# IMPROVING THE QUALITY OF STAY:
# A TRANSITION TOWARDS A CAR-FREE CITY

*A qualitative case study of the factors driving the local transition towards a new car-free area in two cities in the Netherlands*

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# ABSTRACT

In light of the increased attention for the quality of living, Dutch cities have high ambitions to reduce car-dependency. However, car-free planning practices move beyond top-down policy implementation, as they prove to be complex and hampered by lock-in mechanisms. Hence, an understanding of the driving factors underlying the wider transition is needed in order to strengthen the feasibility of policy-makers to direct, guide and influence change. This thesis explores what factors drive the transition towards a car-free city regime in Dutch cities, with the aim to better understand how to structure the transition through searching for common factors. The empirical evidence for these cases is collected through semi-structured interviews, an unstructured expert-interview and a document analysis. By using the transition theory and three factors, people, planning and policy (3P's), it becomes clear in the results that these three factors appear to play a role in driving the transition. However, it is important to note that in practice factors are far more interwoven, as the process towards a car-free city is messy and complex. Nevertheless, the 3P's as a theoretical simplification, still help to better understand the transition towards car-free cities. Additional case studies are recommended to investigate whether the adaptations of the theory discussed in this thesis are grounded in a different context.

# TABLE OF CONTENTS

# List of tables

# List of figures

# 1. INTRODUCTION

## 1.1 Background and problem statement

Nowadays cities are facing societal challenges, such as rapid urbanisation and climate change. In line with these developments the perspectives on city centres are changing: no longer a city centre from the perspective of car-mobility, but from the quality of stay (Banister, 2005). In this light, the rationale of establishing car-free cities is more pressing than ever (Nieuwenhuijsen et al., 2019). First of all, there is an urgent need for low-carbon transport in order to reduce pollution and create healthier environments. Furthermore, moving away from a car-dominant city centre would require rethinking the mobility needs of individuals and would, therefore, contribute to a more accessible and inclusive city. In addition, the reduction in the number of cars in the city contributes to opportunities for additional (green) public space. This in place contributes to more sustainable, liveable and healthy cities (Nieuwenhuijsen & Khreis, 2016).

Despite many Dutch cities developing policies to transform their city centres, car-free planning practices prove to be rather complex and face socio-technical challenges (Nieuwenhuijsen et al., 2019). This is because the attempts by local authorities are often hampered by lock-in mechanisms related to car-dependency, for example due to sunk investments in existing transport systems, patterns of behaviour, vested interests, subsidies and regulations (Hrelja et al., 2015; Geels, 2011). Hence, car-free planning practices require more than incremental technological or policy changes, it requires a substantive transition (Geels, 2010; Nykvist & Whitmarsh, 2008). Taking the complexity of this transition and the multiple driving factors at play, an attempt is needed to structure such a complex process and identify common patterns and mechanisms as a point of departure for policy makers (Loorbach, 2010). This is especially relevant because, nowadays policy ambitions concerning sustainable mobility, are not always translated into sufficient action as there is a lack of a valid framework to guide the implementation (Hrelja et al., 2015; Loorbach, 2007). Hence, an understanding of the driving factors of the transition contributes to the ability of policy-makers to direct and influence it and vice versa, and moreover, could accelerate these changes into action (Loorbach, 2007). However, the factors that underlie the transition away from the existing car-dominant regime in cities are not understood (Nieuwenhuijsen et al., 2019). Hence, more research on the factors driving the transition towards a car-free city centre is needed (Nieuwenhuijsen & Khreis, 2016).

## 1.2 Car-free cities from a transition theory perspective

In the literature, several factors influencing the implementation of measures for car-free areas are identified. Doheim et al. (2020) present three main factors: "conscious planning and sufficient and robust infrastructure, efficient and resilient policies, and enlightened and cooperative community members" (p. 258) also described as Planning, Policies and People (3 P's).  However, there are some limitations on the ability of these factors to grasp the complexity and dynamics that are at play considering car-free planning practices. The 3 p's mainly derive from a top-down perspective, with the aim to guide policy makers with the implementation of car-free measures. As a point of criticism, Banister (2005) mentions the "policy behaviour gap" (p. 54), which refutes the assumption that top-down implementation of car free measures will automatically result in a change of the public's behaviour. This is strengthened by Geels (2010) arguing that actors are knowledgeable and heterogeneous agents, who do not passively behave according to the rules and measures imposed on them. Hence, this 'gap' illustrates a hurdle to the transformation of a new car-free city centre, which requires not only a change in rules and regulations, but also of individual norms and values. Besides regulations, a change in social practices and cultural acceptance is key to a new car-free city centre regime (Geels and Kemp, 2000). In short, although the literature discusses different factors contributing to the implementation of car-free cities by policy-makers, the way in which these factors play a role in the wider transition towards a car-free city is not extensively researched. In this line of thought, this research uses the transition theory (i.e. Geels and Kemp, 2000; van der Brugge et al., 2005; Loorbach et al., 2000) in addition to the 3 P's by Doheim et al. (2020).  This perspective allows a wider analysis of factors over time in changing the existing regime.

To conclude, the car-free city concept and the 3 p's,  embedded in the transition theory, will help form the theoretical structure of this thesis. The theories are used as an analytical lens on the case with the aim to explore dynamics and important factors underlying the transition towards a new car-free regime over time.

## 1. 3 Objectives and research questions

Despite emerging policies and the growing awareness of the benefits of the car-free city, insight in how to make this transition remains scarce (Nieuwenhuijsen et al., 2019). Hence, with the car-free city as a potential solution to future societal challenges for cities, it is important to better understand the transition process (Loorbach, 2007; Nieuwenhuijsen & Khreis, 2016). This thesis will therefore make an attempt to structure the complex processes underlying the transitions towards a car-free city centre. This leads to the following main question:

*'What driving factors underlie the transition towards a car-free city regime in Dutch cities?'*

The aim of this thesis is to give insight into important driving factors underlying the transition towards a new car-free regime in two Dutch cities. Moreover, by using common elements as a point of departure for analysis, this thesis will try to solve the unclarity surrounding the chaotic, unpredictable and uncertain patterns of change within city centres. Subsequently, by discussing how the factors in practice in two Dutch cities compare with the literature, this thesis aims to contribute to current knowledge gaps concerning the local transition towards a new car-free city regime. In this regard, the findings can contribute to help local decision-makers and policy-makers in the Netherlands to understand the car-free city as a local transition, and, hence, this research aims to contribute to future policy, practices and theory in Dutch cities.

In order to answer the main question, the first step is to examine what the car-free city concept entails and how the transition theory provides insight into the development of a car-free city. The first theoretical sub-question is therefore:

*'What concepts from transition theory help to describe the change process towards a car-free city?'*

In addition, the theoretical framework provides information on three main factors, people, planning, and policy, as identified in the literature (Doheim et al., 2020). It is important to investigate how these factors can influence the transition. This leads to the following theoretical sub-question:

- *'How do different people within government-, market- and civil society- based actor groups influence the transition towards a new car-free city regime?*
- *'What is the influence of strategic planning in the transition towards a car-free city?'*
- *'What is the role of a window of opportunity in the transition towards a car-free city? '*

On the basis of these theoretical questions, a conceptual model is formed (see figure 3). Accordingly, this model will be used in the empirical part of this research as an analytical lens on two cases of cities in the Netherlands: Leeuwarden and Haarlem. First, in the empirical part, it is researched how the three factors within the conceptual model play a role in the cases. The first empirical sub-questions are therefore:

*'What driving factors underlie the local transition towards a new car-free area in the cases?'*

Subsequently, in order to be able to make a statement about the influence of the different factors on the transition, it is examined to what degree a new regime has been established in the cases. The second empirical sub-question that follows from this is:

*'To what extent did the factors together contribute to a new regime in the cases?'*

## 1.4 Societal and scientific relevance

*Societal relevance*
Instead of providing a practical guide on what measures should be implemented to realise a car-free city, it might be valuable for policy-makers to provide a better understanding of the wider transition process (Loorbach, 2010). Hence, by using the transition theory this research helps to unravel complex patterns contributing to a changing regime within a societal context. This knowledge can help local policy-makers in selecting an approach towards change within the context of their city.  Hence, the results are beneficial for policymakers in order to indirectly influence, redirect and guide actions, within a local transition towards a car-free city, with the attempt to enhance their cities (Loorbach, 2007). In turn, this leads to benefits for residents, visitors and for market parties within these cities (Nieuwenhuijsen et al., 2019*)*.

*Scientific relevance*
The scientific relevance is threefold. First, although there are a number of case studies on the car-free city concept using international examples (i.e. Doheim et al., 2020; Nieuwenhuiijsen et al., 2019), Dutch case studies are limited.  Additional case studies in the Netherlands might be relevant considering the western decentralised planning context, in which local authorities in the Netherlands have a high degree of authority and strong political power to initiate and implement local transitions (Hrelja et al., 2015; Rijksoverheid, n.d.). Hence, a case study of the car-free area in a city in the Netherlands might contribute to theoretical knowledge on car-free cities in the Dutch planning context.

Secondly, Geels (2011) points out that there is a need for additional theoretical insights in transitions to understand how these emerge, replace and transform existing systems. In this regard, additional case studies on transitions are needed, because each transition differs according to the societal context in which they take place (Geels, 2018). Flyvbjerg (2006) builds on this, stating that context dependent knowledge through conducting a case study can be part of knowledge accumulation in a given field. Hence, this research on a local transition of car-free cities of two cases in the Netherlands contributes to scientific knowledge on transitions.

Thirdly, in the literature different mechanisms and factors potentially driving the transition are researched. For example, Kingdon (1995) researched the role of policy in the transition, Hrelja et al. (2015) and Albrechts (2010) look at strategic planning, while Loorbach (2007) researched the importance of actors in the transition. This research is unique because it enables combining these different theories on potential mechanisms and factors, within the model of the 3P's by Doheim et al (2020) and transition theory, while researching their influence on the transition. This is scientifically relevant, because the combination of the 3P theory with the transition theory is rather innovative, and, hence, contributes to the theoretically enrichment of the theory on transition by adding insights from other theories (Geels, 2011). In short, this research not only contributes to the development of theories about transitions, but also tests the existing theory within the context of cases.

## 1.5 Outline of the thesis

This thesis is structured as follows. Chapter 2 will review theory concerning the car-free city concept in relation to the key concepts of the transition theory in section 2.1. Subsequently, section 2.2 will present theory on factors potentially influencing the transition through following the structure of people, planning and policy. Chapter 3 contains the methods of data collection, a brief historical introduction of the cases, the method of data analysis, research ethics and quality criteria. Thereafter, in Chapter 4, the results of the research conducted are presented. The chapter finalises with reflecting upon the main findings in the light of the existing theory. The last chapter outlines the key conclusions in light of the main research question, a critical reflection including practical and theoretical implications and recommendations for future research.

# 2. THEORETICAL FRAMEWORK

## 2.1 The car-free city concept

Some early agenda setting of the car-free city concept in the academic debate can be observed. For example, J.H. Crawford (1996) presented the concept during a conference in Lyon in 1997 as an opposite trend to the "automobile city", characterised by low density and long commuting distances (Wright, 2005). Also, Newman and Kenworthy (1999, 2015) preliminary explored the car-free city concept, while highlighting problems with car-dependent cities and the process of changing such patterns.

Although the definition of a car-free city seems clear-cut, the way in which the concept 'car-free city' is interpreted and used in both literature and practice varies widely. For example, Doheim et al. (2020) use a more broader description by applying the term 'car-free' to overall efforts of local authorities to increase their cities through reducing car dependency and encouraging the use of alternative sustainable transport modes. Others, provide a more practical description of the concept, such as Wright (2005) presenting a spectrum with an overview of different forms, scales and interpretations of the car-free city in practice (see figure 1). The spectrum gives a clear overview with on the left side of the spectrum the 'lite' measures' and on the right side more impactful measures. As most definitions in the literature, the spectrum of Wright (2005), is focused on the following idea of a car-free city: to reduce the need and use of (private) motorised vehicles, which will involve numerous measures and interventions within the living environment. However, these definitions do not specifically take notice of any 'soft changes' that are required alongside the "hard" measures. Loo (2018) argues that numerous "soft" changes are necessary, because attitudes and beliefs of both decision-makers as society in general are currently still mainly set on the use of cars due to path dependency.



| Car-lite measures | Temporary car-free measures | Permanent local measures | Permanent large-scale measures |
|---|---|---|---|

Traffic calming — Shared space (also known as post-traffic calming) — Single car-free day — Car-free season — Permanent car-free street — Car-free housing development — Carfree district — Carfree city
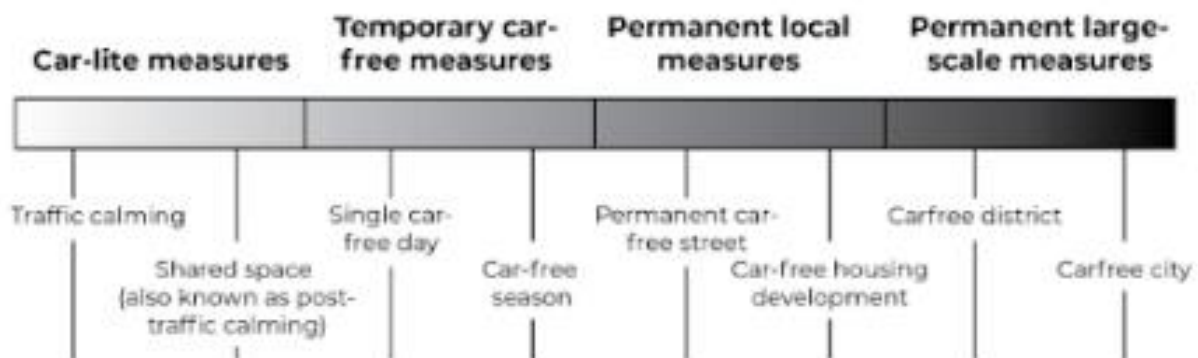
*Figure 1: A car-free spectrum (adapted from Wright, 2005)*

More practical definitions (i.e. Wright, 2005) may bring insights in the several forms and interpretations of the car-free concept in practice. However, a more theoretical and general approach in an attempt to overlap the different forms, scales and interpretations of a car-free city is most suitable in this research. Hence, the car-free city concept as used in this research will be embedded in the transition theory, in order to take into account the different interpretations of both academics and policy-makers into the overarching concept of a regime (Geels, 2010), as discussed in the following subsection.

### 2.1.1 A new regime

Geels (2010) argues that in order to change the status quo, such as that of existing car-dominant city centres, the current socio-technical regime needs to change. However, it is important to stress that there is not, nor is desired, one single correct and coherent approach to the socio-technical regime. Berkhout et al. (2004) refer to regimes as a rather ambiguous concept which is hard to operationalise, because the concept could be applied to multiple levels within a system. What might seem as a regime shift at one level, might be a gradual change compared to another level. Also Genus and Coles (2008) emphasise the lack of  clear operationalisation and specification of the concept, and, hence, careful empirical application of the concept. As a response, Geels (2011) describe how the scope of the empirical topic is leading in how to define the regime. If the object of analysis is clear, the concept could help in analysing the dynamics reproducing the regime. This includes both the analysis of more tangible and measurable elements (i.e. infrastructure or rules and regulations) and the more underlying mechanisms (i.e. behaviour, norms and beliefs).

As such the concept 'regime' in this research, will focus on changing the car dominant regime in city centres as the main scope. Within this scope, first of all, formal embedded rules and regulations and infrastructure in the city are included (i.e. parking restrictions, physical car-free measures).  Secondly, includes changes in informal institutions, such as attitudes and beliefs (i.e. moving away from the car as status symbol). In order to better understand the changes within the regime, the next section discusses how to look at the wider transition towards a new car-free city regime.

