gedempte Gracht as water management element was mentioned by the expert. Concerning the increasing amount of impermeable surfaces, the function of the Gedempte Gracht as a water collecting element and its connection to the existing water structure is important.

Future perspective

According to the municipality expert, there is no future perspective when it comes to the Gedempte Gracht. The Canal is being used as expected and a change of function within the near future is not expected.

5.3.2 The citizens and stakeholders

Statistics

Table 4 shows the background of the respondents. Graph 3 shows that the respondents in general experience the reopening of the Gedempte Gracht as positive. In contrast to Meppel and Drachten, the citizens and stakeholders of Zaanstad are predominantly positive.

General Experience

When analyzing the survey answers, multiple reasons explaining the overall positive opinion of the respondents become clear. In general, almost everybody agreed the reopening of the city-canal improved the city center of Zaanstad. Also due to the city-canal, respondents experience the city center as charming and say it created a comfortable atmosphere with a lot of light. Thereby it brings back a piece of identity since water belongs to the characteristics of Zaanstad. Negative experiences are reduced to the shopkeepers at the end of the canal due to nuisance of bicycle parking.

5.3.3 Municipality vs. citizens & stakeholders

The decision to reopen the Gedempte Gracht was made by the municipality. Citizens and stakeholders had had no say in the decision, but they had the opportunity to give advice about the way the masterplan should be completed. However, the expert of the municipality mentioned there was no guarantee that all these advices will be considered. This makes the extent to which citizens and stakeholders actually participated doubtful. On the other hand, the survey showed that the citizens and stakeholders were mainly positive about the redevelopment of the Gedempte Gracht. Whether this positive opinion is a consequence of good cooperation between municipality and citizens & stakeholders remains questionable.

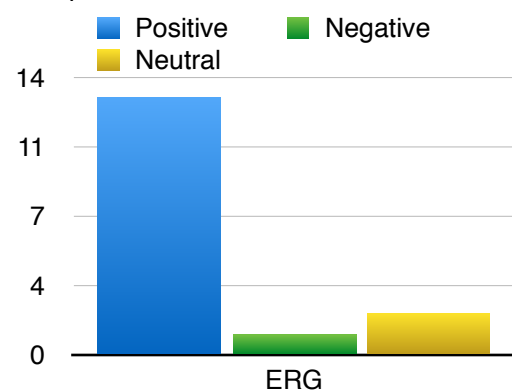
5.4 Comparison cities

When comparing the three cities, a few differences can be noted. First of all there is a difference in the size of the various projects. Whilst Meppel solely focusses on the city-canal in their plan, the initiative to restore the canal of Drachten came from multiple projects. The reopening of the Gedempte Gracht in Zaandam was part of an integral plan to redevelop the heart of the city. Their plans ensured that the municipalities of Zaandam and Drachten had a stronger argumentation for reopening a city-canal. The purpose and function of the Gasgracht in Meppel is less clear than Drachten and Zaandam. In addition, citizens and stakeholders of Meppel had specific complaints about the nuisance caused by odors of the Gasgracht, this was not the case in Drachten or Zaanstad. Perhaps that could be the reason why stakeholders of Drachten and Zaandam in general are more positive than stakeholders of Meppel. How is it possible that stakeholders of the Gedempte Gracht are more positive than stakeholders of the Drachtstervaart? It could be due to the fact that stakeholders of Zaandam noticed a lot of improvement whilst the stakeholders of

Table 4

Local resident	3
Retailer	11
Entrepreneur	1
Catering industry	1

Graph 3



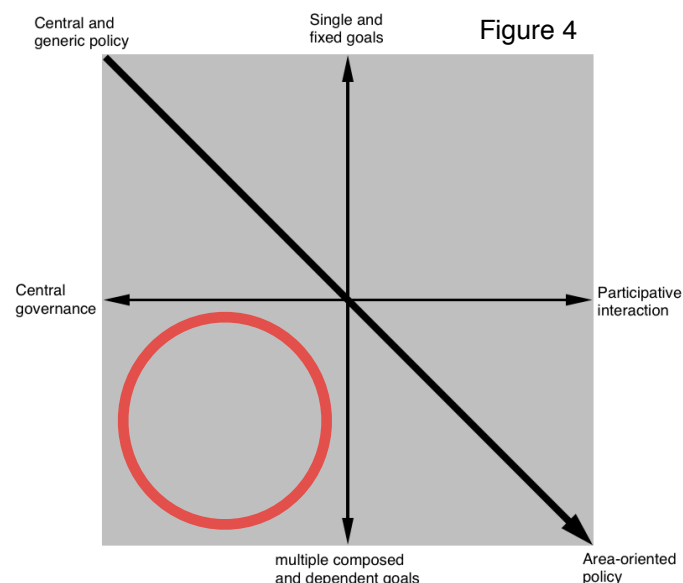
ERD = Experience Reopening
Gedempte gracht

Drachten expected more improvement. This difference could be explained by the time expired since the reopening or/and the extent to which changes are noticeable for stakeholders.

