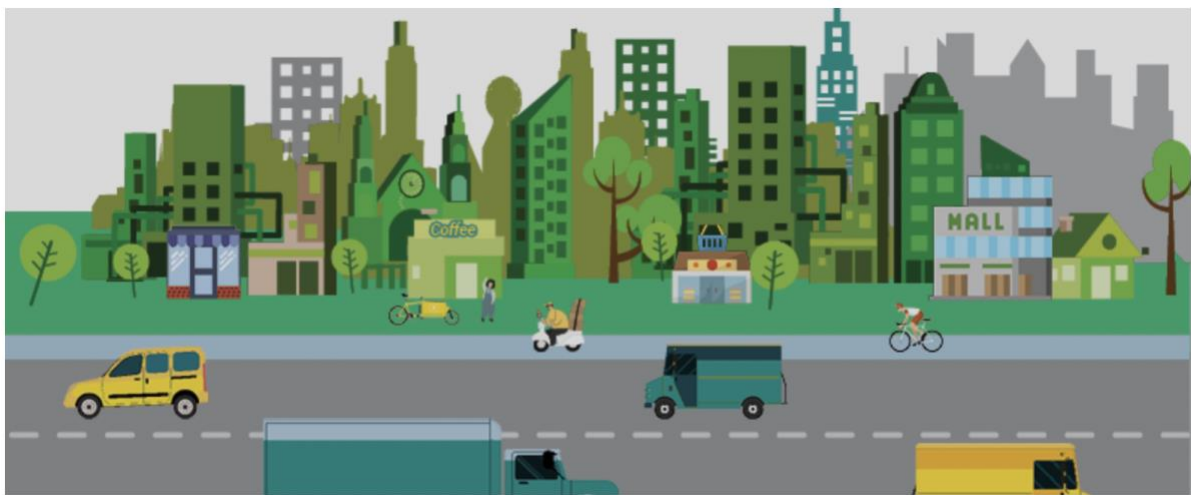


# The implementation of the zero emission zone and the small local retailer in Nijmegen

Providing insights in the readiness of the small local retailer with respect to banning emission-emitting urban logistics



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# The implementation of the zero emission zone in Nijmegen and the small local retailer

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# Abstract

The European Union aims for greenhouse gas neutrality by 2050 and sees tackling the transport sector as necessary to reduce CO<sub>2</sub> emissions. The Netherlands has adopted this policy ambition in the Climate Agreement, with the obligation for the largest Dutch cities to implement a zero emission zone for city logistics.

The implementation of a zero emission zone is left to the respective municipality. Within the defined boundaries of the zone by the municipality, national policy prohibits emission-emitting city logistics by 2030. The transition period will begin on the first of January 2025, when the zones will take effect and the first restrictions on vehicles will be imposed.

In practice, Royal Haskoning DHV saw a hard-to-reach and often under-represented group in decision-making in the small local retailer. This group is seen as a stakeholder whose business operations are expected to be hit hard by the implementation of the zero emission zone. Therefore, this research pays attention to the potential vulnerability of the small local business owner towards the zero emission zone.

Through the elaboration of important concepts such as attitude, willingness, participation in the decision-making process, and the capabilities of both the individual retailer and those of the collective, insight is gained into the degree of readiness of the small local retailer towards the implementation of a zero emission zone. For this research, the implementation of the zero emission zone in Nijmegen is examined. The preceding problem analysis has led to the following research objective:

*This study will evaluate the readiness of small local retailers regarding attitude and willingness towards the implementation of the zero emission zone in Nijmegen.*

Associated with the research objective is the following main question:

*To what extent is the small local retailer prepared for the implementation of the zero emission zone from 2025 in Nijmegen?*

The associated sub questions are:

- What are the (local) challenges to implementing a zero emission zone?
- How do socio-demographic factors, delivery factors and psychological factors shape the attitude of small local retailers and their willingness to participate in the implementation of the zero emission zone in Nijmegen?
- What has been the role of the local retailer in decision-making around the zero emission zone policy, and how does this affect the local retailer's attitude & willingness towards it?
- How do retailers evaluate their own capabilities, and are they influenced by their role in decision-making processes?
- In what ways do retailers' capabilities influence the retailers' willingness & readiness for implementation?

The research was executed in collaboration and under the supervision of Royal HaskoningDHV. The study is classified as qualitative research in which desk research is used to answer the first sub-question. During this desk research different sources are consulted including policy documents, reports, a memorandum and a Parliamentary debate. With the help of conducting interviews, sub-questions two to five are answered.

In the end, a preliminary level of readiness of the small local retailer was found. When implementing a zero emission zone, a lot of challenges are envisioned and already observed. Financially, the expense often proves to be unrealistic for a small business owner and the subsidy schemes from the government prove to be inadequate. There are also concerns about the current and needed charging infrastructure. In terms of communication, there are challenges in reaching the target groups and the associated privacy aspects. Questions can also be raised about the government's implementation task and the various associated responsibilities and their execution. These four challenges emerged from both the desk research and the interviews. Furthermore, the desk research also revealed urban and demographic challenges for the inner city of Nijmegen regarding its urban design and constantly growing population.