### 2.1.1 Towards a new regime: the car-free city as a local transition

The process towards a car-free city can be considered as a local transition, because it is a long-term process in which 'radical' change takes place. Furthermore, it requires interaction between multiple actors, such as  firms, user groups and policy makers (Geels, 2018). Lastly, a transition can be described as the shift between two dynamic equilibria (Van der Brugge et al., 2005). This shift between equilibria can be described as non-linear with many discontinuities involved, due to for example external pressures on the system (Loorbach, 2010).  The latter, in combination with the other characteristics showing the

complexity and multifaceted nature of a transition, leads to a plurality of approaches in the literature about how to best analyse the encompassing notion of this dynamic process (Turnheim et al., 2015).

Van der Brugge et al. (2005) use the metaphorical illustration of cogwheels to describe the complex and dynamic processes within a transition. The cogwheels (i.e. illustrating economic, social, geographical and political factors) engage, reinforce each other or interlock again, resulting in a new equilibrium as compared to the previous one. Rotmans et al. (2000) take a different view on transitions and look at the speed of change. Accordingly, they distinguish four phases in the transition process, as displayed in figure 2. These phases are: (1.) a pre-development phase, where no visible change takes place (2) A take-off phase in which transition dynamics start to influence and reinforce each other, indicating the start in changing the established system. Subsequently, in the acceleration phase (3) visible institutional, socio-cultural, economic changes are visible. Finally, as a result there is the (4) stabilisation phase. A new regime is established, including a shift in infrastructure, rules and regulations, behaviour, attitudes and beliefs (Geels, 2018).

As a criticism, Loorbach (2010) argues how the s-shaped curve model by Rotmans et al. (2000) has been represented as a rather uniform model in which the four different phases following up on each other, while there is a possibility that cities could move in both directions across the phases or even, jump or straddle phases due to unexpected events or circumstances. In this sense, taking the unpredictability of transition pathways and speed of change, the model seems too simplistic (Loorbach, 2010). Despite the limitations, this model is still useful in providing structure within the non-linearity of a transition, which might help to analyse the expected change under certain circumstances (van der Brugge et al., 2005). Herewith, the aim is not to look one on one per phase which factors played a role, but more to better understand the overall underlying transition process towards a car-free city. In this sense, the different phases by Rotmans et al. (2000) will function as a framework to reflect on the degree to which changes have occurred towards a car-free city and led to a new established regime.
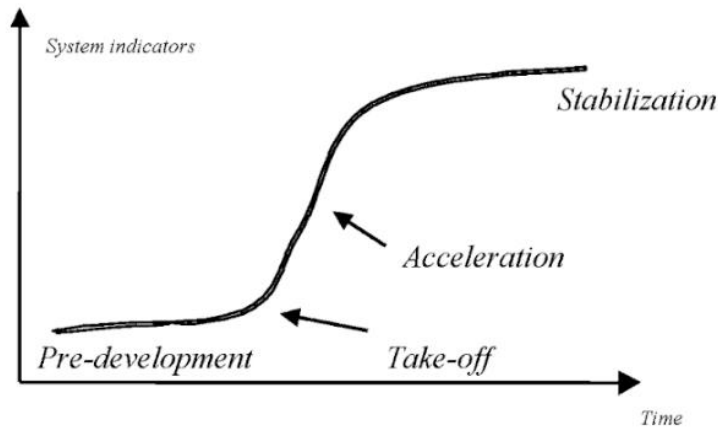
*Figure 2: Overview of four different phases of a transition (adapted from Rotmans et al., 2000)*

## 2.2    Factors underlying the car-free city centre transition

As mentioned in the previous section, the process towards a car-free city or area is a long-term process in which 'radical' change takes place (Geels, 2018). Subsequently, multiple attempts in the literature have been devoted to an analysis of potential 'causes' or drivers of transitions (i.e. Nykvist, B. and Whitmarsh, 2008; Seyfang et al., 2010). However, Geels (2018) states that it is important to pay attention to the wider dynamics causing change, including multiple dimensions and different levels in established systems, also mentioned as the multi-level perspective. Furthermore, this perspective (including landscape-, regime-,niche- level) shows how each level does not only influence the transition towards a car free city independently, instead, they interact with each other with a repercussion in the transition as result. As this hints that there is no single driver of a car-free city transition, new approaches in addition to existing theories (i.e. the multi-level perspective) could potentially contribute to a deeper understanding of  these underlying transition processes (Turnheim et al., 2015).

In this regard, Doheim et al. (2020) mention three main factors: people, planning and policy (3p's) that contribute to the successful practice of transforming into a car-free city. These wider dimensions enable to contribute to a deeper understanding of the local transition, instead of focussing on a causal relationship between a single driver and the transition (Geels, 2011). However, it is important to note that the 3P's by Doheim et al. (2020) are mainly focused on the successful implementation of car-free measures. In other words, Doheim et al. (2020) focus on changing the status quo from the perspective of top-down decision-makers and/ or policy-makers, while ignoring wider processes and dynamics that might underlie the transition. This is similar to most literature, which focuses solely on the implementation of car-free measures from the perspective of policy makers (e.g. Nieuwenhuijsen et al., 2019). Herewith, often a top-down approach is used:

looking at how implementation can best be achieved and imposed by decision-makers in order to achieve a specific political goal (e.g. legislation) with as little as possible resistance (Winter, 2012).

The 3p's by Doheim et al. (2020) will be used as the main structure of this research, as it allows a wide analysis according to three relevant dimensions (people, planning, policy) for policy-makers to take into account concerning the transition towards a car-free city. However, taking the critique into account, of the ignorance of wider processes and dynamics within a transition, different definitions for 'people, planning, policy' are used. First of all, for the factor people, Doheim et al. (2020) focus solely on civil society and community members. Instead, an institutional based typology by Loorbach (2007) is more suitable, because this enables a wider and more complete analysis of how different actors could influence the transition towards a car-free city. Secondly, concerning the factor 'planning', there is a focus on its strategic and reflexive potential, which could contribute to the development of alternative pathways (Albrechts, 2010). Furthermore, this research elaborates on the factor 'policy', by linking it to the concept of a 'window of opportunity' (Kingdon, 1995). This is because Geels (2002) recognizes the importance of the setting and timing for policy change, also identified as a window of opportunity.

The following sections and subsections will discuss the three factors: people, planning and policy. In each section, first, the influence of these factors on transitions will be explained. Subsequently, the factors are further conceptualised, which will help lead the empirical analysis of a transition towards a car-free city.

## 2.2.1 Changing the existing regime: people

This section begins with an explanation of the potential of the factor 'people' in the transition in general. Subsequently, a typology is presented which can help lead the empirical analysis. Lastly, the role and importance of dependencies and linkages between these actor groups in the transition is discussed.

### 2.2.1.1 The role of people in the transition

It is important to note that transition dynamics are not mechanical, but socially constructed and enacted (van der Brugge et al., 2005). This is because different people and groups can be part of the transition, who each have their own perceptions, interests and resources but are also linked together to maintain and reproduce the regime (Geels and Kemp, 2000). Moreover, people interact with each other on different levels, while navigating a transition through searching, learning and participating in power struggles, controversies and debates (Geels, 2018). This shows the importance of including 'people' as a factor which can influence the transition towards a car-free city.

### 2.2.1.2 A typology

Fischer and Newig (2016) give the following definition of people in the transition: *"individual and collective actors as participants in purposive actions in an attempt to prevent or generate change"* (p. 2). Following this definition, Loorbach (2010) argues how in a transition, changes are often caused by individuals in response to certain societal conditions. Within the literature, a plurality of names has been given to those individuals, seeking and causing change, such as: boundary spanners, visionary leaders, change agents, policy advocates (Huitema et al., 2011). However, Fischer and Newig (2016) argue that although individuals and people might support and foster change, there is no proof for the need of an individual functioning as a key factor to enable a transition. Huitema et al. (2011) elaborate on this nuance, by stating that although individuals contribute to change in the transitions, they mainly do so in collectives in which various members can have various tasks and roles. Informed by this, Fischer and Newig (2016) argue that in order to consider the roles (functions, dependencies, etc.) of actors within the transition a comprehensive actor typology is needed. This might help to unravel the complex interaction between individuals, collectives, within a societal context, in influencing the existing regime (Loorbach, 2010).

Accordingly, this research uses an institutional based typology, proposed by Loorbach (2007), who uses the distinction of government-, private sector- and civil society- based actors (see table 1 for an overview of the actors, their functions, dependencies and influence on transitions). However, it is important to note that, although actors can be categorised, their role in the transition can change over the course of time (Geels & Kemp, 2000). Still, this typology is useful as it focuses on the perspective of governing transitions, which is described as public decision-making including, but also beyond, the state (i.e. towards a car-free city) (Loorbach, 2007). Hence, this perspective enables an analysis of how different actors influence and drive the transition.

*Government*
Loorbach (2007) argues that government actors could have an enabling role for bottom-up innovations and initiatives, for example through creating the right institutional setting and providing financial resources. Nevertheless, Fischer and Newig (2016) argue that this enabling role, also mentioned as 'niche manager', might be complicated and even constrained by several interdependencies on other factors and resources. For example, some government actors (i.e. the municipal council) depend on the wider public for re-election and therefore *"seem to follow rather than lead public opinion"* (p. 7). Other dependencies of this actor group, in light of their re-election concern job availability, tax incomes, economic growth, and new technologies. As a result of these dependencies, these actors might for example favour any market wishes over bottom-up innovations or initiatives, even when public good is at stake (Meadowcroft, 2009).

Other than the municipal council, Fischer and Newig (2016, p. 8) identify, but are not limited to, the following roles within government actors: "*policy makers, authorities, administrators and decision makers*".

### Market

With market-based actors Fischer and Newig (2016) refer to firms, companies and corporations. Herewith, they make a distinction between supporting and opposing actors. Considering the latter, market actors who are connected to established technologies are reluctant towards new developments and alternatives that could interfere with their business (i.e. the car manufacturers), and, hence, have a constraining role within the transition, such as for example car manufacturers (Meadowcroft, 2009; Doheim et al., 2020). However, considering the objective of this research to identify driving factors in the transition, there is a main focus on supporting actors. In this regard, market actors (i.e. innovators) contribute to the new development of competitive products and services. However, as a nuance to the role of market innovators in the transition, Fischer and Newig (2016, p. 8) found that the influence of these market actor might be constrained, due to "*overarching structures of markets, patterns of final consumer demand, institutional and regulatory systems and inadequate infrastructures for change*". If market actors can overcome these barrier, market innovations could, for example, contribute to transition towards car-free cities, by changing existing car-dependent travel behaviour towards more sustainable alternatives (i.e. e-bikes, e-scooters, car sharing networks or other market-driven initiatives) (Doheim et al., 2020).

### Civil society

Bottom-up actors have the potential to pressure the existing regime (Geels, 2010; Meadowcroft, 2009. In this regard, Fischer and Newig (2016) describe the function of civil society actors in transitions based on Seyfang et al., (2010), these are: "*(1) using lobbying and protests to unsettle the regime, and (2) pushing and encouraging regime actors to seek new solutions from niches*" (p. 8). In other words, bottom-up initiatives can put pressure or shed light on current beliefs, practices of more top-down focused actors (van der Brugge et al., 2005). However, it is important to note that initiatives by civil society actors need to be linked and institutionalised on higher levels (i.e. within the policy arena) to be able to scale up (as discussed with the factor policy in section 2.2.3).

It is important to note that civil society actors comprises a broad range of actors, as besides citizens, the following actors can be for example part of the civil society-based actor group: "*NGO's, trade unions, environmental groups, interest groups, and households*" (Fischer and newig, 2016, p. 8). As a result of this heterogeneity of actors, Fischer and Newig (2016) argue for a limited role for these actors in the transition, as a critical mass is needed. In a similar vein, Geels (2010) describe how coalitions of civil society actors are needed, that share the same interests and ideas within the realisation of change, in order to influence a transition from a bottom-up perspective.

## 2.2.1.3 The linkage of actors

It is important to note that, although these individuals within these different actor groups might impact the transition, in reality it is an illusion for these actors groups to fully control change. For example, a city centre can not fully be constructed by for example government actors alone as society is only partly 'makeable' by these actors together (Loorbach, 2007). Hence, in addition to the typology: government, market, civil society, it is important to consider the dependencies between the actors. In this regard Fischer and Newig (2016) argue that a combination of actors is needed in order to contribute to change, moreover " *it is crucial for different actors to link up for solving current problems*" (p. 15). Loorbach (2007) elaborates on this, by emphasising the importance of balancing state, market and society in order to generate alternative ideas and agendas. Together these actors might influence regular (policy) practices within the existing regime. Hence, although the typology might help to structure the findings within the empirical analysis, the potential dependencies and linkages will be analysed as well.

Informed by the roles, functions and interdependencies of these actor groups in transitions (see table 1), the empirical analysis looks at what actors were present and how they have together contributed to a new car-free regime in the cities.

| Actor | Function | Dependencies on other actors and resources | Potential influence on transitions |
|---|---|---|---|
| Government (i.e. local policy makers, authorities, administrators and decision makers) | Traditional role of providing financial resources at the early non-competitive state of innovations, New role of creating niches through institutional work enabling experimentation | Depend on job availability, tax incomes, economic growth and new technologies, depend on the wider public for re-election | Often perceived as leading actor in transitions |
| Market (i.e. innovators) | Bring competitive products and services to the market, Supporters of transition when being entrants, seeking new business opportunities. Opponents of transition when business with established technologies, not eager about alternatives. | Consumer pressure | Limited room for unilateral agency: reasons for new ideas not spreading- overarching structures of markets, patterns of final consumer demand, institutional and regulatory systems and inadequate infrastructure for change. |
| Civil society (i.e. interests | Pressuring of existing regime: diffusing | Through markets and politics they can | Limited, for example, by reaching a critical mass |

| groups, households, environmental parties) | innovative niche ideas and practices, using lobbying and protests to unsettle the regime. | help to shape the landscape. civil society can unsettle the regime or contribute to stability. | |

*Table 1: Functions, dependencies and influence of different actor groups in transitions (adapted from Fischer and Newig, 2016).*

## 2.2.2 Changing the existing regime: planning

This section begins with an explanation of the potential of the factor 'planning' in driving the transition. Subsequently, strategic planning as used in this research, will be further conceptualised using the two conditions 'filtering and framing' and 'generating formal legitimacy'.

### 2.2.2.1 The transformative force of planning

Within the literature opinions differ as to whether planning has a weak or strong position in its ability to influence transitions. For example, Campbell et al. (2014) mention how planning has never been more weak, due to the multiplicity of actors, perspectives, agendas, areas and policy problems it involves nowadays. Albrechts (2010) takes a different perspective by focusing on the strong ability of planning to support local transitions. However, in their argument for the 'strong' position, planning needs to move beyond the sole focus on spatial or transportation change, and take into account elements of policies, considerations and strategy making. Hrelja et al. (2015) elaborate on this by arguing for a more nuanced understanding of the transition processes in relation to planning and the concrete mobilisation of change. In this line of thought, planning could function as a coordinative tool in considering different conflicting objectives and interests to facilitate transition (Uittenbroek et al. 2012). This is strengthened by Hrelja et al. (2015) stating: *"planning is expected to provide strategic and reflexive potential that will permit the rethinking of current urban development patterns and the concretization of alternative development pathways"* (p. 618). Both Albrechts (2010) and Hrelja et al. (2015) argue for a strategic planning approach, as having the ability to contribute to new routines and practices and produce a 'transformative force'. This would imply that strategic planning has the capacity to effect change and potentially can influence the transition towards a car-free city. Hence, this research uses the concept of strategic planning, to analyse the ability of the factor 'planning' in driving the transition of a car-free city.

### 2.2.2.2 A strategic planning approach

Albrechts (2006) gives the following definition of strategic planning: *"a process through which a vision, coherent actions, and means for implementation are produced that shape and frame what a place is and what it might become"* (p. 1152). In this light, two key conditions, that have the ability to stimulate new routines and practices and contribute to the 'transformative force' of planning, will be discussed in the subsections below.