5.5 Connecting practice with theory

All three plans to reopen a city-canal seem to be area-oriented regarding their different interconnected objectives. Objectives that were strong related to the value people attach to it. With this type of objectives, participation of citizens and stakeholders during the decision making can be expected according to the decision model. There seemed to be little to no participation of the local residents and stakeholders during the decision to reopen a city-canal. Municipalities informed the local residents and stakeholders, but did not include their opinion in the decision making. In Zaanstad, the participation during the creation of the final plan was limited to advising the municipality. The extent to which these advices were used remains a question, at least the citizens and stakeholders had an appearance of participation. The case of Meppel remains remarkable since the decision of the municipality was determined by the coalition agreement of the city council, suggested by the biggest party, chosen by citizens. The decision seems top-down, but could be justified with the election by citizens of this party. It is possible that citizens were in favor of the reopening, but had no influence on how it would be done. This would make the implementation top-down with no further involvement of citizens and stakeholders.

Placing this decision making into the decision model of De Roo and Voogd (2014) gives us approximately the following image (figure 3). The plans entailed multiple objectives where personal values were important. However, there was little to no actual participation of citizens and stakeholders during the decision making. The different plans to reopen a city canal can be placed somewhere in the red circle. Meppel can be placed more to the top of the circle since their goals were less composed and dependent. Zaanstad and Drachten can be placed more towards the bottom regarding their objectives. In general, the position of this issue is distanced from the diagonal axis. According to De Roo and Voogd (2014) the optimality of a policy decision in terms of effectiveness and efficiency decreases when the distance to the diagonal axis increases.



6. Conclusion & discussion

The main arguments to reopen a city-canal fit well in the contemporary use of the city center when it comes to the upcoming interest in place identity and the use of the city center as living room. The objectives of the various city-canal reopening plans made that clear. Whether the actual effect is as expected, is doubtful in the case of Meppel. Citizens and stakeholders of Drachten also expected more, but their complaints appear to be temporary. Regarding the decision model there could be concluded that the policy is far from optimal as there is little to no participation (De Roo & Voogd, 2014). However, the unique case of Meppel tells another story.

In general there could be concluded that more involvement of local citizens and stakeholders could optimize the effect of reopening a city-canal. The manner in which this decision was achieved in these places is outdated. This could be explained by the fact that the plans for reopening a city-canal came from the time before area-oriented policy was a frequently used concept. However, the

actual implementation of the city-canals happened more recently, which leaves the question why there was no revision of the decision.

Recommendations

Meppel still has a chance to increase local resident and stakeholder participation for their next decision. Though it is highly doubtful if stakeholders will change their opinion after the reopening of the Gasgracht. Having a clear vision with strong arguments could help to convince citizens and stakeholder of a decision concerning restoring city-canals.

Drachten has such a vision and strong arguments, but the municipality has to make the benefits more visible. On the other hand, local residents and stakeholders must give the implementation more time to settle. In order to make the Drachtstervaart a success, collaboration between stakeholders and municipality is recommended.

Even though there was no participation regarding the decision making of the municipality of Zaanstad, the way they communicated with stakeholders during the process probably had a positive effect on how the plan was received.