To answer sub-questions 2 through 5, a research model was created from which the following results eventually emerged through analysing the interviews conducted. To a certain extent, there is a positive attitude toward implementation characterised by understanding of the local

retailer of the need of a zero emission zone. However, this positive attitude is negatively affected due to lack of messaging and the opportunity to participate in the decision making process, resulting in a lack of willingness to cooperate. The capabilities of the local retailer are not sufficient in terms of finances, time and knowledge. Due to the lack of participation, this lack of capabilities is not closed by the government, which does not make the local retailer more willing.

Especially disturbing is the lack of communication from the municipality since this was a requirement elaborated in the Climate Agreement, among others. In addition, the lack of communication has a major impact on the attitude and willingness of the retailer, while involving retailers could lead to influencing them positively.

A lack of communication and participation has put the government at a sentimental disadvantage in relation to the retailer. Retailers feel forced, unheard and powerless. The retailers need a concrete, workable plan enabling them to take steps to change their business practices. For now, the current position from the retailers towards the government is that if the government wants the retailer to act, the retailer wants to be helped, supported, and heard.

The most important recommendations are that the municipality must now start rectifying the disadvantage they have built up with the retailer in terms of their attitude and willingness. This needs to be done for the creation of support but also for legal resilience. A targeted personal message should be sent out to retailers as soon as possible, which may be even less complete than the municipality had initially intended due to the continued lack of national regulations concerning exemptions. For follow-up research, it would be interesting to look at the role and the approach of the national government in the implementation of the zero emission zones. Moving the research to another context or including another target group would also be beneficial for the depth of the current (scientific) research to this topic. After all, the consequences of implementing a zero emission zone are large and, for the time being, seem unforeseen. Conducting more research on its implementation both currently, during implementation, and afterwards is necessary for learning from mistakes and improving policymaking.

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# 1. Introduction

Transportation plays a crucial role in our society. An efficient and accessible transportation system enables people to move, but the great strain that transportation places on the environment and the impact it has on health is also increasingly recognized (European Environment Agency, 2023). Transport contributes to climate change, air pollution, noise pollution and it causes habitat fragmentation (Colvile, et al., 2001). The European Union sees the transport sector as crucial for reducing CO<sub>2</sub> emissions since one-third of the total amount of greenhouse gas emissions are attributable to the transport sector. Therefore, one of the EU's priorities is greenhouse gas neutrality by 2050 in logistics transport (Hamelinck, et al., 2021). The national Climate Agreement (*'Klimaatakkoord'*) established in 2019 agreed to introduce zero-emission zones for vans and trucks by 2025 to reduce CO<sub>2</sub> emissions. Commercial vehicles with combustion engines will then no longer be welcome in these zones.

The implementation of a zero emission zone falls under Travel Demand Management (TDM). The essence of TDM is finding possible solutions for shifting or reducing transport demand by changing human behaviour (Stopher & Stanley, 2014). The establishment of zero emission zones contributes to the higher goal of the European Union to promote green transportation in reducing diesel vehicles (Ku, et al., 2020). Several cities were already working with so-called Access Restriction Rules before the Zero Emission Zone concept became more popular as a policy tool. The first cities with these types of rules emerged in the 1990s but with a primarily different goal: making inner cities more attractive. However, achieving this goal did take place in the same way, namely restricting diesel vehicles to reduce emissions, odour and congestion (Ungemah & Dusza, 2008).

67% of the population is expected to live in cities in 2035 with a corresponding increased demand for goods within the urban boundaries (van Audenhove, et al., 2015; PBL, 2022). In addition to this increased demand requiring much from retailers for accommodating it, spatial interventions such as introduction of zoning and obligations for zero-emission transport require radical operational transformations for a retailer. In 2021, it was stated that nationally, seven out of ten retailers are not yet ready for zero-emission (Verheggen, 2021). All kinds of business associations have expressed themselves concerned about the feasibility of the plans for zero-emission urban logistics. Perhaps too much is being asked of a small local retailer when they are required to adapt to the envisioned emissions neutral policy.

Therefore, this study seeks to gain more understanding of the role of the local retailer in the creation and implementation of a zero emission zone. The study was commissioned by Royal Haskoning DHV which indicates that the target group of the small local retailer is a stakeholder with little understanding in terms of, for example, the consequences of decision-making, participation in decision-making and their attitude toward this physical, logistical intervention. At the end, the study can hopefully conclude with more insides of the small local retailer in relation to the zero emission zone and the results can indicate where opportunities exist to make the stakeholder group more resilient where necessary.