*Filtering and framing*

The process of filtering and framing in strategic planning can be described as the deliberate consideration of certain societal issues, potentially resulting in the generation of a new vision for a city (Healey, 2007). In this line of thought, Healey (2009) describes a vision as the coupling of different strategic ideas, for example through the use of supporting storylines and metaphors in a coherent story. Such a vision would allow for a prioritisation and justification of specific actions and issues within the city. It is important to note a vision is linked to a specific context (economic, social, cultural, and political), place, time, and scale linked to the perception of certain issues and within a particular combination of actors (Albrechts 2010).

A (shared) vision can have several purposes in the transition. First, it can help to discuss and reflect upon the transformations, challenges and opportunities with citizens, politicians, and civil society as a whole. For example, the drawing up of a vision of a more 'attractive' city might initiate the rethinking of current practices (i.e. a car-dominant city centre) (Hrelja et al, 2015). Moreover, it has the ability to expose important issues and challenges ahead, which might contribute to the sense of urgency among different actors and, hence, can help to justify change and attract supporters (Albrechts, 2010; Huitema et al., 2011). In short, visions help to show actors a shared future, a sense of direction and a sense of being engaged in something important (Albrechts, 2010).

However, it is important to consider that the role of filtering and framing, in supporting transitions in practice, is contested by several authors (i.e. Biesbroek et al., 2009; Preston et al., 2011). This relates to the perceived lack of guidance from 'higher (administrative) levels'. Hence, although inspiring ambitions, objectives and storylines may be drafted, the actual implementation in practice is often hampered (Biesbroek et al., 2009) This brings us to the second condition for strategic planning, which is to mobilize force for these vision by generating formal legitimacy, as discussed in the section below.

*Generating formal legitimacy*

In order for a vision, and moreover strategic planning, to contribute to change, formal legitimacy for specific action is needed (Healey, 2007). Hence, this formal legitimacy concerns the presence of policy statements, plans, programmes, actions, decisions and resource allocations. In a similar vein Albrechts (2010) states that in strategic spatial

planning a long-term plan, policy or programme can function as the vehicle of the vision with the purpose of producing change. Only then the vision becomes more than a wish list: it involves commitment to the realisation of visions through practice.

To summarise on the two conditions for strategic planning. Filtering and framing implies that a given topic or ambition, such as a car-free city, is included in a coherent and shared vision. The second condition concerns the generation of formal legitimacy for these visions. Accordingly, the empirical analysis explores what the objectives and storylines for the different cities are. Here the focus is particularly on how the car free city concept is linked to these objectives and to long-term policies and programmes that shape what the cities are, and might become.

## 2.2.3 Changing the existing regime: policy

This section first shows the role of the factor 'policy' in the local transition. Subsequently, policy will be further conceptualised through using the concept of a 'window of opportunity'.

### 2.2.3.1 The importance of policy change

Doheim et al. (2020) argue that efficient and resilient policies could contribute to the transformation of a car free city. Similarly, on a more abstract level, van der Brugge et al. (2005) recognize the importance of policy in establishing a new regime. However it is important to note that policy could in the first place function as a structural barrier to development and change and create a deadlock to transition dynamics. For this reason, initial innovative transition visions, agendas and experiments operate outside traditional institutional settings. For these innovations to be able to scale up, and pressure the existing regime, linkages with policy arenas on a higher level are needed. Moreover, a breakthrough of policy change could enable the transition dynamics to be institutionalised (Loorbach, 2010). This requires visions, local initiatives and ideas to be adopted by the policy arena (Van der Brugge et al, 2005). This leads to the question of what makes people involved in policy-making attend, at any given time, to policies for a car-free concept and not to others. In this line of thought, Geels (2002) recognizes the importance of the setting and timing for policy change, also identified as a window of opportunity.

### 2.2.3.2 A window of opportunity

According to Huitema et al. (2011) a window of opportunity could both be initiated by a (shock) event or by political changes, which enables new ideas to be inserted in the political debate at the right time. Subsequently, they come up with the following distinction of a political window and a problem window. However, this distinction is rather broad, as these windows might occur at any level in society. This might complicate

an attempt at analysis as a problem window might also be an external pressure or event of which the subjects of change itself are not even aware (Knoepfel et al., 2011).

Kingdon (1995) provides a more tangible explanation of a window of opportunity, using three streams: problems, policy and politics. He argues how for a window of opportunity to emerge the three streams need to converge in time. The crucial moment that problems, policies and politics come together, is driving the linkage of problems to solutions. Moreover, the moment when the problem and solutions are connected within a favourable context is most likely for a 'policy window' to open.  The three separate streams are described independently below.

### Problem recognition

The first stream described by Kingdon (1995) is problem definition. For an item to be placed on the agenda of policy makers, it must be recognized as a problem. Moreover, problem recognition might contribute to a window of opportunity to open when the (social) problem is perceived as urgent and policy-makers wish to promote policies to address that particular problem. In this regard, Knoepfel et al. (2011), refer to the perceived urgency of specific problems, as this perception might differ in different political contexts.  In other words, it is important to take into account that problems are not always clear cut and the perception of urgency of a problem might differ from different perspectives. Hence, Huitema et al. (2011) argue that it can be useful for policy-makers to engage in public discussion and verify the interpretation of events and issues.

### Idea development

The 'policy' stream, or more specifically the formation and refining of policy proposals, relates to the process in which ideas are developed, compete and are combined (Kingdon, 1995).  Hence, the concept of 'idea development' can be considered an important condition for policy change (Huitema et al., 2011). Ideas and solutions to a problem might be developed by different groups, such as bottom-up initiatives, academics or special interest groups (Kingdon, 1995). Furthermore, Huitema et al. (2011) mention for example how 'success examples' from other car-free cities or pilot projects could drive ideas about alternative policy directions in cities.  Interestingly, for these 'success' examples and pilots does not apply a one size fits all in order to become credible solutions in a technical or administrative sense.

### Politics

Politics, or political events, are important conditions for a window of opportunity to open (Kingdon, 1995).  If alternative policy trajectories and ideas were proven to be feasible in the context of a certain city,  they need to be accepted by politicians. This means that the political acceptability of the new idea (i.e. a car-free city) is just as important. As mentioned previously, Huitema et al. (2011) describe how a window of opportunity could be initiated by political changes, which enables new ideas to be inserted in the political

debate at the right time. What adds to this is that politics concerns political systems and leaders, which might have different and fluctuating reasons and motivation over time. Examples of the political stream are fluctuating political interest, group pressure, a changing local mood or elections (Kingdon, 1995).

Informed by the conditions for a window of opportunity, the empirical analysis explores how the three streams, problem recognition, idea development and politics led to new policies contributing to a new regime in the cities.

## 2.4 Conceptual model

Below the conceptual model is presented, combining the different theories that help to investigate what driving factors underlie the transition towards a car-free city centre.
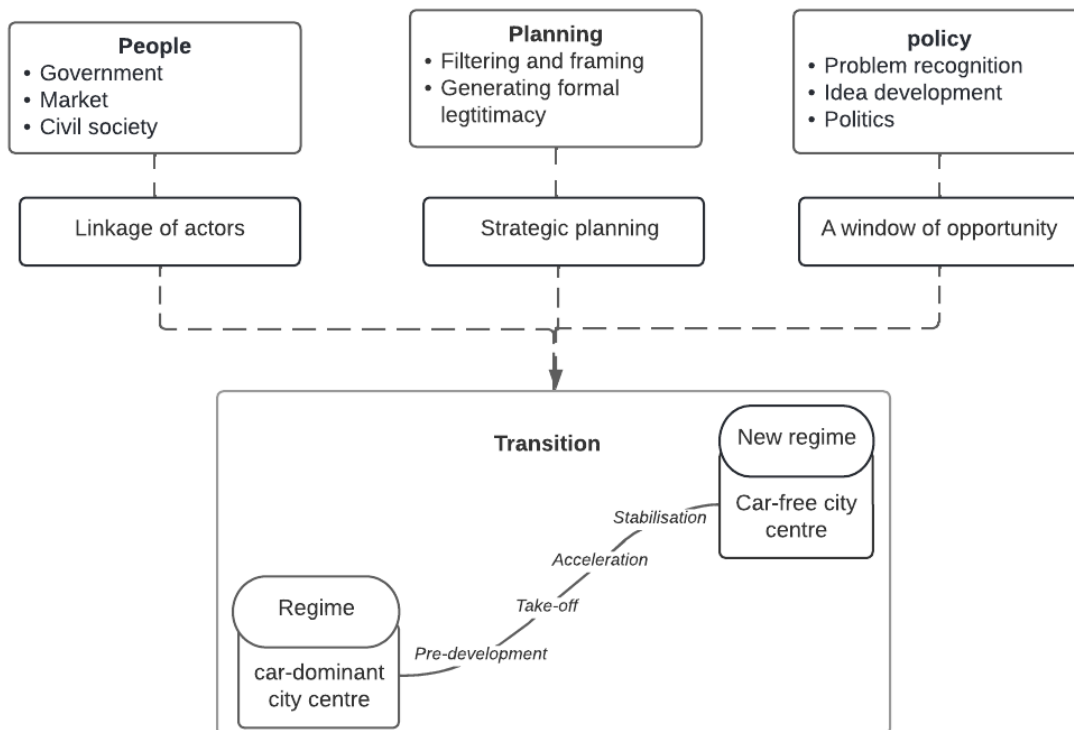


*Figure 3: a conceptual model including the 3P's influencing the local transition towards a new car-free regime in cities.*

In short, the model above illustrates the hypothesis of three main factors, people, planning, policy by Doheim et al. (2020) underlying the transition towards a new car-free city centre regime. Each main factor is connected to a more tangible term (linkage of actors, strategic planning and window of opportunity), which are expected, based on the associated conditions, to drive the transition. Subsequently, the transition arena is

illustrated based on the phases model, from a perspective of speed of change by Rotmans et al. (2000). Herewith, the different phases will function as a guideline to reflect on the degree to which changes have occurred towards a car-free city and led to a new established regime.

# 3. METHODOLOGY

## 3.1 Research methodology

### 3.1.1 Qualitative case study research

Given the exploratory nature to understand the factors underlying the transition, a qualitative comparative case study method with critical cases is most suitable (Yin,2013). Taylor (2016) defines a case study as "*a form of naturalistic research, where the case is studied in its normal context*" (p. 582). In other words a case study, as a specific way of empirical inquiry, allows the investigation of a contemporary phenomenon investigation of a contemporary phenomenon (transition away from a car-dominant regime) within its context (the local transition arena including the different actors and characteristics of the city) (Flyvbjerg, 2006). Hence, the results will contribute to detailed and profound knowledge about the transition of a car-free city.

### 3.1.2 Comparison of cases

With the help of the comparative aspect a small number of cases is described in detail, while exploring relevant similarities, differences and patterns across the selected cases (Punch, 2013). In this way, comparison strengthens the external validity, while the differences in context between the cases contribute to the generalizability of the findings (Yin, 2013). In addition , Geels (2011) argue that a comparative case study as an alternative approach to transition research  could lead to new valuable insights. However, note that in this research there is no interest in finding 'general laws' that explain the transformation of car-free cities. This is because the car-free city transition is context dependent and complex (Geels, 2011), and, therefore, this research is more aimed at illustration and exploration than at systematic research.

## 3.2 Case selection and description

### 3.2.1 Case selection

The process of case selection is an important aspect of the comparison and eventual generalizability of the findings (Flyvbjerg, 2006). Hence, in the following paragraph several selection criteria are discussed.

Both Geels and Kemp (2000) and Doheim et al. (2020) acknowledge car-free cities as a transition is a dynamic, non-linear process of change. For this reason, a dynamic point of view is needed by measuring, recording and evaluating the complexities of this transformation. In this line of thought,  suitable cases, based on its evolutionary character

(i.e. including multiple events, decisions and plans over time) were selected. Besides the evolutionary character of the selected cases, the following criteria were important in the selection of cases:

- Urban form and scale of intervention: the first two selection criteria follow Yin (1994), who states the need to specify the spatial boundary of the case. First, concerning urban form, the case consists of car-free planning practices and processes within existing urban areas, for example through the removal of cars and vehicular access, as opposed to new developments. Secondly, the scale of intervention concerns an area within a historic city centre.
- Time frame: informed by Yin (1994) , the second criterion concerns the time frame of the case. The city recently has developed/ transformed or extended their city centre or a part of the city centre to car-free. This has to do with the availability of adequate information and suitable interview participants linked to this specific time frame, which is needed to maximise the utility of information from the cases (Flyvbjerg, 2006).
- State of intervention: this selection criterion links to the theoretical scope of the research (Yin, 1994), which requires  that changes already took place in order to enable a holistic ex-post evaluation of a transition. To determine whether a local transition is happening the following criteria, based on the concept of a new regime as discussed in the conceptual framework (i.e Geels, 2010, 2018), were used:

> a) Changes in formal institutions: Car-free measures are currently in place. This could be the physical implementation of car-free measures in the city (i.e. signage or the presence of physical barriers such as 'pollers') and/ or the implementation of rules and regulations.
> b). Changes in informal institutions: willingness of current local governmental bodies to further pursue car-free planning practices in the city: for example through proof of a city vision or in planning documents.

- Cultural differences between both cases, for example due to different geographic locations, contribute to the wide collection of different understandings while focusing on the car-free city transition (Punch, 2013).
- Availability of information: following Flyvbjerg's  (2006) information oriented selection strategy, the final criterion concerned the availability and accessibility of information, which is linked to the willingness of actors and organisations to participate in the research. What adds to this is the availability and accessibility of policies and plans that explicitly sought car-free planning practices in the case.

Following these criteria, two Dutch cities (Haarlem and Leeuwarden), were selected as critical cases for analysing different factors influencing the local transition process towards a car-free city.

## 3.2.2 Case descriptions

This section, first of all gives a short overview of the cases according to case selection criteria will be presented in table 2. Subsequently, the timeframe of the cases will be further described. An historical overview of the key milestones and events from the perspective of policy-makers in the process towards a new car-free area will be displayed, showing the different contexts and actors that were involved in both cases.

| | **Case 1: city of Haarlem** | **Case 2: city of Leeuwarden** |
|---|---|---|
| **Geographic location** | The Netherlands, province of Noord-Holland | The Netherlands, province of Leeuwarden |
| **Scale of intervention** | Neighbourhood 'de Vijfhoek' within city-centre | Northwestern part of the city-centre (i.e. Gouverneursplein) |
| **Time frame** | Final municipal decision on 23 November 2021, implementation first measures May 2021 | Final municipal decision on car- free are on December 2021, Implementation first measures as of June 2021 |
| **State of intervention** | -Physical implementation of car-free measures<br>- Willingness to further pursue car free spaces expressed in the municipal vision for 2040 | -Physical implementation of car-free measures<br>- Willingness to build upon the evaluation report by conducting research to additional measures and express ambition in letters to municipal council |

*Table 2: A short overview of the cases according to case selection criteria*

*Historical overview*

A short timeline is used to present the key events and will function as an introduction to the cases. With this historiography it is aimed to gain a 'holistic' overview of the context under study, which is further discussed in the results (Chapter 4). The historical trajectory of car-free development in the two cases studied, spans a time period of about 5 to 6 years (see table 4.1.1 for the chronological overview).

In Haarlem, the process of the neighbourhood the 'Vijfhoek' as a new car-free area spans a long time frame, with various stakeholders involved. On 23 November, 2021 the final decision was made on the measures for the new car-low area and the first measures are being implemented up till now. In Leeuwarden, the planning process for the development of the new car-free area in the inner-city starts with the inclusion of the car-free

development around the 'Gouverneursplein' within the multi-year programme of the municipal council for 2018-2022 in 2018.