7. References

- Boussaa, D. (2017). Urban Regeneration and the Search for Identity in Historic Cities. *Sustainability*, 10(2), 1-16
- Brockhoff, R.C., Koop, S.H.A. & Snel, K.A.W. (2019). Pluvial Flooding in Utrecht: On Its Way to a Flood-Proof City. *Water*, 11(7), 1501.
- Cammen, H. van der, Klerk, L. de, Dekker, G. & Witsen, P.P (2012). *The Selfmade Land*. Houten: Spectrum
- Castells, M. (2002). Local and Global: Cities in the Network Society. *Tijdschrift voor Economische en Sociale Geografie*, 93(5), 548-558.
- Cheshmehzangi, A. (2015). Urban Identity as a Global Phenomenon: Hybridity and Contextualization of Urban Identities in the Social Environment. *Journal of Human Behavior in the Social Environment*, 25(5), 391-406
- Engelsdorp Gastelaars, R. & Hamers, D. (2006). *De nieuwe stad*. Rotterdam: NAI Uitgevers.
- Gemeente Meppel (2008). *Binnenstadsvisie Meppel*. Meppel: Omniplan
- Gemeente Zaanstad (2003). *Masterplan Inverdan - 'Ontdek de verborgen wereld van Zaanstad'*. Zaanstad.
- Gianotten, H.J. (2010). De waardering van winkelcentra. *Real Estate Research Quarterly*. 9(1), 25-32
- Horlings, L.G. (2016). Connecting people to place: sustainable place-shaping practices as transformative power. *Current Opinion in Environmental Sustainability*, 20, 32-40
- IPCC (Intergovernmental Panel on Climate Change). *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part. A: Global and Sectoral Aspects*; Cambridge University Press: Cambridge, UK, 2014.
- Kim, D. and Lim, U. (2016). Urban Resilience in Climate Change Adaptation: A Conceptual Framework. *Sustainability*, 8(4), p.405.
- Kleerekoper, L., Van Esch, M., and Salcedo, T. B. (2011) How to make a city climate-proof, addressing the urban heat island effect. Delft: Resources, Conservation and Recycling, 64(2012), pp. 30-38.
- Lankao, P.R. and Qin, H., 2011. Conceptualizing urban vulnerability to global climate and environmental change. *Current opinion in environmental sustainability*, 3 (3), 142–149.
- Longhurst, R. (2010). Semi-structured Interviews and Focus Groups. In N. Clifford, S. French & G. Valentine (Red.), *Key Methods in Geography* (pp. 103-115). London: Sage
- Mees, H., Driessen, P., Runhaar, H. & Stamatelos, J. (2013). Who governs climate adaptation? Getting green roofs for stormwater retention off the ground. *Journal of Environmental Planning and Management*, 56(6), 802-825.
- PBL (2015). DE STAD: MAGNEET, ROLTRAP EN SPONS Bevolkingsontwikkelingen in stad en stadsgewest. Plan Bureau voor de Leefomgeving

-
- Pine, B.J. & Gilmore, J.H. (1998). Welcome to the Experience Economy. *Harvard business review*, 76(4), 97-105
- Platform 31 (2018) De Nieuwe Binnenstad: Toekomst van de binnenstad in een tijd van big data en circulaire economie. Den Haag: Platform31.
- Platform Stadsgracht Wageningen (2008) Herstel Water Elders. Geraadpleegd op 24-07-2019 via <https://sites.google.com/site/stadsgracht/herstel-grachten-elders-3>. Wageningen
- Rli (2014), Toekomst van de stad, Den Haag: Raad voor de leefomgeving en infrastructuur.
- Roo, G. de & Voogd, H. (2014). *Abstracties van Planning*. Groningen: Coöperatie In Planning UA
- Rooijen, J. van (1995). De drooglegging van Amsterdam. *Geografie van Stad en Platteland*. <https://www.theobakker.net/pdf/drooglegging.pdf>
- Rotmans, J. & Asselt, M.B.A. van (2000). Towards an Integrated Approach for Sustainable City Planning. *Journal of Multi-Criteria Decision Analysis*, 9, 110-124
- Vanclay, F., Higgings, M. & Blackshaw, A. (2008). Making sense of place. *National Museum of Australia Press*. 3-11
- Verlaan, T. (2016). De toekomst van de Nederlandse binnenstad 1960-1978.
- Ward, K., Lauf, S., Kleinschmit, B. & Endlicher, W. (2016). Heat waves and urban heat islands in Europe: A review of relevant drivers. *Science of The Total Environment*, 569-570, 527-539.
- Weltevreden, J. & Rietbergen, T. van (2009), The implications of e-shopping for in-store shopping at various shopping locations in the Netherlands, *Environment & Planning*, 36, 279-299.
- Wiering, M. & Immink, I. (2006). When Water Management Meets Spatial Planning: A Policy-Arrangements Perspective. *Environment and Planning C: Government and Policy*, 24(3), 423-438.
- Woltjer, J., Dijk, T. and Voogd, H. (2014). *Facetten van de planologie*. Groningen: Coöperatie In Planning U.A., 8-9.
- Zhou, Q. A Review of Sustainable Urban Drainage Systems Considering the Climate Change and Urbanization Impacts. *Water* 2014, 6, 976–992.