## 1.1 Background

Several concepts need to be understood. First, it is important to have the content of a zero emission zone in clear perspective. What does it entail and what is the Dutch policy around it? Next, we can look deeper into the actual essence, which is the small business owner facing the zero emission zone. Therefore, what follows is a piece of background information on zero emission zones after which insight is gained into the research goal and research questions.

### 1.1.1. The concept of Zero Emission Zones

The concept of Zero Emission Zones has no established framework. The first Zero Emission Zone, according to design dimensions that we now see applied to other cities, was implemented in Stockholm in 1996. Europe had 257 zero emission zones in operation in 2021 (Lurkin, et al., 2021). Overall implied design standards consider restrictions on certain types of vehicles related to the amount of pollutant emissions. A zone can operate all the time or only on certain days or times. In addition, regulating restrictions can be done in several ways namely by licence plate registration through cameras or stickers on car windows. (Bernard, et al., 2020; Lurkin, et al., 2021).

When policies are created, consideration should be given to the geographic delineation of the zone, the vehicle types to be affected/disadvantaged, desired emissions performance and penalties (Bernard, et al., 2020). Zero emission policies also often go hand in hand with other policies such as promoting active mobility and congestion mitigation measures (Gonzalez, et al., 2022).

### 1.1.2. Dutch policy on Zero Emission Zones

Dutch policy is working towards a zero-emission mobility for all by 2050. Efforts are being made to optimise the use of modalities and infrastructure on the condition that they are clean by means of an integral approach which is in line with European directives.

At the 2015 Paris climate conference, climate targets were set for 2020, 2030 and 2050. In 2019, these agreements were sharpened, and the green deal was adopted in which a 90% CO<sub>2</sub> reduction is sought. This requires major interventions for the transport sector as they are a major polluting contributor. Specifically, the European Commission calls for five mobility developments: clean vehicles and alternative fuels, multimodal transport and mobility as a service, more public transport, charge for mobility and electric, automated vehicles (Intertraffic, 2021). These European directives are implemented into national policies according to nations' own interpretation. According to Dutch policy makers, this means 100% emission-free (heavy) logistics by 2030 and chain optimization (Climate Agreement, 2019).

Implementing emission-free inner-city zones should also make a significant contribution to optimising accessibility and sustainability. There will be a focus on walking, cycling and public transport within the zones accompanied by a banishment of emissions-emitting vehicles (Climate Agreement, 2019). By 2025, zero-emission zones will be introduced in at least 30 Dutch medium and large municipalities. Initially, these zones should only cover logistics transport. Later, other transport categories may be added to the zero emission zone restrictions. To meet the requirements of the Climate Agreement, all circulating vans and trucks must be zero-emission by 2030, with a transitional arrangement observed between 2025 and 2030.

The elaboration and drafting of the policy take place at the municipal level. This decentralised elaboration is prioritised by the national government due to the heterogeneity of municipalities (Climate Agreement, 2019; Lurkin, et al., 2021). The actual elaboration and framing of the zero emission zone are relatively at one's own discretion. An announcement should be made at least four years before implementation. The announcement must meet a number of requirements: the boundaries of the zone should be indicated, a description of the steps before implementation should be detailed, and the relationship of the Zero Emission Zone to other environmental zones already in place should be made explicit. In all these steps, the role of stakeholders should be recognized (Van Veldhoven - Van der Meer, 2020).

### 1.1.3. Policy developments

Starting in 2019, efforts were made to harmonise environmental zones, with national applicable regulations in force. This desire for harmonisation emerged from a lack of clarity around differences in access regimes and traffic signs between municipalities. The nationally uniform rules were established through an amendment to ‘the Traffic Rules and Signs Regulation 1990’ (*Reglement Verkeersregels en verkeerstekens 1990*) in which ‘The Road Traffic Administrative Provisions Decree and the License Plate Regulations in connection with the harmonisation of environmental zones’ (*het Besluit administratieve bepalingen inzake het wegverkeer en het Kentekenreglement in verband met de harmonisatie van milieuzone*) was added.

In 2020, uniform national regulations were established around Dutch zero emission zones to prevent the creation of fragmented policy. For example, transitional arrangements for trucks and delivery vans have been established, guidelines have been set for local customization for special vehicles and an initial impetus has been given for a nationwide applicable subsidy scheme (Van Veldhoven-Van der Meer, 2020).

By November 2022, 28 inner-city zero emission zones had been announced in the Netherlands with the hope of establishing more after municipal elections are held in spring 2023 (Heijnen, 2022). Three more zero emission zones have been added to date (June 2023) that are currently in the research phase, namely zero emission zones in the municipalities of Almere, Hoorn and Zaanstad (Zero Emission City Logistics, n.d.).