It is important to note that in both cities, there is already a part of the city centre car-free since the 80s. In Haarlem, besides the neighbourhood the 'Vijfhoek', the car-free city centre was recently extended in 2019. In this light, Haarlem can be seen as the more established case in the pursuit of car-free spaces. However, given that the comparison between cases is relative (i.e. the transition process per case) instead of absolute, there are still important similarities and differences to be found, including key events, actors, dynamics and important factors (Yin, 2013).

| | Haarlem | Leeuwarden |
|---|---|---|
| **2015** | o Green Deal Zero Emission | |
| **2016** | | |
| **2017** | o Long-term vision ('Structuurvisie Openbare Ruimte Haarlem 2040: Groen en bereikbaar', Municipality of Haarlem) | o Inner-city vision (Agenda binnenstad 2017-2022, municipality of Leeuwarden) |
| **2018** | o Long term vision for inner-city (Convenant Binnenstad Haarlem 2018-2022, municipality of Haarlem)<br>o Neighbourhood vision is presented by neighbourhood council 'Vijfhoek, Raaks en Doelen'<br>o Coalition agreement on sustainability (Coalitieakkoord Duurzaam-Doen 2018-2022, municipality of Haarlem) | o Municipal meeting 'Logistics in the city centre'.<br>o Multi-year programme of the municipal council for 2018-2022 including transformation of 'Gouverneursplein' |
| **2019** | | o Preparation phase: conducting a traffic analysis and preparing the preferred scenario |
| **2020** | o Citizen initiative (Plan B, Wijkraad Vijfhoek, Raaks en Doelen)<br>o Implementation of rules and regulations (i.e. for large vehicles, reversal of traffic direction and restricting times for unloading) | o Stakeholder conversations (including retail entrepreneurs, catering, coffee shop owners, residents, hotel, neighbourhood panel, school, working group accessibility).<br>o Information letter to the council |

| 2021 | o Mobility vision Haarlem<br>o General evaluation of car low inner city Haarlem<br>o Council decides on definitive (re)design for the Keizerstraat-Barrevoetestraat-Botermarkt<br>o Stakeholder meeting: informed about measures and the planning for implementation<br>o Start physical implementation of car-low measures | o Decision of the municipal council to make north-western part of inner-city car free<br>o Press conference and online launch website "Car low city centre" with project information and Q&A.<br>o Information letter to residents and local entrepreneurs in the area concerned<br>o Phase 1: Implementation and kick-off car-free city centre (i.e. adjusting street entrances, placement of uniform signage)<br>o (Omgevingsvisie 2021, municipality of Leeuwarden)<br>o Vision for the inner-city (Agenda binnenstad 2021-2028 , municipality of Leewarden) |
|------|------|------|
| 2022 | o Redesign of 'Botermarkt'<br>o Implementation zero emission zone in centre and surrounding neighbourhoods Haarlem<br>o New municipal council | o Evaluation by Royal HaskoningDHV<br>o New municipal council |

*Table 3: A brief historical overview of the cases, including important events, decisions and documents, illustrating the process towards a new car-free area.*

## 3.2 Data collection

Following Olsen (2004) multiple sources of qualitative data and multiple data collection methods are used to contribute to the validity of research findings, also referred to as triangulation. In this research, both primary and secondary data are gathered to gain an in-depth understanding of the cases (Taylor, 2016). A triangulation of information is conducted through (i) semi-structured interviews, with key actors involved in the transition, (ii) a qualitative data analysis of documents, including policies, reports and public records, (iii) an unstructured in-depth interview with an expert in the field to substantiate and discuss the research findings. Following these methods, the data collection process consists of a four-step strategy:

Step 1). a literature research to construct a theoretical framework and eventually to substantiate and compare the research findings to the theory.

Step 2). Collecting primary data through semi structured interviews in order to understand the local transition process and underlying factors in the case.

Step 3). Based on the results from step 1 and 2, the cases were compared by applying the analytical lens of the conceptual framework on the interviews and documents in an iterative process. To investigate factors underlying the transition towards a car-free city centre, differences and similarities between the transition processes and the factors mentioned are explored. This is done through the coding of interview transcripts and the documentary evidence (see section 3.3 for a detailed explanation of data analysis). In this way, the collected data of the case studies will be, first, compared and contrasted vis a vis the analytical lens of the conceptual framework, and then, vis a vis the empirical findings from the other case. This process helped to achieve cross-analyst reliability (Punch, 2013).

Step 4). To triangulate, and, hence, to validate and widen the understanding of the results, additional primary data will be collected through an expert interview with an actor who has academic knowledge on car-free cities in general (Olsen, 2004).

### 3.2.1 Interviews

*Semi-structured*
The reason for selecting a semi-structured interview method is twofold. On the one hand, a semi-structured interview method enabled using the analytical lens of the theoretical framework to explore driving factors of the transition in the cases (see appendix 3 for the interview guide). On the other hand, the semi-structured interview, and especially the first more open ended questions, gave the opportunity to interview respondents to talk about their experience concerning the process towards a car-free city in an open manner, potentially addressing unpredicted factors (Lunghurst, 2016). In this regard, an iterative process will be used, as the interview can be supplemented with new questions throughout the data collection process when a new theme or factor is often mentioned by the respondent(s).

For each case multiple participants were selected using a snowball sampling method (Bryman, 2012), see table 4 for the characteristics of the interviewees and appendix 1 for a full overview of interview respondents. Two criteria for selecting the first participants were used. First, participants are civil servants within the organisation of the municipality, of which the car-free city is part of their expertise or the policy area on which they advise, as this knowledge contributes to the collection of in-depth data on the topic of car-free cities. Second, they are involved long-term in the process towards a car-free area in the city centre, in order to take into account the evolutionary character of the transition. This was researched through the appearance of their names in important policy documents or through using a snowballing method within the municipality itself. Accordingly, the participants were contacted via email, telephone or Linked-In. If it appeared from the interview respondents or during the document analysis that there were other actors, outside the organisation of the municipality (i.e. an inner-city manager) who

played an important role, it is aimed to include their perspective through an additional interview as well. This resulted in a complete view of the case, in which the data was continuously confirmed and supplemented by the different actors and perspectives included. Saturation of the data was experienced as no new factors or drivers in light of the new car free area were mentioned by the respondents.

*Unstructured interview*

The expert can function as a transparent and reliable source on the transition of a car-free city in general. As such, the aim of the interview is to gain a more in depth understanding and explanation of the results, without requiring additional considerations or sources to validate this explanation. (Meuser & Nagel, 2009). The expert was first asked to provide a possible explanation for the observed main differences and similarities between factors in the cases, which will be verbally explained during the interview. Moreover, the interviewee will have the opportunity to comment in light of their own perspective and knowledge in an open manner, potentially addressing new underlying explanations. Given the explorative nature of the interview, an unstructured in-depth interview method is most suitable and will contribute to a deeper understanding of the results and increase the validity of the findings (Punch, 2013).

A criteria for selecting the expert interviewee was most importantly, his independence from the different cases, contributing to his objectivity in explaining the results. Another criteria was academic experience and publications in relation to the research topic (Meuser & Nagel, 2009). The selection of the expert was done after the first interviews, which enabled the selection of the right interview respondent, who would be able to provide a suitable explanation on the findings.

| # | Group | Reason | Extra focus | Form |
|---|---|---|---|---|
| 4 | Municipal civil servants (i.e. policy-makers or member of project team) | (long-term) experience from within the process of the new car-free area in the case | Process/ factors / decision-making in the case | Semi-structured |
| 3 | Consultants | Functioning as advisors for policy-makers in the cases, hence have (long-term) experience and knowledge about the car-free city transition, policies, measures and the participation process | Process/ driving factors in the case/ general knowledge and experience with car-free cities | Semi-structured |

| 1 | Academic | In-depth knowledge of car-free cities in general | General knowledge on factors underlying car-free cities/ Validation of results | Unstructured interview/ explorative |
|---|---|---|---|---|

*Table 4: Characteristics of interviewees.*

### 3.2.2 Documents

The secondary data consists of documents, including policies, reports and municipal documents (see appendix 2 for an overview). A criterion for selecting the documents was that they were being mentioned by one of the interviewees, as this was also included as a question in the interview. Accordingly, the documents were collected through interview participants and from online websites.

## 3.3 Instruments for data analysis

### 3.3.1 Interviews

The interview and an initial code tree were established based on the concepts of the theoretical framework (see appendix 5 for the code trees). After transcribing the recorded interviews, using 'Otranscribe', the interviews were coded and analysed using the qualitative data analysis software 'Atlas.ti'. Because the results were linked to preconceived factors and indicators, the coding process can be seen as deductive. However, during the data process of data analysis some codes were re-organized and new codes outside the preconceived theory were added. The new codes, such as the notion of a 'policy entrepreneur', were consequently also included in the following interviews. Hence, the process of data collection and analysis of the interviews was rather iterative.

### 3.3.2 Document analysis

Because the secondary data from the documents in this research mainly needs to substantiate the primary data, the document analysis is conducted after the primary data collection. The documents are analysed in Atlas.ti according to the final and adapted code tree from the interview analysis.

## 3.4 Ethical consideration

Concerning the personal characteristic of conducting interviews, and research in general, a number of ethical issues need to be considered (Punch, 2013). First of all, in advance of

the interview, the research question, aim and design is explained and the respondent was asked permission for recording the interview (see appendix 4 for the informed consent form). Furthermore, the privacy of the participant was guaranteed as had the option to be anonymous. The second ethical consideration concerns the ethical processing of data. The raw data, resulting from the recorded interviews, were stored offline, on a computer which will only be accessible to the researcher. Accordingly, only the interpreted results are communicated within this thesis. Another point of attention in processing the data is language, as the interviews will be conducted in Dutch and presented in English. Misinterpretation is minimised through careful translation and interpretation of the data. Taken these considerations together, ethical issues will be kept minimal, while increasing the validity of the research.

## 3.5 Quality criteria of qualitative research

Guba & Lincoln (in Bryman, 2012) argue that four quality criteria are important in order to conduct qualitative research. These are: (1) credibility (2) transferability (3) dependability, and (4) confirmability.

*Credibility*
This research made use of three different methods, as credibility will be higher when different perspectives and methods lead to similar conclusions (Bryman, 2012). In addition, the methods complement each other because documents contain more formal information and statements, while the interviews highlighted a personal experience, for example by the use of personal citations (Yin, 2013).

*Transferability*
As discussed earlier, careful case selection will contribute to the transferability of the findings (Flyvbjerg, 2006). Nevertheless, because the cases are embedded in a specific context, the transferability of this research will always be limited to some degree. In this light, an attempt will be made to provide as much information as possible to enable the reader to judge whether the findings in this case study could also apply to another setting (Bryman, 2012).

*Dependability*
To increase dependability it is important to accurately describe the research process and the corresponding choices (Bryman, 2012). In order to maintain a chain of evidence, this chapter provides a transparent research design with an extensive description of the case selection, the way in which the respondents will be selected and the way on which the data will be collected and analysed.

*Conformability*

A transparent overview of the methodological choices, including methods for data collection and data analysis, is given in this chapter. Herewith, an effort of the researcher has been made in the data collection process to limit preconceptions about the topics under discussion, for example by mainly focussing on the perceptions of the interviewees 'from the inside' (Punch 2013). Also, in the research in general an attempt is made to include as little as possible personal values and experiences of the researcher, through mainly focusing on the transcripts and documents.

# 4. RESULTS

In this chapter the empirical results will be discussed based on the conceptual model (section 2.4.) and the three factors influencing the existing regime: people, planning and policy. Section 4.2 until 4.3 present the three factors in both cases. Within each section the findings, concerning the factor, within the two cases will be presented. Subsequently, there will be a brief reflection on the main similarities and differences in the cases and a discussion of the relationship between the factor and a new car-free area in general. This connects to the first empirical research question: *'What driving factors underlie the local transition towards a new car-free area in the cases?'*

Subsequently, section 4.5 discusses to what extent the changes led to a new regime in the cases. This contributes to the second empirical research question, *'to what extent did the factors together contribute to a new regime in the cases?'* . Finally, section 4.4 discusses the main findings of all the factors in general, including a comparison and critical analysis on the theory.

## 4.2 Factor 'people'

Different social groups can be part of the transition, who each have their own perceptions, interests and resources but are also linked together to maintain and reproduce the regime (Geels and Kemp, 2000). In this line of thought, this section discusses the roles of actors within the two cases, using the actor typology of state, private sector and civil society actors, while focussing on the linkages and dependencies of actors in the case.

### 4.2.1 Case of the city of Leeuwarden

First of all, concerning civil society actors, interviewees on the whole demonstrated that local entrepreneurs and residents had an important role in placing a new car free area on the agenda of policy-makers. In Leeuwarden, both residents and local entrepreneurs shared the same ideas of improving the inner city centre. As interviewees indicate, the economic function of the inner-city of Leeuwarden for the entire province led to a lot of unwanted car traffic throughout the city centre. It was suggested that because of this traffic local actors within the city centre experience a lower perceived safety and traffic nuisance (i.e. noise). In other words, interviewees emphasise that within the city of Leeuwarden there was a high willingness among residents and entrepreneurs to improve the safety and liveability within the inner city. This is being acknowledged by the municipal civil servants, as one interviewee states:

> *Because the mayor has designated the city centre as a coffee shop area, we know*

> *that a lot of car traffic goes to the city centre for the coffee shops throughout the province. According to residents and other entrepreneurs this causes a lot of inconvenience.*
> - Project leader, municipality of Leeuwarden (R1)

Furthermore, local entrepreneurs believe that a car-free city might contribute to more customers and economic benefits. Subsequently, local residents and local entrepreneurs took the initiative to address the liveability within the inner city with the municipality (i.e. through pictures or letters personally communicated to the municipality or organised via the neighbourhood panel). This initiative was strengthened by the inner-city manager. Interviewees specifically emphasise his high perseverance towards improving the city centre of Leeuwarden, as a representative of different parties in the inner-city (i.e. retail, entrepreneurs, culture organisations, residents). Hence the inner-city manager, and his organisation, had an important role as an actor with an intermediate function between local entrepreneurs, residents and the municipality, who highlighted the wishes and objectives in meetings and hearings with the municipality. Interviewees mention the importance of this linkage with the municipality in driving the car-free city.

Secondly, concerning government actors, interviewees emphasise how the municipality takes into account the wishes and desires of the local residents and entrepreneurs, for example by linking up with the inner city manager. In this regard, it is indicated that the political council followed the public opinion and, moreover, the public support for a new car-free area.

Thirdly, concerning the role of the market, interviewees refer to the importance of innovating market parties in relation to the car free city. Firstly, interviewees address the importance of the development of an intelligent camera system, as this system has the potential to effectively contribute to behaviour change in the new car-free area. However, this innovation was not a direct cause for a new car-free area, but rather a tool which could be used for the implementation of car-free measures. Secondly, interviewees refer to market actors who have come up with innovations and technologies which could function as alternative transport modes within cities. For example, within Leeuwarden the use of the electric bicycle for inner-city logistics transportation has been increasingly used throughout the years. One interviewee (R1) takes this a step further by expressing the ambition of the municipality to further facilitate such innovations, in cooperation with local entrepreneurs (i.e. restaurants), in the city centre. However, overall, interviewees do not see a role for such innovations to have driven the decision for a car-free city. Rather do they mention the increase of these sustainable transport modes as a parallel, but independent development within the inner city.

| Indicator | Interpretation in the case | Function in the case | Dependencies on other actors | Potential influence on transition |
|---|---|---|---|---|
| **Government** | Municipality of Leeuwarden *(i.e. referred to as local policy-makers, municipal council)* | Cooperation with the inner city manager, highly listened to the wishes and desires of the local residents and entrepreneurs | Mainly follows the local entrepreneurs and their wishes and public support for a new car-free area as they depend on the wider public for re-election | High, political council follows the public opinion and the public support for a new car-free area |
| **Market** | Market parties with innovative products *(i.e. e-scooter, electric bicycle, intelligent camera system)* | Provide sustainable transport modes, which function as alternatives for the car, and innovative tools for the implementation of a car free city. | Depend on municipality to further embed such innovations in institutional and regulatory systems, in cooperation with local entrepreneurs | Limited, innovations were in the eyes of interviewees not a direct cause for a new car free area, but rather a independent development within the inner city |
| **Civil society** | Local entrepreneurs, residents, organisation 'Binnenstad management' | Took the initiative to address liveability in inner-city, represented by inner-city manager, to the municipality. | Linkage of the inner-city manager between local entrepreneurs, residents and the municipality was needed | High, these actors pressured government actors to seek for solutions for the inner-city |

*Table 5: Overview of the results concerning the factor 'people' in the case of Leeuwarden.*

## 4.2.2 Case of the city of Haarlem

First of all, interviewees mention the importance of neighbourhood councils in the inner-city of Haarlem. One of the highly involved neighbourhood councils is called the 'Vijfhoek'. The council, consisting of, and representing, local residents, is considered to be proactive and highly involved in the development of the inner-city. The following cluster of quotes illustrates this proactive nature of the neighbourhood council in developing the idea of a car-free city:

*The council had a role in driving the idea....For example they send us an e-mail: 'we have an idea for making this and this street car-free...In that way they are being very active. Haarlem has very active and involved residents.*
- Policy-maker mobility, municipality of Haarlem (R5)

*...the initiators within the neighbourhood council were intrinsically very motivated to get traffic out of the neighbourhood.*
- Inner-city coordinator, municipality of Haarlem (R6)

*They see the situation as it is not feasible and feel that a mobility transition must take place. They have that image and want to help make it happen.*
- Policy-maker mobility, municipality of Haarlem (R7)

According to the documents and interviewees, the main objectives of this group of actors are improving accessibility (i.e. more space for cyclists and pedestrians), liveability (i.e. improving and greening public space in the inner city) and reducing nuisance due to excessive car traffic in the inner city. As such, one of the residents together with the chairman of the council took the initiative to develop a vision for traffic in 2018, including their objectives and long-term vision of the area (D12).