8. Appendices

8.1 Interview Guide (English version below)

Deel 1: Introductie

- Formaliteiten over opname en anonimiteit
- Uitleg onderzoek

Deel 2: Betrokkenen

- *Hoe werd de aanleiding om de gracht te openen opgevat bij betrokkenen zoals omwonenden*
 - *Hoe is daar onderzoek naar gedaan?*

Deel 3: Functie

- Wordt de functie van de gracht die jullie voorogen hadden gebruikt naar verwachting?
- Zijn er nog andere functies aan het licht gekomen?

Deel 4: Visie en toekomst perspectief

- Hoe draagt specifiek het openen van een gracht bij aan het de visie die jullie hebben voor de stad
- Waarom hebben jullie gekozen voor een nostalgische interventie in de binnenstad ten tijde van meer smart city ontwikkelingen?
- Zien jullie het gebruik van de gracht in de toekomst nog veranderen, zo ja, hoe? zo nee? waarom niet?

Deel 5: Afsluiting

- Heeft u nog iets toe te voegen aan dit interview?
- Kan ik u later nog benaderen mocht er iets onduidelijk zijn?

English

Part 1: Introduction

- Formalities concerning recording and anonymity
- Explanation research

Part 2: Involvement citizens & stakeholders

- How was the reason for opening the canal perceived by stakeholders such as local residents
 - How has research to this subject been done?

Part 3: Function

- Is the function of the canal being used as expected?
 - Did other/new functions become clear?

Part 4: Vision and future perspective

- How does opening a canal specifically contribute to the vision you have for the city
- Why did you chose for a nostalgic intervention in the city center at the time of more smart city developments?
- Do you see any change of use of the canal in the future, and if so, how? if not? why not?

Part 5: Closure

- Do you have anything to add to this interview?
- Can I contact you if there is anything unclear or when I have another question?

8.2 Survey

Onderzoek heropenen grachten binnensteden

Omcirkel wat van toepassing is

Ik ben een omwonende/detailhandelaar/horeca-ondernemer/ondernemer

I am a local resident / retailer / horeca-entrepreneur / entrepreneur

Beleeft u de heropende Gracht als positief/neutral/negatief?

Do you experience the reopened city-canal as positive / neutral / negative?

Heeft u voordelen/nadelen ondervonden aan de heropende Gracht?

Did you experience advantages / disadvantages to the reopened city-canal?

Is volgens u de heropening van de Gracht een verbetering geweest voor de binnenstad/
stadscentrum? ja/nee/neutral

Has the reopening of the city-canal been an improvement to the city-center according to you?

Waarom?

Why?

Was/bent u bekend met de visie die de gemeente voor ogen had bij het heropenen van de Gracht?
ja/nee

Are/were you familiar with the vision of the municipality regarding the reopening of the city-canal?

yes/no

Wat voor functie heeft de Gracht volgens u?

What functions has the city-canal according to you?

Wat voor functie heeft de Gracht voor u?

What function has the city-canal for you?

Wat is uw algemene mening over het heropenen van de Gracht?

What is your general opinion about reopening the city-canal?

Zouden er op andere plekken (al dan niet in deze gemeente) ook grachten moeten worden heropend volgens u? ja/nee

In your opinion, should other places (whether or not in this municipality) also reopen city-canal? yes/no

9.3 Coding-system

Themes	Examples used terms
Communication	Advice, Resistance, Inform,
Function & Vision	Watersystem, Attractiveness, Identity, Character, Tourism, Boats
Future perspective	Change, Expansion, Extension

9.4 Reflection on ethical considerations and data collecting process

As this research is based on primary data, it is important to take possible consequences of the way the data is collected and used into account. The main concern was to make sure the privacy of the participants was and is respected. Therefore every interviewee was asked for permission to record and use the information that was given during the interview. In addition, the participants from both the interviews and the surveys have been anonymized. The collected data will not be given to other parties and will solely be used for this research.

A few obstacles were encountered during the data collecting process. While conducting the surveys in the city of Meppel, some participants got a little tense when they were asked about the reopening of their canal. This made it harder to persuade them to participate. An other obstacle encountered in Meppel and Drachten was the fact that there were a few establishments closed during daytime. These establishments did not have the chance to participate. In Zaanstad the city-canal is mainly surrounded by stores, however, a lot of these stores are part of a big franchise. This made it hard to get in contact with a store-owner or manager. These stores had a lot of young employees who have not been there that long and most of the time did not have an opinion and did not want to participate.