A retailer can currently make use of two subsidy schemes: the Zero Emission Commercial Vehicles Subsidy Scheme (*Subsidieregeling Emissieloze Bedrijfsauto's (SEBA)*) & the Zero-Emission Trucks Purchase Subsidy (*AanZet*). The *AanZet* subsidy is not a scheme that the small business owner can take advantage of as it relates to trucks. However, the *SEBA* can relate to the local retailer. When a retailer purchases a new, fully emission-free (electric) company car with a sales price of 20,000 euros or more, a maximum subsidy of 5,000 euros may be available. The total annual budget for the *SEBA* in 2023 is €33 millions of which €10.75 million is still available as of June 26th, 2023 (Rijksdienst voor Ondernemend Nederland, 2023). In addition to this subsidy scheme, a retailer who owns an electric van is entitled to an environmental investment allowance (*Milieu-Investeringsaftrek (MIA)*). The *MIA* can result in a deduction of 45% of the investment cost from profits.

## 1.2. Research problem statement

The focus of this study is on the possible vulnerability of the local retailer regarding the implementation of a zero emission zone. The influence and operations of the local retailer cannot be compared to a store which is part of a retail chain. Local retailers are often valued by shoppers because they give the city its own unique image which does not relate to a store that is part of a chain of shops (Barata-Salgueiro & Guimarães, 2020). There are also big differences between retailers within city borders. Where the operational processes of a retail chain are determined by the headquarters, small local retailers must adjust their practices themselves, often with less access to money, knowledge, and opportunities. In addition, local retailers are also often responsible for the delivery of goods themselves as opposed to larger chain stores. Yet it seems as if too little consideration is given to the fragility of the local retailer in the face of imposed distributive adjustments.

The urgency imposed and the speed with which action must be taken by retailers raise questions. Are local retailers prepared and simply capable of it? Available literature indicates more than once the limited involvement of this group of stakeholders in the design of transportation policies. This results in the following research problem statement:

***Decision-making processes around Zero Environmental Zones often pay little attention to the vulnerability of the local retailer, which may result in them not being adequately prepared for actual implementation.***

## 1.3 Research aim and research questions

A research goal follows from the research problem statement formulated above. Using various concepts that will follow from literature and practice, the readiness of local retailers toward implementation of the zero emission zone is analysed. The origins of these concepts will be discussed further in chapter two but for now the most important concepts that precede the analysis of readiness are the concepts of attitude and willingness. These concepts form the concept of readiness. Following that, these two social concepts are also shaped by external and internal influences which are reflected in the sub questions.

As revealed in the research problem statement one of the external influences is ‘the level of involvement of the local retailer in the decision making process’ which is still often unsatisfactory. The degree of participation in decision making processes is expected to affect the retailers’ attitude and willingness and thus ultimately the readiness of the local retailer. In addition, not only decision-making affects might affect attitude and willingness but also the individual and collective capabilities of small business owners are possibly important.

The research goal and the main question focus on the final readiness and the sub-questions will question the process of forming readiness in which the other main concepts of attitude, willingness and the related concepts of participation in decision-making process and capabilities will return. Questioning the relationships between these concepts is the core of the study. Prior to this, the challenges of implementing a zero emission zone are considered in order to get the issues as clear as possible prior to exploring the relationships.

The development of the conceptual framework will go into greater detail in which the relationships’ implementation and origin is discussed. For this study, the case of Nijmegen is discussed. The rationale for the case selection and related research strategies are explained in the methodological chapter found as Chapter three.

Following from the above and the research problem statement the following research aim is derived:

***This study will evaluate the readiness of small local retailers regarding their attitude and willingness towards the implementation of the zero emission zone in Nijmegen.***

For reaching the research aim the following research questions have been established:

**Main research question:**

***To what extent are the small local retailers prepared for the implementation of the zero emission zone from 2025 in Nijmegen?***

### **Sub questions supporting the main question:**

- What are the (local) challenges to implementing a zero emission zone?
- How do socio-demographic factors, delivery factors and psychological factors shape the attitude of small local retailers and their willingness to participate in the implementation of the zero emission zone in Nijmegen?
- What has been the role of the local retailer in decision-making around the zero emission zone policy and how does this affect the local retailer's attitude & willingness towards it?
- How do retailers evaluate their own capabilities and are they influenced by their role in decision-making processes?
- In what ways do retailers' capabilities influence the retailers' willingness & readiness for implementation?

## **1.4 Relevance**

### **1.4.1 Scientific relevance**

This research aims to increase knowledge in the field of local logistics policy. The research done in this field still leaves several research gaps. In multiple areas, the knowledge to incorporate stakeholders in local logistic policy decision-making can be strengthened. Nowadays the importance of participatory decision-making processes is recognized in academic literature but attention to the small, relatively powerless stakeholders is underrepresented in current academic literature (Cohen, et al., 2018). In addition, many studies on the willingness to engage in sustainable behaviour already exist, but they often deal with concepts such as "willingness to pay" and "willingness to reduce..." (Rizzi & Ortúzar, 2006; Potoglou & Kanaroglou, 2007; Basuki, 2017). Literature on willingness to cooperate is lacking, especially in combination with urban logistics. Gaining more insight into the underexposed stakeholder is necessary for increasing success around decision making.