However, as a nuance to the driving role of local residents through neighbourhood councils, in the perspective of the interviewees not all residents and local entrepreneurs might have been this progressive and supportive towards the idea of a car-free area. For example, one interviewee (R5) refers to a lower socio-economic inner - city residents group, which highly benefit from using a car in the inner-city in terms of time, accessibility and financial barriers of using alternative transport modes. In addition, another interviewee (R6) mentions that although the neighbourhood council tries to represent all opinions as best as possible, opinions are always divided, and, hence, there will always be some opponents of the car-free city.

Secondly, concerning government actors, one of the interviewees (R6) notes that the municipality did not yet plan to make that specific area car-free, because the municipality could not immediately provide capacity and sufficient resources for this at that time. Nevertheless, all interviewees acknowledge the enabling role of the municipality for the neighbourhood councils and their initiatives. The facilitating and enabling role is emphasised by interviewees mentioning that not only they are being subsidised, but also, are given the opportunity and power to influence the decision-making process of the municipality. For example, one interviewee (R7) mentions how the neighbourhood council, citizen and local entrepreneurs have been widely included in participation processes surrounding the long-term development of the inner-city in Haarlem (i.e. city's vision for 2040 (D11) or the mobility vision (D10). Another interviewee (R5) adds to this,

that in addition to this established participation processes, plans or proposals initiated by the councils are always considered by the municipality, whether they are feasible and could potentially be implemented in the city. Moreover, the institutionalisation of the neighbourhood councils resulting in a high cooperation with the municipality is according to the interviewees quite exceptional.

In addition to the enabling role towards neighbourhood councils, interviewees mention the progressive nature of the municipal council of Haarlem and the high share of left-oriented political parties and their ambitions for a greener and more sustainable city. The comment below illustrates how they could potentially influenced the decision for a new car-free area:

> *Politics can leave a clear mark on the city. They have green ambitions and sustainability is a top priority, which are both things that suit such a municipal council. That makes a difference for the level of ambition you have for a car free city and for how easily you can make decisions in that regard".*
> - Policy-maker mobility, municipality of Haarlem (R5)

Thirdly, opinions differed concerning the role of market parties in the transformation of the new car low area the 'Vijfhoek. Interviewees for example mention an intelligent camera system as an important market innovation, which could be used for the implementation of the car-free city. Furthermore, innovative market parties who have developed and promoted the electric scooter and car sharing networks are mentioned, as these are widely used in the inner city of Haarlem. Even more, interviewees express the ambition of the municipality to further regulate and support these innovations. More importantly, these innovations as an alternative transport mode, have increased the awareness, among both users and policy-makers, of the redundancy of the car in the inner city (R5, R7). However, another interviewee (R6) does not see a connection between these market parties and the new car-free area, which could indicate a nuance to the role for the market in the transition.

| Indicator | Interpretation in the case | Function in the case | Dependencies on other actors | Potential influence on transition |
|---|---|---|---|---|
| **Government** | Municipality of Haarlem (*i.e. referred to as local policy-makers, municipal council*) | Facilitating and enabling role of the municipality for the neighbourhood councils and their initiatives | Cooperation with neighbourhood council, depend on the wider public for re-election | Perceived as the enabling actor in the transition through Institutionalising and cooperating with neighbourhood council |

| | | | | |
|---|---|---|---|---|
| **Market** | Market parties with innovative products *(i.e. e-scooter, carsharing, intelligent camera system)* | Provide sustainable transport modes, which function as alternatives for the car | Further regulation and support by the municipality in the future | Limited, sustainable alternatives potentially supporting the new regime, increased awareness of actors in the transition |
| **Civil society** | Neighbourhood council the 'Vijfhoek' *(including local entrepreneurs and residents)* | Increase political pressure through presenting a neighbourhood vision and a citizen initiative to the municipality | Organised in the neighbourhood council, institutionalised and subsidies by the municipality | Perceived as leading actor in transition, reaching a critical mass through the neighbourhood council and adding political pressure |

*Table 6: Overview of the results concerning the factor 'people' in the case of Haarlem.*

## 4.2.3 Reflection on the factor 'people'

In both cases, civil society actors had an important role in pushing the existing regime and encouraging regime actors to consider a new car-free area. First of all, what appears to be most important for the ability of these actors to initiate change is that they were on the same page in terms of objectives and solutions and, accordingly, manage to organise themselves. For example, in Leeuwarden the inner-city manager, as part of civil-society, functioned as a representative of the interests and objectives of different inner city parties. In addition, in Haarlem local residents were represented by the neighbourhood council. The importance of the role of a represented party or power for the different interests and objectives of local stakeholders in the inner city is echoed by the expert interviewee (R8). The following quote illustrates the ability of civil society actors to influence the transition:

> *They can influence the car-free city at least if they can organise themselves. And that's if they manage to come together and put pressure on policy makers, then they can actually make some changes.*
> - Academic, Barcelona Institute for Global Health (R8)

Secondly, the interdependencies between government and civil society actors stand out. In both cases the pressing role of local residents and/ or entrepreneurs encouraged government actors to rethink current practices and design of the inner city and seek and consider new solutions and ideas in that regard. In this regard, the expert interviewee (R8) mentions:

> *At the end of the day policy-makers have to listen to the people in the city.*
> - Academic, Barcelona Institute for Global Health (R8)

Moreover, you might state that the collaboration between these actors led to the consideration of new ideas and solutions and created momentum for change. However, the way in which this interplay between government actors and citizens emerged and local residents and/or entrepreneurs were able to influence the municipality differed across the two cases.

Within the case of Haarlem it appears that the municipality highly supports civil society actors, for example through subsidising and empowering the neighbourhood councils. In other words, the facilitating role of the municipality towards the neighbourhood councils, contributes to bottom-up ideas, for example the neighbourhood vision of the 'Vijfhoek', to emerge. To conclude, in Haarlem government actors have a more enabling role for bottom-up innovations and experiments, for example through creating the right institutional setting and providing financial resources. As a result, the linkage of government actors and civil society actors is influencing and encouraging policy-makers to consider and seek for new ideas and practices within the city centre. Hence, the results show how the linkage of actors is an important driver for the transition towards a car-free city.

In Leeuwarden, there was a higher variety of civil society actors involved (i.e. local residents, retailers, local entrepreneurs, culture organisations) with a high willingness and urgency to address the issues of safety and liveability to the municipality. In addressing these issues to the municipality, the inner-city manager has a key role in representing and empowering the civil society actors. In short, because different civil society actors each lobbied for the same idea, a critical mass was reached, contributing to the potential to influence the transformation of the inner city. Furthermore, the linkage between government and civil society actors, through the inner-city manager, enabled these ideas and wishes to push and encourage policy-makers to seek for new ideas and practices within the city centre.

Thirdly, considering the role of the 'market', in both cases more sustainable alternative transport modes were mentioned. On the one hand, in the case of Leeuwarden these innovations were more or less indicated to be a result (i.e. use of e-bike as alternative transport mode) or tool (i.e. intelligent camera system) for the car-free city, which rejects any potential of these innovations to have influenced the decision for a car free area. However, on the other hand, in Haarlem it was mentioned that these new developments and innovations potentially play a role in changing the regular ideas and practices concerning the city centre. For example, as they led to increased awareness of car redundancy among citizens and policy-makers. However, overall the results show that although alternative sustainable transport modes in the market might be supporting the feasibility of the car free city in practice, they do not influence the transition. This is for

example because it was indicated that currently these innovations mainly operate outside the institutional and regulatory systems of the municipality in the cases.

## 4.3 Factor 'planning'

Planning could function as a coordinative tool, using both filtering and framing and generating formal legitimacy, to facilitate transition (Uittenbroek et al. 2012). In this line of thought, this section discusses what the objectives and storylines for the different cities are, focusing particularly on how the car free city concept is linked to formal legitimacy in the form of visions, policies and programmes that shape what the cities are, and might become.

### 4.3.1 Case of the city of Leeuwarden

In the case of Leeuwarden, concerning generating formal legitimacy, interviewees do not specifically indicate the presence of a long-term vision or programme, which particularly focuses on creating a car-free city. However, to the question of what long-term visions and/ or objectives were important in relation to the transformation of a new car-free area, different visions and objectives were mentioned in which the new car-free area is filtered and framed as a potential solution.

One of the objectives mentioned by the interviewees concerns the experience of increased car-mobility in the city of Leeuwarden. Concerns were expressed by policy-makers about the increase of car mobility due to prosperity and the increase of commuting leading to more congestion in Leeuwarden as a city with an important economic function. Hence, planning of transportation and traffic has always received attention from policy-makers and is widely discussed in several policy documents and long-term visions for the inner-city. It is suggested that additional solutions are deemed necessary by policy-makers in order to maintain and improve accessibility of- and within the inner city in the long-term (R1, R2, D1, D0). In this light, improving facilities for walking and cycling are stated as an important precondition. Accordingly, interviewees refer to the car-free city as a potential solution to these long-term mobility objectives and visions of the municipality, as this could contribute to more space for cyclists and pedestrians.

Secondly, interviewees mention the long-term objective of increasing the liveability within the inner city of Leeuwarden. Although multiple objectives for the inner city of Leeuwarden were mentioned by interviewees and in the documents, liveability is most important. To illustrate this, one interviewee (R1) refers to the wider awareness of the changing function of cities in general: *"from a place to buy to a place to be"*. Furthermore, another interviewee (R4) connects the objective of increased liveability in the city centre to the ambition of bringing more visitors and tourists to the city. In this regard, he

mentions for example the ambition for Leeuwarden to be a highly cultural and attractive city for external visitors, to which a more liveable centre can contribute. Both the interviewees and the documents (D1, D2, D3, D8) mention the improvement of green in the city, the redesign of public space and traffic safety as important preconditions for a more liveable city and a 'place to be'. In addition, interviewees demonstrate on the whole that this objective of liveability is widely shared among all stakeholders involved in the city centre. As such, liveability is included as an important topic in several policy documents linked to the ambition of to transform the city centre, such as 'Agenda binnenstad 2021-2028' (D3) and 'Omgevingsvisie Gemeente Leeuwarden' (D8). However, as a point of criticism, two interviewees mention that in practice a clear long-term vision for the inner city of Leeuwarden is sometimes lacking. Two interviewees (R2, R3) mention that initially bottom-up dynamics (i.e. local entrepreneurs and citizens) initiated and drove the objective for a more liveable city centre and the car-free city.

| Indicator | Interpretation in the case | Potential influence on transition |
|---|---|---|
| **Filtering and framing** | Objective of liveability | Shared by inner-city actors, links to car-free city as it provides opportunities for greening and redesign of public space |
| | Objective of accessibility | Links to car-free city as it provides opportunities for improved conditions for cyclists and pedestrians. |
| | Objective for tourism | Links to car-free city as it is part of the storyline 'attractive' city for visitors |
| **Generating formal legitimacy** | Agenda Binnenstad 2021-2028' (D3) | Limited, in practice a clear long-term vision for the inner city of Leeuwarden might be lacking |

*Table 7: Overview of the results concerning the factor 'planning' in the case of Leeuwarden.*

## 4.3.2 Case of the city of Haarlem

In the case of Haarlem, interviewees mention both different objectives in which the new car-free area is filtered and framed as a potential solution, as the inclusion of the car-free area in formal policy programmes and visions.

First of all, sustainability is mentioned as an important objective by interviewees. In this regard, interviewees mainly refer to the presence of a left-oriented municipal council, which contributes to the weighted importance of sustainability in decision-making. In addition, national policy 'Green deal zero emission 2015' (D15) is connected to these objectives and functions as drivers for these sustainability goals of the municipality of Haarlem. Interviewees indicate that these ambitions for sustainability contribute to the progressive and open attitude towards the idea of car-free cities.

Secondly, interviewees mention the context of a dense city, in which improving facilities and infrastructure for cyclists is key. In this regard, one of the interviewees emphasises the importance of the pressing context of a highly compact city structure in which most facilities are located in the city due to the limitations of its mediaeval structure. Moreover, the presence of a historic city centre provides limited space for cars and, interviewees mention emphasise the opportunities that this city structure gives for other transport modes, such as pedestrians and cyclists. This is illustrated with the following quote:

> *I've noticed through a lot of complaints from residents that the city was never intended to accommodate this many cars, especially with the rise of delivery vans or parcel services. You simply get a lot of conflicts or certain vans can no longer even make the turn. Those kinds of challenges, the structure of the city, demand new planning solutions.*
> - Policy-maker mobility, Municipality of Haarlem (R5)

As a result, interviewees indicate objectives for creating more space and facilities for the bicycle and pedestrians within the city. One of the interviewees suggests that this objective can be reached through for example, current projects like improving the biking infrastructure around the city, but also by creating more space for the bike through car reducing measures in the city centre. These objectives are included in the new mobility vision of the municipality (D10). However, opinions differed as to whether the new mobility vision of the municipality influenced the new car-free area. One interviewee (R5) argued that the mobility vision, including objectives for better accommodating cyclists in the city of Haarlem, was an important driver for a new car-free area in the inner city. Another interviewee (R6) mentions that although the new mobility vision (D10) connects to the car-free area, as it prioritises cyclists and pedestrians, it did not drive the recent new car-free area. However, it might become more important in the future development of the car-free city. As the interviewee responded to the question whether the vision influenced the transition in Haarlem:

> *The new mobility policy was not fast enough for this car-free area. The mobility policy includes an implementation program that states that there will only be time for a new car-free area in 2026, so that the preparatory work, such as developing a mobility hub or the alternatives to parking, will be well prepared.*
> - Inner-city coordinator, Municipality of Haarlem (R6)

Thirdly, interviewees on the whole demonstrate that, in relation to the car-free city concept, the objective to increase the liveability in the city in the context of a dense and historical city centre is most important. For example, through greening the city and creating more attractive spaces. In short, the objective of liveability of the municipality was an important driver for considering a new-car free area. This is also strengthened by

the documents, such as the 'Structuurvisie 2040' (D11), describing that Haarlem wants to be an attractive, healthy and accessible city within the region and a city with a pleasant public space. In this regard, the car-free city is included as a potential solution for this long-term objective, as the car-free is not an end in itself, but a means to achieve a liveable city centre.

| Indicator | Interpretation in the case | Potential influence on transition |
| --- | --- | --- |
| **Filtering and framing** | Objective of liveability | Within this objective the car-free is included as a means to achieve a liveable city centre |
| | Objective of sustainability | Weighted importance of sustainability in decision-making of the municipality adds to political acceptance of the car-free city concept |
| | Objective of accessibility | Objective links to urgent issues and helps to justify change and attract supporters |
| **Generating formal legitimacy** | The new mobility vision 2040 (D10) | Debatable, due to the timing of the document |
| | 'Structuurvisie 2040' (D11) | Presents storyline for the city 'attractive, healthy and accessible city ', in which the car-free city is included as a potential solution |

*Table 8: Overview of the results concerning the factor 'planning' in the case of Haarlem.*

## 4.3.3 Reflection on the factor 'planning'

To reflect on the findings, both cases demonstrate that the objective of liveability is clearly filtered into local strategy making processes of both cities. Thus, positioning liveability as a wider and long-term goal within the city was a factor that drove policy-makers to choose an alternative pathway for the city centre. First of all, within Leeuwarden the public support for the long-term objective of a more liveable city was an important driver for the policy-makers to come up with a suitable solution within the city centre of Leeuwarden. Accordingly, the car-free city was linked to the wider frame and storyline of a more liveable city or as interviewees mention a "place to be". Similarly, within Haarlem liveability provided an important objective inducing change in the current practices and ideas for the inner city.