Furthermore, a dependent relationship between governments and logistics implementers is still too often assumed in academic literature (Reynolds, et al., 2006; Marcucci, et al., 2017). This can be deduced from the large body of evaluation literature looking at impact on stakeholder behaviour and to what extent policies trigger their actions in which a unilateral relationship is implied (Letnik, 2018; Macharis, 2014; Ambarwati, 2017; Bernard, et al., 2020; Lindholm,

2012). This unilateral relationship is reflected in the government imposing something, and the other stakeholders respond. Too little attention is paid to cause and effect relationships (Marcucci, et al., 2017). Especially actual literature on zero emission zones provides mostly insights into evaluation and assessment but there is no literature on decision making processes around zero emission zones and how participation in it can have consequences for the degree of readiness of a retailer.

Finally, the research model which is used in this research is a combination of multiple theories and assumptions. The combinations which are made have not been used in literature yet but consist of a high degree of practicality. It is expected that the basic framework can be used well in describing other phenomena.

#### 1.4.2. Societal relevance

Strong social relevance follows first from the fact that Royal Haskoning DHV itself has not yet formed the answer to the central question. There is not yet an understanding of the concrete vulnerability of the local retailer, the underlying causes and how to possibly address them.

In general, the concept of a zero environmental zone is socially relevant since its implementation has several advantages for both the liveability and the individual (Morton, et al., 2021; Zero Emission Stadslogistiek, n.d.; Gonzalez, et al., 2022). These benefits can only increase when the implementation process is optimised which this study hopefully hopes to contribute to.

Related to the scientific relevance, gaining more scientific insights can lead to more attention for the sector and the vulnerable stakeholder in decision-making which in turn is socially relevant. Urban logistics is often not a priority for policymakers due to a lack of money, time, resources and knowledge (Klieverink, 2021; Dutch professional associations of accountants, 2013). In policy, passenger transport often takes precedence over logistics. Developing synergies between passenger transport and logistics can only benefit each other. Planning for passenger transportation means planning for freight transportation as the freight sector is affected by it. In addition, logistics research can serve as a catalyst at a time when there is a growing urban population, resulting in greater pressure on space use and an increase in just-in-time deliveries (Anderson, 2005; Lagorio, et al., 2016).

Also, the current lack of attention to the logistics sector with respect to small and medium-sized retailers is a missed opportunity economically, environmentally and socially. Small business owners often possess a large social network and provide employment opportunities. In addition, looking at the environmental side, the environmental footprint of an individual small retailer might be low, the aggregate impact can exceed in some cases the footprint of large companies (OECD, 2015).

## 2. Literature review and theoretical framework

Answering the main question and its sub-questions requires knowledge of certain theoretical and social concepts. The role that retailers occupy in society is not an isolated one but is characterised by complexity with many relationships. In addition, retailers are dependent on decisions made from above by governments resulting in a certain dependent relationship between the retailers and authorities. First, the professional branch of urban logistics is further explained which is formed by multiple actors. Therefore, the next section will focus on the stakeholders within this sector. The explanation of the social concepts will cover universal and nationally applicable concepts.

After focusing on social concepts, attention shifts to useful theoretical aspects. These theories, in part, form the origin of the concepts already mentioned in the research purpose and research questions, and later the theories will therefore be reflected in the explanation of the research model. Implementing a zero emission zone requires policy making and policy implementation. Theories relevant regarding this are Decision making theory mentioned in section 2.3. and the Theory of planned behaviour (Ajzen, 1977) mentioned in 2.4. Decision making theory dwells on the creation and its conditions, and the Theory of planned behaviour pays attention to the behaviour of the individual. In a sense, the section of spatial environmental policy transformation hangs above this. Transformation follows from policy innovations and requires changes in behaviour. Both aspects are addressed in the introduction of a zero emission zone from which follows the relevance of addressing various scientific articles related to spatial environmental policy transformation.

After the theoretical framework is shaped, it is transformed into the research model which is considered in section 2.6. The visualisation of the model includes applied explanations found in the literature about the relationships that need to be examined.

## 2.1. Urban logistics

Mobility is the backbone of the modern city considering the flow of goods/services, people, transportation and the accompanying information regarding these flows. Logistics does not relate only to goods and services but fulfils a huge providing role. The concept of urban logistics refers to the processes of planning, transportation, implementation, distribution and packaging of a product or service from the producer to the consumer within the urban context (Büyüközkan & Ilıcak, 2022). The complexity of this sector lies in the heterogeneity of goods, the modes of transport and the number of people involved in designing and implementing physical interventions which is depicted as the urban logistics ecosystem in figure one (van Audenhove, 2015).

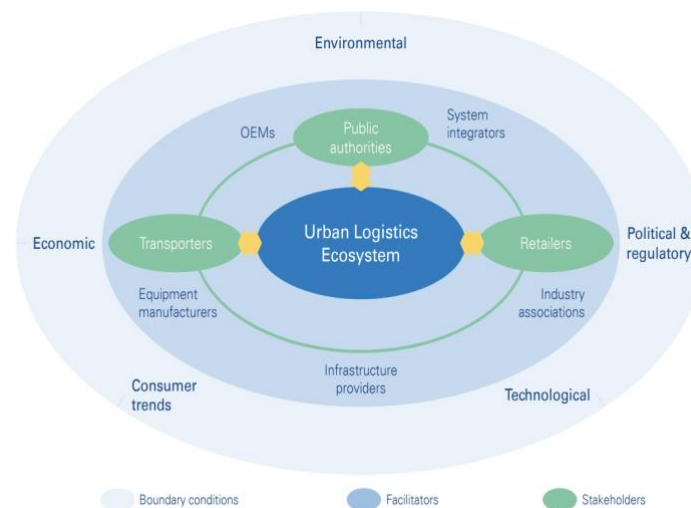


Figure 1: Visualisation of the Urban Logistics Ecosystem by van Audenhove (2015)

## 2.2. Stakeholders

Understanding of stakeholders' operations, attitudes and perspectives is crucial for making urban planning constructive (Bjørger, et al., 2019). As explained earlier, the interest in city logistics from local authorities in practice is still lacking due to fragmented knowledge (Bjerkan, 2014; Quak, 2007 & Van Duin, 2007).

The practices of cooperation, coordination and consultation between essential stakeholders are central. Several European cities have developed Sustainable Urban Logistics Plans (SULPS), according to the framework of the European Commission, to help by involving city logistics stakeholders. This is just one concrete example of a bigger call for more integration and

cooperative planning practices among urban logistic stakeholders (Quak & van Duin, 2007; Bjørgen, et al., 2019; Morfoulaki, et al., 2015).

Lindholm (2012) & van Audenhove (2015), define authorities, carriers, retailers and end consumers as the most relevant stakeholders. Authorities refer in this research mostly to the local authorities operating on city-level as they are responsible for the actual effectuation and the establishment of the policy. However, the influence of the higher authorities on the regional and national level should not be considered insignificant since they set the broad outlines that local policies must meet. The authorities as public stakeholders are the key player in minimising the environmental impacts by setting burdens for private stakeholders.

Carriers are traditionally private stakeholders in logistics and aim to deliver goods as efficiently as possible to the retailer or immediately to the end consumer. The retailer can be an intermediary between carrier and end consumer by selling the received goods physically in stores.

By combining the urban logistics ecosystem of van Audenhove, et al., (2015) and the stakeholder identification of Lindholm (2012) the relations visualised in figure 2 between the stakeholders can be identified.

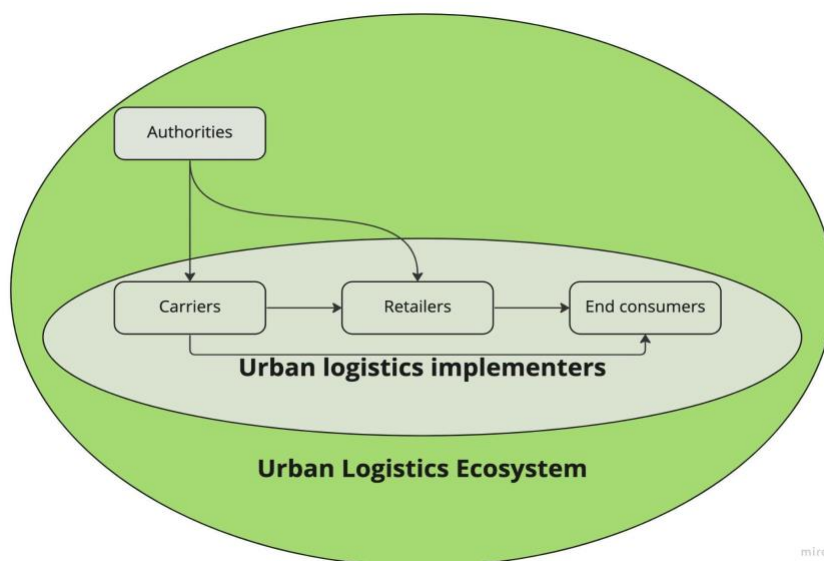


Figure 2: The integration of the stakeholders defined by van Audenhove, et al. (2015), and Lindholm (2012) in the Urban Logistics Ecosystem by van Audenhove, et al. (2015),

Within the public stakeholders themselves there are different interests at play, not to mention the conflicting interests between public and private stakeholders. Within public stakeholders there are different departments such as planning and building agencies, parking agencies and police, between which there is often little coordination about city logistics (Van den Bossche, et al., 2017). The conflict within public and private interests often lies in the visions of the municipality and the disadvantages they have for the operations of private parties in terms of time and money.