Comparing the two cases it can be seen that in the case of Haarlem a car-free city is more integral to the pursuit of wider urban agendas. Documents, such as the 'Structuurvisie' (D11) and current mobility vision (D10), already include the car-free city as a means to achieve a liveable city centre. In comparison, in Leeuwarden there were suggestions that in practice a clear integral long-term programme or vision is missing. In Leeuwarden a common view amongst interviewees was that having the clear objective of liveability had been most important in driving the willingness among policy-makers to change and

improve the city centre. Moreover, the objective of liveability is highly shared among local residents and entrepreneurs, this helped policy-makers in creating public support for the changes they were proposing for the city centre. Hence, interviewees on the whole demonstrated that 'a liveable city' provided a 'hook' and storyline on which to hang the development of a new car-free area. Furthermore, in Haarlem, although important programmes and policies, such as the mobility vision (D10), included plans for the implementation of the car-free city, it did not directly influence the recent new car-free area. Instead objectives such as liveability, sustainability and accessibility, functioned as a narrative, which both attracted residents and the municipality as supporters for change. This illustrates that when the weighted objectives of a municipality are clear and the car-free city concept is explicitly linked to it, this can influence change and eventually practical concretizations. Taken together these results suggest that the process of filtering and framing, resulting in a convincing vision and storyline for the city, is more important than the mobilising formal legitimacy in this regard.

Overall, the empirical material suggests that the two municipalities studied are striving to develop the link between their objectives and practical concretizations, including the car-free city as a potential solution, to generate formal legitimacy in concrete long-term programmes and policies. Nevertheless, as the expert interviewee (R8)  points out and is illustrated within the cases is that the car-free city is not always specifically included in such visions of the municipality. Rather, having a clear objective or vision for the city, can contribute to a new car-free area. As the expert interviewee (R8) elaborates, stating that visions help to show actors a clear sense of direction concerning the city. Even more, whether the objectives or storyline of the city are initiated or widely shared by the public was in the eyes of the policy-makers an important element for taking further action towards changing the city centre. In short, the findings show that strategic planning, though filtering and framing the car-free city in a vision or storyline, could function as a coordinative tool in driving the transition.

## 4.4 Factor 'policy'

For the new car-free area to be realised, and pressure the existing regime within the cities, linkages with policy arenas on a higher level are needed (Loorbach, 2010). Hence, this section discusses how the problem definition, idea development and political acceptability came together in the window of opportunity and led to new policies contributing to a new regime in the cases.

### 4.4.1 Case of the city of Leeuwarden

Interviewees mention different factors and/ or events that led to the policies for a new car-free area around 'Gouverneursplein'. First of all, concerning problem recognition, interviewees mention the urgency of decreased liveability in the inner-city of Leeuwarden.

More specifically, the geographic location and thereby economic function of Leeuwarden for surrounding areas causes a lot of unnecessary car traffic towards the city leading to an unsafe environment for pedestrians and cyclists. This is perceived by both local stakeholders and the municipality as an urgent problem challenging the liveability of the city centre. Two interviewees specifically indicate this problem of traffic nuisance and decreased liveability in the city centre as the decisive factor which led to policy, as they state:

> *I think the decisive factor has been, among other things, nuisance control, more than the development of the city centre over the years. This nuisance was the most important criterion for the political decision*
> - Inner-city manager, Organisation 'Binnenstad management' (R4)

> *...it has ended up in the college program on the basis of the argument against nuisance*
> - Project leader, municipality of Leeuwarden (R1)

Secondly, considering idea development, interviewees mention the bottom-up pressure, strengthened by the inner-city manager, which contributed to the consideration of a car-free city as a suitable solution. What adds to this is the earlier experience of Leeuwarden with transforming 'de Kleine Kerkstraat' as a car-free street in the inner city in the 80s. Interviewees on the whole demonstrate that the positive outcome of the earlier car-free area functioned as an inspiration for policy-makers. Moreover, in the interviewees experience the earlier car-free area shows how the car-free solution could contribute to their objectives of a more liveable city. This is illustrated with the following comment:

> *The car-free concept lived in the city all the time... it was something that was often mentioned. For example, the 'Kleine Kerkstraat' in Leeuwarden was once the most beautiful street in the Netherlands... Such a street just becomes more fun and liveable.*
> - Consultant Sustainable Mobility (part of the project team for Gouverneursplein), Royal HaskoningDHV (R2)

Furthermore, interviewees mention the recent development of smart technology, such as an intelligent camera system which could help facilitate the transformation process of a car-free area. In the eyes of the policy-makers, this technical innovation showed the technical feasibility of the car-free city as a potential solution., because this tool could be used to enforce the car-free area and, hence, contribute to a more liveable city centre.

Thirdly, concerning politics, interviewees indicate the presence of a right oriented aldermen at that time. This politician was eager to meet the wishes of local entrepreneurs

for a car-free city,  due to his more economically oriented focus on the city. As a result, the alderman decided to include the car-free city as an action in the municipal programme, which was a direct push for leading further policies and implementation plans for the 'Gouverneursplein'. One of the interviewees (R2) states:

> *Four years ago there was a sentence in the municipal agreement; the area, Gouverneursplein, should be car-free. That was the direct starting point, which made the alderman say: left or right, it doesn't matter how we're going to do it. But at the end of my college term, I just want this promise to be fulfilled. That's how it starts.*
> - Consultant Sustainable Mobility (part of the project team for Gouverneursplein), Royal HaskoningDHV

To summarise the findings of Leeuwarden, first of all the urgency of addressing liveability as an important issue, shared by multiple actors, was important in leading to the potential solution of a new car free area around 'Gouverneursplein'. What adds to this is the earlier experience of the city of Leeuwarden, which pointed out that the car free city is a suitable solution to their long-term objectives. Furthermore, in the eyes of policy-makers the recent development of smart technology contributes to the technical feasibility of the car-free city as a suitable idea and solution in the city centre. Subsequently, the support and actions of an alderman created the right political arena for the plan and policy for the new car-free area.  Thus, multiple events, within the three streams problem recognition, idea development and politics, led to the window of opportunity to open, which led to policy and implementation of a new car-free area in the city.

| Indicator | Interpretation in the case | Potential influence on transition |
| --- | --- | --- |
| **Problem recognition** | Urgency of traffic nuisance and decreased liveability in the inner-city | Urgent problem pressured municipality to look for a solution |
| **Idea development** | Earlier experience with 'Kleine Kerstraat' | Pointed out the car free city as a suitable solution to problem and objectives |
| | Technical feasibility due to intelligent camera systems | Contributed to feasibility of the idea of a new car-free area |
| **Politics** | Courage/ willingness of right-oriented (VVD) alderman at that time | Inclusion of the new car-free area in the municipal programme |

*Table 9: Overview of the results concerning the factor 'policy' in the case of Leeuwarden.*

## 4.4.2 Case of the city of Haarlem

First of all, concerning problem recognition in the case of Haarlem, the current issue of scarce space in the city centre of Haarlem, due to the dense and historical structure, is mentioned by interviewees. Especially, with the recent growth of the amount of parcel services and delivery vans, this issue becomes increasingly pressing within the city centre, resulting in the receival of a high number of complaints from both citizens, traffic users and companies. According to interviewees this pressing issue is one of the reasons for policy-makers to look for alternative solutions in the city centre.

Secondly, concerning the idea development for a new car-free area in neighbourhood the 'Vijfhoek', two interviewees (R5,R7) indicate that the city vision for 2040 (D11) had an important role. As mentioned with the factor planning, this long-term policy is based on the municipality's ambitions for sustainability and liveability, in which the car-free city is included as a potential solution for the inner-city. Accordingly, what first of all led to this policy was a push from this binding long-term policy in the context of the pressing issue of accessibility within the compact city centre. Furthermore, contributing to the idea development, in 2018 the neighbourhood councils the 'Vijfhoek, Raaks en Doelen' presented their neighbourhood vision (D12) to the alderman. The main objectives of this vision are improving accessibility, but foremost liveability within the neighbourhood, in which a car-low or free city is presented as the solution. As one of the interviewees states:

> *I think that quality of life for residents, in other words the attractiveness of their living environment and the wishes they have in that regard, may have been leading*
> - Policy-maker mobility, municipality of Haarlem

Thirdly, concerning politics, one interviewee (R6) indicates how the municipality did not have the capacity and resources at that time to directly comply with the wishes and ideas of the neighbourhood council. However, the neighbourhood vision increased the political pressure on the municipal council to come up with a solution. What adds to this, according to interviewees, is the progressive nature of the municipal council and an alderman who is positive about a car-free city and who has courage to move forward. Eventually this pressure of the neighbourhood councils together with the willingness of the alderman led to the cooperation with an external traffic agency in order to research the feasibility of a new car free city as a potential solution for the 'Vijfhoek'. In addition to the neighbourhood vision, there was a new document called 'plan b: a citizen initiative' (D13)[1] presented to the municipal council in 2020, as the residents desired a larger car-low area than the municipality envisioned in one of their earlier proposals. This shows

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[1] Since 2005 residents have the right to put their own proposal on the municipal council's agenda. In the case of the collection of sufficient signatures, the council is obliged to make a decision on the proposal.

the continuous attempts of bottom-up initiatives to influence the policy-making process of the municipality in Haarlem. In general, interviewees on the whole demonstrate that the neighbourhood the 'Vijfhoek' had an important role in influencing the policy-making for the new car-free area.

| Indicator | Interpretation in the case | Potential influence on transition |
|---|---|---|
| **Problem recognition** | Urgency of decreased accessibility and traffic nuisance in the inner-city | Urgent problem pressured municipality to look for a solution |
| **Idea development** | Overlapping long-term policies and programmes *(i.e. structuurvisie 2040)* | Pointed out the car free city as a suitable solution to problem and objectives |
| | Bottom-up initiatives, i.e. the neighbourhood visions (D12; D13) | Pointed out the car free city as a suitable solution to problem and objectives for that specific area, increased political pressure |
| **Politics** | Bottom-up initiatives, i.e. the neighbourhood visions (D12; D13) | Political pressure on the municipal council to come up with a solution |
| | Courage/ willingness of the alderman at that time | Pushed plan forward, leading to cooperation with an external traffic agency in order to research the feasibility of a new car free city as a potential solution for the 'Vijfhoek' |

*Table 10: Overview of the results concerning the factor 'policy' in the case of Leeuwarden.*

## 4.4.3 Reflection on the factor 'policy'

To reflect on the findings, first of all, local initiatives have an important role in addressing urgent issues contributing to problem recognition by policy-makers in both cases. The cases show that these urgent issues mainly relate to increased traffic nuisance in the city centre, which is also indicated by the expert interviewee (R8) as one of the main drivers for the car-free area in cities in general. A second similarity of the cases is that ideas and proposals of local actors contributed to the idea development of a new car free area (i.e. the inclusion of a new car free area in the neighbourhood vision of the 'Vijfhoek' (D12)). However, a comparison of the two results reveals that there are different ways in which bottom-up initiatives drove policy.

In Leeuwarden, both local actors (i.e. residents and local entrepreneurs) and the municipality had the same perception of the problem of decreased liveability, for example due to high traffic nuisance, within the inner city. Subsequently, residents and entrepreneurs initiated the idea of transforming 'Gouverneursplein' into a new car-free

area. The case of Leeuwarden shows the potential of local initiatives to drive ideas about alternative policy directions in cities. These ideas highly influenced policy-makers, hence, the bottom-up initiative can be considered the most important factor that led to the policy for a new car free area. Similarly, in Haarlem the neighbourhood vision in 2018 (D11) highlighted issues in the inner city (i.e. liveability) and included the idea of a new car-low area, which led to high political pressure. This pressure motivated policy-makers to consider the solution of a car-low area and explore the possibilities in this regard.

What appears to be similar in these cases is that the problems and associated objectives and ideas for the city centre of bottom-up actors are shared by policy-makers, and the other way around. In both cases, this similar perception among actors of the problems and solutions might have contributed to the social and or political acceptability of a new car free area, pushing policy change.

Secondly, what is striking in the case of Leeuwarden is that the previous experience with transforming a car-free area indirectly led to a push for policy. Together with the technical innovation of a smart camera system, this experience shows policy-makers the feasibility of the car-free city as a suitable idea and solution for the objectives for the inner-city. However, in comparison, the perceived social or technical feasibility of the car-free city concept for policy-makers is not specifically mentioned as a driver for policy in the case of Haarlem. Instead, the specific inclusion of the car-free city concept in a long-term vision led to an important push for policy for a new car-free area. This might indicate that the idea development of a car free area the 'Vijfhoek' connects to earlier policies, hence, alternative policy trajectories in Haarlem might have already been in place. This differs from the case of Leeuwarden, where the car-free city is not part of a long-term programme or policy, but rather a new idea to the current policy agenda.

Thirdly, in addition to the factors mentioned above, in both cases the political arena in general contributed to policy change. For example in Haarlem, the municipality is highly progressive and open towards bottom-up ideas and plans. In addition, the car-free city is already included as a solution for their long-term objectives for the inner-city in several long-term policies and programmes, showing the willingness towards alternative policy pathways and a new car free area. Taken together, these results emphasise the importance of political willingness and acceptability leading to policy for a new car free area in cities. This is also recognized to be an important factor in cities in general by the expert interviewee (R8), stating:

> *If political leaders don't want to, nothing will change. Usually it's not one thing*
> *that leads to policy, everything and everyone has to look the same direction.*
> - Academic, Barcelona Institute for Global Health

In this regard, a new theme emerged from the results, in both cases the willingness among one crucial policy-maker or policy makers was mentioned as an important driver. In Leeuwarden the inclusion of the new car-free area in the municipal programme by the right-oriented alderman was a direct push for policy. Also in Haarlem, the alderman pushed the plan forward, leading to cooperation with an external traffic agency in order to research the feasibility of a new car free city as a potential solution for the 'Vijfhoek'.his indicates that within both cases there was a key individual driving the transition.

In conclusion, an overall comparison shows that both Leeuwarden and Haarlem bottom-up initiatives were important in the problem recognition and idea development of a new car-free area. Furthermore, in both cases politics, including willing politicians, and timing were important factors that eventually led to the policy for a new car free area. These results indicate that the right political arena opened up opportunities for alternative ideas and policies to occur. To conclude, the occurrence of a window of opportunity due to a mix of factors was needed in the cases, to lead to policies for a new car-free area and, hence, contributed to change within the city centre.

## 4.5 A new regime

In the previous section it was discussed how different factors contributed to change in the inner city. Subsequently, in this section it will be discussed to what degree a new regime, consisting of informal and formal institutions (Geels, 2011), was established. Subsequently, there will be a short reflection on the degree to which changes have occurred towards a car-free city and led to a new established regime, to which the phases-model by Rotmans et al. (2000) will function as a guideline, including the phases: (1.) pre-development, (2) Take-off, (3) Acceleration, and (4) the stabilisation phase.