Spatial projects and interventions have a direct or indirect impact on retailers (Fernandes & Chamusca, 2014). The private interest character of the retail sector is affected by the collective interest by means of planning regulations and policies. Retail has been acknowledged as a fundamental aspect for the success of urban policies since it contributes greatly to the attractiveness of the city. The image surrounding transportation related to the retail sector in inner-city centres was long negatively characterised by noise, emissions, vibration, etc. Policy has given direction in turning this negative image around by making relations between resilience and sustainable economic growth by maintaining and enhancing the vitality and viability of town centres for communities, keeping in mind the contribution to local, regional and national economies (Barata-Salgueiro & Guimarães, 2020; Quack & de Koster, 2007).

The great influence that retail has within the city also has its effects on vitality and liveability in the broadest sense. However, the question is to what extent retail directly exerts its influence on this or whether there is a continuous adaptation of the sector to changes in technology, associated competition and market pressures, and policies (Kärrholm, et al., 2014; Barata-Salgueiro, 2014). This continuous adaptability requires retail resilience. The concept of resilience refers to the degree to adapt to changes, shocks or crises without losing a sustainable way of working (Barata-Salgueiro & Guimarães, 2020). It is necessary to consider the natural focus of retail on making profits in the most efficient way. However, retail depends on the desires of the users of their goods and on the policies of authorities (Shaw, 2012, Weichselgartner, 2015). Figure three shows the wide scope of policy in the urban setting.

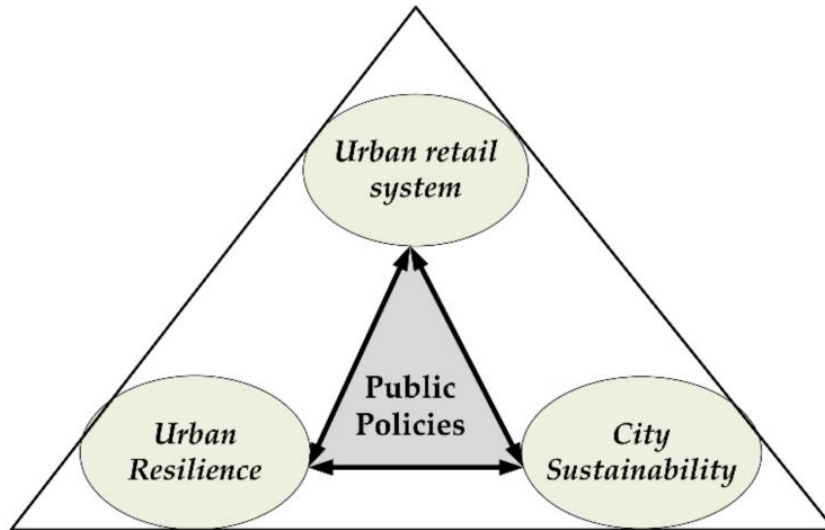


Figure 3: The analytical framework provided by Barata-Salgueiro & Guimarães (2020) visualising the different affected concepts by public policy.

### 2.3. Decision making theory

The complexity of the urban logistics system is reflected in Decision making theory. Over the past 40 years, attention around the complexity surrounding decision making has increased among researchers (Bidhan, et al., 2010). During this time, it is acknowledged that it is difficult to make far-reaching decisions. (Spatial) Interventions do not take place in isolation. Making a decision has consequences on an often large scale. A decision can affect (groups of) people, space, agencies, etc. Stakeholder theory has resulted from this interest. Reynolds, et al., (2006) describes Stakeholder theory as the relationships an organisation has with many constituent groups which can engender and maintain the support of these groups by considering and balancing their relevant interests. This description of Stakeholder theory includes normative perceptions and instrumental expectations and has a broad scope across disciplines.

Balancing the interests of stakeholders is crucial in gaining and maintaining support when making decisions. Even though interests are often thought to be formed at the cognitive or administrative level, the role that behaviour plays with regard to policy is also very important (Reynolds, et al., 2006).

Decision making theory has undergone a lot of transformations. Whereas Simon (1977) assumed a rational, economically, fully informed, decision maker in the rational model, he soon came back to that by applying the concept of bounded rationality when it came to decision making (Simon, 1979). There is also the political view of decision-making in which political agendas are at the heart of decision-making rather than rationality. Decision-making from the political view reflects situations where influence and power are deliberately used in the pursuit of self-interest (Pfeffer, 1981).

Cohen, et al., (1972) weakened the political view by recognizing the fragmentedness and chaos in which decision-making occurs rather than focusing on deliberate manipulation. The problems, solutions and stakeholders meet at a point, called 'the garbage can', and the decisions regarding them are made within 'the garbage can'. A common criticism is that there is still no overall advocacy since when you are outside the 'can' you stand completely outside the decision-making process. In essence, not every relevant stakeholder needs to be represented in 'the garbage can' (Turpin & Marais, 2004).