### 4.5.1 The case of the city of Leeuwarden: a new regime?

*Formal embedded rules and regulations*
Based on the documents (i.e. D4, D5) and interview respondents, the following changes were made in the North western part of the city centre in 2021:

- The car-free area has been expanded. The core shopping area (red) was already car-free. This area has been expanded to include the area in the North western part.
- Signage is changed to 'only loading and unloading allowed'.
- The moment and time for loading and unloading of logistics has been adjusted
- The entrances of the new car-free area have been made (more) visible with clear lines on the streets.

- Exemption policy reassessed. The exemption policy has been re-established by the municipality.
- Paid parking 'Eemwal' and 'Wortelhaven' was abolished.

*Informal institutions*
As it appeared from the evaluation (D3) and the interviewees, although several measures were implemented in 2021, in practice there is still a lot of unwanted car traffic in the area. In this regard, interviewees mention that although the area is currently 'formally car-free', the behaviour of car drivers has not sufficiently changed. According to the evaluation and interviewees additional measures deemed necessary in order to change the behaviour of car-users external to the city centre (D7). Currently, the incidental and structural costs for phase 2 (mainly focused on roll-out digital enforcement through cameras) are drafted and submitted for decision-making by the new municipal council (D6). Furthermore, interviewees suggest that in addition to car reducing measures, greening and redesign of public space in the new car-free area is deemed necessary in the future, in order to create a more liveable city centre. To conclude, these findings suggest that, although formal institutions have changed, from the perspective of the municipality, informal institutions are still a subject of change. Hence this might refute the establishment of a new regime in the city centre of Leeuwarden.

## 4.5.2 The case of the city of Haarlem: a new regime?

*Formal embedded rules and regulations*
Based on the documents (D12, D14) and interview respondents, the following changes were made in the inner-city in light of the car-low neighbourhood:

- Implementation of rules and regulations that forbid long trucks and vans
- Implementation of several traffic measures, such as Reversal of the traffic direction in 'Korte Wolstraat, Nieuwe Raamstraat' and the northern part of 'Gedempte Voldersgracht'.
- Restricting times are added at all loading and unloading locations in the 'Vijfhoek'.

As a follow-up of these measures, the following changes are already planned within the next coalition period from 2022 (D14):
- A low-traffic pedestrian zone will be established in the part of the 'Vijfhoek'. There will be more space for pedestrians and cyclists and there will be fewer parked cars in the streetscape.
- The 'Barrevoetestraat' and 'Keizerstraat' will be given a bicycle-friendly layout.
- Implementation of an intelligent camera system within the car-free area

*Informal institutions*

In Haarlem, interviewees mention the contradictory between the definition of a car-free area between the perspective of the municipality and the local residents. In the perspective of local residents, they are still able to use their car and parking spaces, while external car users are banned from the neighbourhood (D12). Accordingly, this form of the car low-area is currently being implemented in the neighbourhood the 'Vijfhoek' (D14). However, interviewees mention how the municipality rather prefers a situation, which reduces all car traffic, and, hence, provides additional opportunities for the design of redundant parking spaces and public space (D14). Moreover, they do not only aim to change the behaviour of external car users, but also of the inner city residents themselves. Hence, taking the perspective of civil servants within the municipality in this research, the formal institutions (rules and restrictions for parking within the car-free area) and informal institutions (value and behaviour of residents towards parking in the area) have not yet changed.

### 4.5.3 Reflection on the new regime in the cases

In short, from the perspective of municipal civil servants in both cases, visible changes are happening within the city centre, both within the formal and informal institutions. However, they indicate that additional measures or changes are happening or expected, such as the implementation of stricter rules and regulations for external car-users and the redesign of public space within Leeuwarden. In the case of Haarlem, this concerns the plans of the municipality to remove additional parking spaces in agreement with residents, potentially changing the behaviour of car-users. Hence, as changes are still accelerating, this indicates that a new and stabilised regime is not yet established in both cases.

Although in both cases municipal civil servants express the ambitions for additional measures and changes, it is important to consider that different driving factors for these changes are mentioned. For example, the role for technical innovations in future development of the car-free areas is emphasised, such as an intelligent camera system and the facilitation of other sustainable transport modes and  systems. In addition, interviewees refer to current elections and the different actors involved over time, which is needed for a new window of opportunity.

## 4.6 Discussion of the results

Within this section, firstly, the ability of the 3P's together in influencing the transition is discussed. Subsequently, the factors in relation to each other are discussed. Overall, this section will reflect on the findings in relation to the theory.

### 4.6.1 A nuance to the new regime: discussing the role of the 3p's

The following paragraphs will reflect on the three factors, people, planning, and policy and the transition towards a new regime.

The most important nuance, concerns the extent to which the 3P's influence the local transition. Following the reflection in paragraph 4.5, the stabilisation phase (4) described by Rotmans et al. (2000) as the establishment of a new regime, is not yet reached. This indicates that the 3P's by Doheim et al (2020) mainly play a role in the first three phases of the transition, up to the moment when change is visible (the acceleration phase). In conclusion, the interplay between the three factors lead to visible institutional, socio-cultural, economic changes. However, the stabilisation phase, where a new regime is established, is not yet reached. This would imply that the potential role of the 3P's in this fourth phase of the transition, and in establishing the new regime in the cases, needs yet to prove itself in time. Furthermore, other factors besides the factors by Doheim et al. (2020) might play a role in further establishing a new regime in these cases over time.

To summarise, using the transition theory it can be seen that the 3P's mainly play a role in the third, acceleration, phase of the transition (when change is visible), but not in establishing an entire regime. Moreover, the interplay between the three factors lead to visible institutional, socio-cultural, economic changes. However, the stabilisation phase, where a new regime is established, is not yet reached.

### 4.6.1 Discussing the 3P's: comparing practice and theory

Informed by the previous section discussing that the 3P's played a role up to the third phase of the transition, the following section further discusses the role of the 3p's in the transition in general.

A first point of discussion is that  the results suggest that there is an interplay between the three different factors (people, planning, policy).  Doheim et al. (2020) briefly touch upon the relationship between the 3P's, and note that they should be balanced and incorporated together in order to successfully transform a car-free city. However, they do not elaborate on how and to what extent the factors relate to each other. This is a potential gap within the theory of Doheim et al. (2020), as the results suggest that the three factors seem to be unequally related throughout time. To illustrate this, the results indicate that the factor 'people' and 'planning' mainly contribute to the transition by pressuring or shedding light on current beliefs, practices of policy-makers and politicians. As discussed within the factor 'people', civil society actors can have an important role in pushing and encouraging government actors to seek for new ideas and solutions.  However, for the upscaling of these solutions, and to actually change the existing regime, policy is needed. Accordingly, in addition to the factors 'planning' and 'people',  the factor 'policy' can be considered as

the 'key factor' for visual change. Furthermore, concerning the factor 'people', the results point out that different actors are interwoven within the factors and within the transition over time. In other words, it is hard to consider the factor 'people' as a separate entity in influencing the existing regime in cities. In this regard, the theory seems to overlook the dependencies of actors on other factors and resources in influencing the car-free city. Lastly, the results point at an important interplay of the factor 'planning'. The results suggest that 'having a clear objective' or storyline for a city is not only an important factor to initiate change, it also appears to be a strategy or tool for policy makers to increase public support for their alternative policy pathways. Hence, this indicates a relationship between 'planning' and the factors 'people' and 'policy', which is not explicitly included in the theory on these factors, such as Doheim et al. (2020) or Albrechts (2010) and Hrelja et al. (2015). Hence, taken together, there is an interplay between the different driving factors in the transition, in which different factors can have a different role (i.e. planning as a tool or strategy).

The second point of discussion relates to the timing of the three factors. Doheim et al. (2020) do not discuss how the three factors relate to each other in influencing the car-free city over time. Accordingly, the concept of a window of opportunity should be included in discussing the 3p's, because this concept says something about when and how all the factors come together. The results show that there was this crucial moment in time, where all factors came together in combination with the right political arena, which was required for opportunities for alternative ideas and policies. Hence, a window of opportunity is an important factor driving the transition towards a car-free city.

The third point concerns the definition of the 3P's as used in this research. First of all, for the factor 'people' the typology of Loorbach (2007) (in Fischer and Newig, 2016) appears to be more suitable than the definition by Doheim et al. (2020). This is because the results show that the cooperation and linkage of civil society and government actors appears to be important in establishing a new regime in the cities. However, the results indicate a nuance to this typology and the limited role of civil society in the transition described by Fischer and Newig (2016), as in both cases civil society actors (i.e. local residents) were highly important. Secondly, concerning the factor 'planning', the concept of strategic planning by Albrechts (2010) Hrelja et al. (2015) seems suitable to analyse the transition towards a car-free city, as 'having an objective' as part of the strategic planning process seems to be an important driver for change in the cases. However, a difference between the results and theory appeared. Taking the conditions for strategic planning by Healey (2007;2009) into account, the results suggest that the process of filtering and framing is sometimes more important than the mobilising formal legitimacy in this regard. Thirdly, concerning the factor 'policy', the results suggest that in both cases there is an important individual influencing the formal political arena through which the car-free city reaches the agenda. This result not only is an addition to the 'policy' factor, but is also intertwined

with the factor 'people'. The results shows that besides the importance of linkage of actors, an individual can have an important role in promoting the transition through policy, which is also mentioned in the literature as a 'policy entrepreneur (Huitema et al., 2011). Hence, it is suggested that the notion of a 'policy entrepreneur' should be included in the theory on car-free transitions as an important driver intertwined within the factor 'policy' and 'people'.

To summarise, in discussing the transition process on a local  level, it is important to take into account the interplay between factors.  In addition the timing of these factors need to be considered, hence the concept of a window of opportunity could be used. Lastly, it is suggested that broader definitions, embedded in the transition theory, are used for the three factors in order to explore their influence on the transition of a car-free city. This leads to the suggestion of an alternative conceptual model in figure 4.
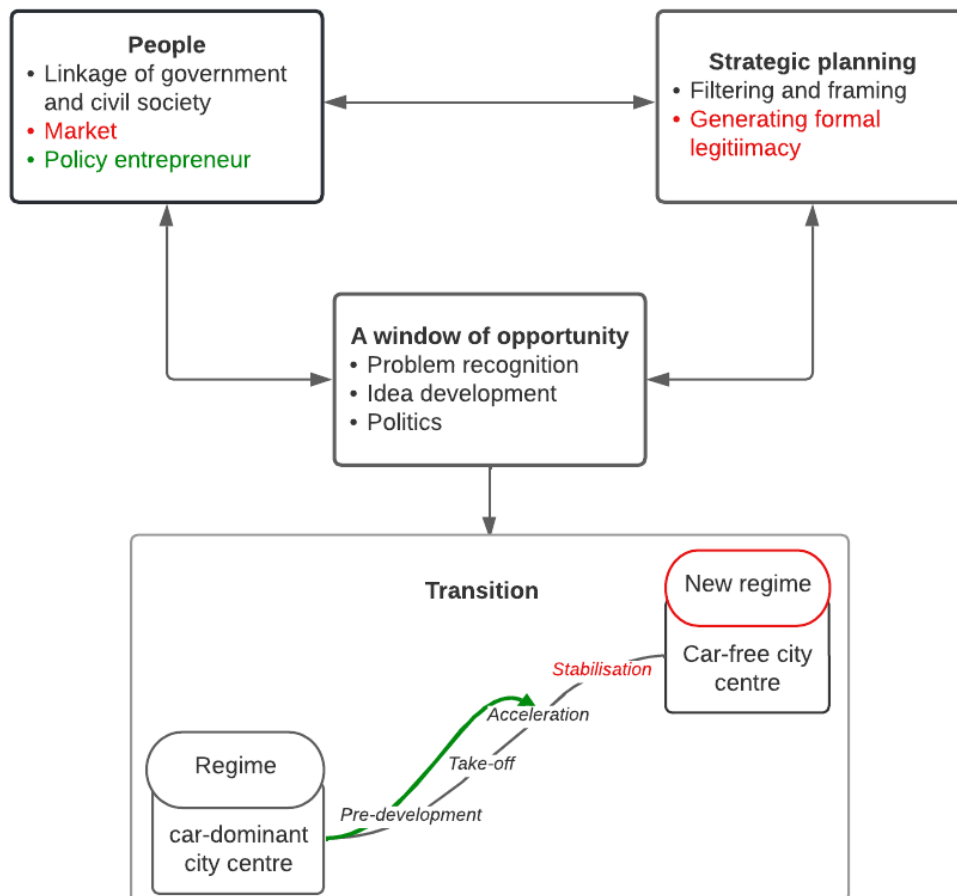


*Figure 4: Adapted conceptual model based on the results*

# 5. CONCLUSION

## 5.1 Reflection on the findings

The aim of this research is to give insight into important factors underlying the transition towards a new car-free regime in two Dutch cities. Accordingly, the following research question was formulated:

*'What driving factors contribute to the transition towards a car-low city regime in Dutch cities?'*

With this research question, it was promised to identify the factors that contributed to the transition towards a car-free city in two cases of cities in the Netherlands. The following paragraphs will present the main factors that were found.

In the local transition towards a car-free city in the cases three main factors play a role. The first factor concerns the role of people in the transition. A combination of different actors in the case together came up with new problem definitions, ambitions, and solutions, while pressuring the existing car-dominant regime in the city centre. In addition, individuals can have an important role in influencing the transition. To conclude, the factor 'people' is an important factor underlying the transition towards a car-low or free regime in the cases.

Secondly, planning proves to be an important factor in supporting a local transition towards a car-low or free city in the cases. Looking at both cases it can be found that planning could function as a coordinative tool in considering different conflicting objectives and interests to facilitate transition. In this way planning contributes to the re-examination of current urban development patterns, potentially leading to alternative development pathways.

The third factor concerns policy. Both cases confirmed that it required the linkage of objectives, visions, and bottom-up initiatives concerning the car-free city, to the formal policy arena in order to lead to change in the city centre. Moreover, the factor 'policy' can be considered as the 'key factor' to contribute to visual change in the local transition.

## 5.2 Theoretical and practical implications

The section below discusses the contribution of this research based on the findings. Herewith, a distinction is made between theoretical and practical implications.

*Theoretical implications*

The first theoretical contribution is that the theory of Doheim et al. (2020) in general appears to be a suitable structure to discuss the transition process on a municipal level in Dutch cases. The three P's were identified within both cases and contributed to change and the transition of a car free area overall. However, note that some adaptations of the theory of Doheim et al. (2020) needs to be considered in order to be suitable for the research of local transition in cities (See figure 4 for the adjusted conceptual model). Besides structuring the factors that underlie the transition, this research gives insight into the extent to which the 3P's by Doheim et al. (2020) contribute to a new regime. In the conceptual model in section 2.4, the factors were indicated to equally and independently influence the transition towards a new car-free regime in city centres. However, the results show how the interplay between the three factors lead to visible institutional, socio-cultural, economic changes in the cases. Nevertheless, the stabilisation phase, where a new regime is established, is not yet reached in the cases. This is an important nuance to the extent to which the 3P's could influence the entire transition and a new regime, which could be of added value to deepen the theory of Doheim et al. (2020).

The second theoretical contribution is that this research shows that the transition theory, more specifically the concept of a regime and the different transition phases (i.e. Geels, 2018, 2011;  Rotmans et al., 2000) can be used to research the transformation of a car-free area in Dutch cities. The research shows that, besides the top-down implementation of car-free measures, wider factors and dynamics are at play influencing the existing regime. Hence, by using the transition theory and the structure of the 3P's by Doheim et al (2020) this research was able to give insights into these wider factors and dynamics in the cases. Hence, this research contributes to the theoretically enrichment of the theory on transitions by adding insights from other theories, such as the 3P's by Doheim et al. (2020), within the context of cases.

*Practical implications*

Concerning the practical value of this research, both cases contribute to knowledge on important driving factors in the context of different Dutch cities. This could be valuable as the transition process is rather complex, and the factors and dynamics sometimes operate outside the jurisdiction of policy-makers (Geels, 2018). Subsequently, an overview of the main factors (people, planning, policy) within two specific cases is an important step in illustrating this complex process. Furthermore, since the research mainly focuses on the perspective of municipal civil servants (i.e. policy-makers), and the factors that are important in their point of view, these results could help structure their own drivers and process in relation to the car-free city accordingly. This could help policy-makers to better understand the local transition process and, even more, to better anticipate changes.

## 5.3 suggestions for future research

The adjusted conceptual model (figure 4) as a result of this research can be tested in other places and contexts. This would help to investigate whether the adaptations of the theory discussed in this thesis are grounded in a different context, with the aim to verify the validity of the theoretical model in empirical reality. Furthermore, with additional case studies, specific attention can be given to be devoted to the role of context, as it has been shown to have a significant influence on the transition dynamics and how the 3P's relate to each other.

Secondly, the new theoretical model gives an overview of the 3P's up to the third phase of transition. A second suggestion for future research is to focus on the stabilisation phase by Rotmans et al. (2000), in which an actual regime is established. This is relevant because the results imply that other factors, besides the factors by Doheim et al. (2020), might play a role in further establishing a new regime in these cases over time.

Lastly, there is a need to research more about the role of the policy entrepreneur in the context of a local transition of a car-free city. The results suggest in both cases there is an important actor functioning as an independent driving factor within the formal political arena through which the car-free city reaches the agenda. Although this research adopted the notion of a 'policy entrepreneur' within the factor 'people', there is a need to further explore the role in the transition arena in general, as this cannot be inferred from a single study. Future research could look into the relationships of this potential factor and the transition towards a car-free city independently, in order to deepen the understanding of the relationships between this factor and the transition.

## 5.4 Reflection and limitations

### 5.4.1 Theoretical reflections

A theoretical framework was developed as a basis for the analysis of factors driving the transition towards a car-free city regime in the cases. Although this framework proved to be useful in providing a structured overview of the factors, it is important to note that it is rather a simplification of reality. This brings us to the first point of criticism on the framework, which is the assumption that the different factors are unchanged objects resulting in predictable outcomes. In reality, transitions are complex and, hence, many more complex interactions which might not be directly visible (i.e. between contexts, time, human endeavours, institutions) can take place in a city centre, beyond the structure of people, planning, policy  (Geels, 2011). In this light, the theoretical framework might be too simplistic and structured, leaving no room for greater analysis of the transition dynamics and processes, as Berkhout (2004) points out as a common default of transition

research. Hence, the use of the framework is limited to describe or structure the transition, in offering a heuristic device that helps the analyst 'see' interesting patterns and mechanisms, instead of functioning as a 'truth machine' systematically stating what factors were determinant in driving the transition.

Another point of reflection links to the difference between theory and practice. Although the framework helps to see patterns and mechanisms in the cases, in practice this structure might not be present. This is because each interviewee has their own interests and interpretation, which are interwoven with the exploration of the transition within the two cities (Flyvbjerg, 2006). For example, as transitions, people, planning, policy in practice can be rather vague and ambiguous concepts, various interpretations of these different factors might occur in practice. For this reason, the factors and transition process in the cases should be considered as a narrative reconstruction determined by the context in which it is embedded (Geels, 2011). Hence, it can be questioned to what extent this framework can be used to analyse a transition in a way that goes beyond the empirical mapping of these two cases.

## 5.4.2 Reflection on the research design

The methodological choices within this study contain two main limitations. First of all, concerning data collection and analysis, there is a limitation to the ability of the researcher to be able balance focus and openness. On the one hand, focus might be limited by the notion that interview respondents are driven by their own interests and perceptions, which sometimes goes beyond the proposed interview structure (Lunghurst, 2016). On the other hand, concerning the openness, because case studies are highly subjective the researcher risks of applying its own interpretation which might not be able to include the openness of the collected data (Flyvbjerg, 2006).

The second limitation concerns the limited generalizability of this study, because the findings apply to a certain context of two cities in the Netherlands (Flyvbjerg, 2006). What adds to this is that this research derives from a certain perspective, namely that of local government actors within the municipality as embedded in that specific case. For this reason, an expert has been interviewed to provide a more holistic view of the car-free city and to validate the findings. Furthermore, an attempt has been made to distinguish between results specifically linked to the case, and, results that can be linked to transitions towards ca-free cities in general. However, this distinction was not entirely feasible, because the cases appear to be unique in nature and as a result of the qualitative research method the factors are addressed in a diverging way in each case (Bryman, 2012). Although there is a limitation to the degree of generalisation of the results, this thesis can still contribute to the collective process of knowledge accumulation (Flyvbjerg, 2006), meaning that this qualitative case study can be of value for scientific progress without formulating generalisations.

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# Appendix 1 - Interview respondents

*List of interview respondents for both cases.*

| Code | Full name | Position | Organisation | Medium | Purpose |
|------|-----------|----------|--------------|--------|---------|
| R1 | Sebastiaan Mulder | Project leader | Municipality of Leeuwarden | In-person interview (± 90 min.) | In -depth understanding of factors in the case |
| R2 | Klaas yde Haarsma | Consultant Sustainable Mobility | Royal HaskoningDHV | In-person interview (± 60 min.) | In -depth understanding of factors in the case, Illustration of factors in Dutch cities in general |
| R3 | Anonymous | Consultant Sustainable Mobility | Royal HaskoningDHV | In-person interview (± 60 min.) | In -depth understanding of factors in the case, Illustration of factors in Dutch cities in general |
| R4 | Hayo Galema | Inner-city manager | Stichting Binnenstads management | Online interview (± 40 min. ) | In -depth understanding of factors in the case |
| R5 | Stijn Altema | Policy-maker mobility | Municipality of Haarlem, SWECO | Online interview (± 40 min.) | In -depth understanding of factors in the case |
| R6 | Ingrid Hamer | Inner-city coordinator | Municipality of Haarlem | Online interview (± 40 min.) | In -depth understanding of factors in the case |
| R7 | Hellen Jennissen | Strategic mobility advisor | Municipality of Haarlem | Online interview (± 30 min.) | In -depth understanding of factors in the case |
| R8 | Mark J Nieuwenhuijsen | Research Professor | Barcelona Institute for Global Health - Campus MAR | Online interview (± 60 min.) | Contributing to understanding of factors and dynamics in Dutch cities in general/ validation of the results |
| R9 | Martina Huijsman | Alderman | Municipality of Delft | Online interview (± 30 min.) | Contributing to understanding of factors and dynamics in Dutch cities in general/ validation of the results |

# Appendix - 2 - Document analysis

*List of documents analysed for the case of Leeuwarden.*

| Code | Sort document | Name document | Author(s) |
| --- | --- | --- | --- |
| D1 | City vision | 'Samen maken we de stad sterker!' | Stichting Binnenstad Management Leeuwarden |
| D2 | City vision | Agenda Binnenstad Leeuwarden | Gemeente Leeuwarden |
| D3 | City vision | Agenda binnenstad 2021-2028 | Gemeente Leeuwarden |
| D4 | Implementation plan | Uitvoeringsplan autoluwe binnenstad Leeuwarden | Municipality of Leeuwarden |
| D5 | Evaluation | Autoluwe Binnenstad Leeuwarden Evaluatie | Royal HaskoningDHV |
| D6 | Municipal letter to the council | Autoluwe binnenstad informerende brief aan de raad (Fase 1) | Municipality of Leeuwarden, signed by mayor and aldermen of Leeuwarden |
| D7 | Municipal letter to the council | Brief aan de gemeenteraad over evaluatierapport Autoluwe Binnenstad | Municipality of Leeuwarden, signed by mayor and aldermen of Leeuwarden |
| D8 | Vision for the municipality | OMGEVINGSVISIE GEMEENTE LEEUWARDEN | Municipality of Leeuwarden |

*List of documents analysed for the case of Haarlem.*

| Code | Sort document | Name document | Author(s) |
| --- | --- | --- | --- |
| D9 | Evaluation | Evaluatie autoluwe binnenstad Haarlem - eindrapport | ir. E.I. Zuurbier, K. Poelsema MSc, S.F. Ruiter MSc, ir. N. Lammers |
| D10 | Mobility vision | Mobiliteitsbeleid Haarlem 2040 | Municipality of Haarlem |
| D11 | City vision | Structuurvisie openbare ruimte Haarlem 2040: Groen en Bereikbaar | Municipality of Haarlem |
| D12 | Neighbourhood vision | Wijkvisie Verkeer - Een bewonersinitiatief | Neighbourhood council the 'Vijfhoek' |
| D13 | Citizen initiative/ petition | Plan B | Neighbourhood council 'de Vijfhoek' |
| D14 | Municipal decision | Vaststellen DO verkeersmaatregelen Keizerstraat-Barrevoetestraat-Botermarkt | Hoefakker, M. (municipality of Haarlem) |
| D15 | National policy | 'Green deal zero emission 2015' | National government |

# Appendix 3 - Interview guide

*(The interview will be conducted in Dutch)*

1. Preface

*Beforehand, without recording it, I will discuss the following things with the participant:*

- *Introduce myself*
- *Explain my research objectives*
    - *Research question: 'What factors contribute to the transition towards a car-low city regime in Dutch cities?'*
    - *Research aim: The aim of this research is to give insight into dynamics and factors for the transition towards a new car-free regime as identified by policy-makers in two Dutch cities and to discuss how these compare with the literature.*
    - *Methods: This is a qualitative comparative case study research. Data will be collected with the help of desk research, semi structured interviews and an expert-interview. These interviews will be transcribed and analysed with the help of a pre-established code-tree. The document analysis will be making use of the same code tree as the analysis of the interviews*
- *Refer to interview duration (max 1 hour), inform whether the participant is on a time budget*
- *Explain how the interview is structured*
- *Explain the 'Agreement to participate form' and let the participate sign it (appendix 2)*
- *Starting the interview by starting recording*

2. Introduction

- *Organisation*
    - Briefly, what is the main goal of your organisation/department?
    - How is your organisation/department involved in achieving that goal?
    - In what way is a car-free city centre part of this goal?

- *Personal*
    - What is your position within the organisation?

    o   In what way are you involved in the transition towards a car free city centre?

    o   Since when have you been involved?

3. The transition process

*Within this part of the interview I would first like to discuss the interviewees own experience of the process towards a new car-free area. After that, I'd like to go through several stages chronologically, discussing the most important drivers and people involved from your own personal experience.*

- *Overall personal experience with the process*
  - o   How do you look back on the process towards a car-free city centre?

- *Important turning points*
  - o   What are in your perspective important events, milestones and decisions concerning the new-car free area?

- *Phase 1: pre-development (no visible change takes place)*
  - o   What was the situation in the city beforehand

- *Phase 2: take-off (transition dynamics start to influence and reinforce each other, indicating the start in changing the established system)*
  - o   When did the car-free city centre plan first appear on the agenda?
  - o   Why did it appear on the agenda of your organisation/ What drivers were important for your organisation for the agenda-setting of the car-free city concept in this city?
  - o   Besides your organisation, what other actors were involved at this point?
  - o   How are they involved?

- *Phase 3: acceleration (visible institutional, socio-cultural, economic changes are visible with as a result)*
  - o   When were the car-free city centre measures being implemented?
  - o   What drivers/factors were important for the implementation of the car-free city concept in this city?
  - o   Besides your organisation, what other actors were involved at this point?
  - o   How are they involved?

- *Phase 4: stabilisation (the stabilisation phase, where a new regime is established)*
  - o   How would you describe the new and current situation of 'a car-free city'?

- What physical changes in the city can be noticed?
- What other changes (i.e. concerning behaviour) can be noticed?
  - o Has the composition of involved actors changed? What consequences did this have?

- *Reflection and experiences with the car-free city so far*
  - o What do you think about the new car-free area so far?
  - o Is there willingness among your organisation to further pursue car-free spaces in the city in the future?

4. Factors underlying the car-free city centre transition
*For this section of the interview, the theoretical framework is used to structure the questions. Accordingly a topic-table is drafted, which forms the main guideline to question the different factors from the theoretical framework in a deductive manner. Some factors can be mentioned already during the first part of the interview, accordingly these topics and associated questions will be left out.*

| Factors | Conceptualisation of factor | Indicator | Question |
|---|---|---|---|
| *People* | Coalition of actors | Government | *To which degree did government actors play a role?* |
| | | Market | *To which degree did market parties play a role?* |
| | | Civil society | *To which degree did citizens play a role?* |
| | | Dependencies | *How do the actors influence (or reinforce) each other?* |
| *Planning* | Strategic planning approach | Filtering and framing | *What objectives drove the new car-free area?* |
| | | Generating formal legitimacy | *What long-term vision, policy and/ or programme drove the new car free area?* |
| *Policy* | A window of opportunity | Problem recognition | *What problems/ issues drove the new car free area on the policy agenda at that tome?* |
| | | Idea development | *How did the idea for a new car free emerge on the policy agenda?* |
| | | Politics | *What role has the political arena in the new car free area?* |

5. Closing notes

- *Are there any topics that have not been discussed in this conversation and that you would still like to discuss?*
- *Do you know any other relevant respondents within or outside your organisation?*
- *Are there any documents that would be useful for the investigation?*
- *Would you like to receive the final product?*

# Appendix 4 - Agreement to participate

In research project: Nikki Sweere
Title: Improving the quality of stay:  a transition towards a car-low city centre

The purpose of this research is to give insight into dynamics and factors for the transition towards a new car-low regime to contribute to future policy, practices and theory regarding car-free cities.

- I have had the opportunity to discuss this study. I am satisfied with the answers I have been given.
- I understand that taking part in this study is voluntary and that I have the right to withdraw from the study up to three weeks after the interview, and to decline to answer any individual questions in the study.
- I understand that my participation in this study is confidential. Without my prior consent, no material, which could identify me, will be used in any reports generated from this study.
- I understand that this data may also be used in articles, book chapters, published and unpublished work and presentations.
- I understand that all information I provide will be kept confidentially either in a locked facility or as a password protected encrypted file on a password protected computer.

Please circle YES or NO to each of the following:

I consent to my interview being audio-recorded                              YES / NO
I wish to remain anonymous for this research                                YES/NO

If NO
My first name can be used for this research                                 YES / NO
OR
A pseudonym of my own choosing can be used in this research                 YES / NO

"I agree to participate in this individual interview and acknowledge receipt of a copy of this consent form and the research project information sheet."


Signature of participant: _____Date: _____


"I agree to abide by the conditions set out in the information sheet and I ensure no harm will be done to any participant during this research."


Signature of researcher: _____ Date: _____

# Appendix 5 - Coding trees

*Coding tree 'establishment of a new regime'*

| Dimension | Sub-dimension | Indicator |
|---|---|---|
| *A new regime* | Formal institutions | o Rules and regulation<br>o Physical implementation of car-free measures |
| | Informal institutions | o Changed behaviour of residents<br>o Changed behaviour by external visitors by car |

*Coding tree 'factors'*

| Dimension | Sub-dimension | Indicator | Sub-indicator |
|---|---|---|---|
| *People* | Linkage of actors | o Government | o Alderman<br>o Municipality |
| | | o Civil society | o Residents<br>o Local entrepreneurs |
| | | o Market | o Technical innovations |
| | | o Dependencies | o Mediator between parties (i.e. inner-city manager) |
| *Planning* | Strategic planning approach | o Filtering and framing | o Objective of liveability<br>o Objective of accessibility<br>o Objective of sustainability<br>o Objective of tourism |
| | | o Generating formal legitimacy | o Long-term policy/ programme including car-free city<br>o Inner-city vision |
| *Policy* | A window of opportunity | o Problem recognition | o Decreased liveability (i.e. traffic nuisance)<br>o Decreased accessibility |
| | | o Idea development | o Technical feasibility<br>o Earlier experience car-free area<br>o Bottom-up initiatives |
| | | o Politics | o Progressive municipal council |
| | | o A policy entrepreneur (inductive) | o Courage/ willingness of Alderman |