Around the turn of the century, attention came to naturalistic decision making in which the natural context in which decision making takes place and the experience previously gained therein are central. The naturalistic decision making model is less descriptive in nature than the previously discussed models.

Today, the multiple perspective approach in which unbounded system thinking is reflected has been advanced. In this, all possible perspectives regarding a problem are tried to cover assuming that any problem is a member of any other problem (Turpin & Marais, 2004). The multiple perspective approach covers a lot as the individual, organisational and behavioural perspectives of all stakeholders are supposed to be included. Mitroff & Linstone (1993) also add the need of including ethical and aesthetic perspectives as even though a decision may satisfy on technical, and stakeholder consent it does not necessarily have to be an ethical decision.

## 2.4. Theory of planned behaviour

Where previous theory focused on the policy side, attention must also be paid to transforming the individual to which the policy applies. Making policy decisions affects the daily life of the individual. In this idea lies a top-down thinking in which an individual is directed by a decision made from people above. This decision-making structure is not necessarily desirable when it comes to environmental decision making which will be looked at in more detail in the next theoretical section.

One theory that pays attention to the individual and the influence of planning on behaviour is the Theory of planned behaviour. It consists of a social psychological model with the implication that a particular action is driven by behavioural intention (Ajzen, 1991). A person's intention to perform certain behaviour follows from attitude, subjective norm(s) and perceived behavioural control.

Oreg & Katz-Gerro (2006) incorporated the Theory of planned behaviour into environmental behaviour and argued that environmental behaviour is determined by what individuals think and feel toward the environment and taking environmental action. The individual's thoughts according to Oreg & Katz-Gerro (2006) are determined by attitudes, norms, perceived control and moral obligations. The usefulness of this theory for the study is further explained in section 2.6.

## 2.5. Spatial environmental policy transformation

Unsustainable production and consumption are deeply rooted in society. Current operational systems need to be transformatively changed to achieve sustainable development (Jacob & Ekins, 2020). In order to achieve this, governments are utilising policy transformation to guide behaviour towards emission reduction and resource depletion.

For environmental policy to be effective, integration of environmental concerns in sectoral policies is necessary. The design and level of ambition are the most common subjects of negotiation. Jacob & Jenkins (2020) state that comprehensive environmental policy integration has rarely been achieved in practice. Actors often must make concessions resulting in the adaptation of second-best environment policies that jeopardise effectiveness. There are two

approaches for the establishment of effective environmental policy integration. The first approach involves the introduction of institutions which encourage taking environmental concerns into consideration by sectoral policy makers or that environmental actors are enabled to have a say in the policy process. In this first integration approach, collaboration and listening to actors involved is central. The origin of the use of this form of policy integration follows from the need to legitimise policies based on evidence-based policy making in order to increase the level of acceptance in society. More and more countries are adopting techniques but both ex ante assessments and ex post evaluations show that their actual implementation still leaves much to be desired (UNEP, 2019). In addition to institutional approaches, demonstration can also help in order to achieve transformation. In this approach, coalitions and narratives are formed for integrating environmental concerns in order to conserve natural resources to avoid costs of environmental damage. Here the main focus is on the benefits of environmental policy (Jacob & Jenkins, 2020).

Existing structures need to be phased out to achieve sustainable production and consumption (Heyen, et al., 2017). Phasing-out relates to addressing systemic natures, their relevant infrastructures, institutions, social practices, values and norms, which are most of the time culturally embedded. Due to the complexity of the system, Jacob & Jenkins (2020) indicate using a top-down construction about policy implementation is unrealistic since strategically steering these embedded practices is not possible. They argue for a bottom-up approach but see the capabilities that a combination with integrated policy approaches, in which top-down steering methods are central, can offer. However, this should be considered as a transitional phase for now because many systems are not currently organised around bottom-up planning practices. Eventually, all planning practices should be done through bottom-up initiatives according to Jacob & Jenkins (2020).

Transformation itself can be seen as a discourse (Leipold, et al., 2019). This view of transformation involves several probable difficulties. Namely, the fact that discourses often (seem to) be resistant to change. In addition, social and institutional practices within discourses are often ignored and the focus is on rules, patterns and objects while the underexposed components are ultimately seen to drive transformation. Furthermore, discourses often see prevailing institutional forces as the driving force while individuals or social groups can also function as a driving force (Sengers, et al., 2010).

## 2.6. Research model

The theoretical framework explained the several sides of policy making in the mobility domain, namely the policy side, the influenced parties and the sector to which the decision making relates. The actors, authorities and retailers are the focus of this study. The role they play in decision-making should be visualised in a concrete researchable model. In this section, the research model is presented in figure four. The rationale of the figure based on theory and the scientific and social relevance are described above the figure. The theories are further explained and specified according to the usefulness for the research model.

As shown in figure four and following from the research questions, this study aims to investigate the readiness of the small local retailer towards the zero emission zone being introduced in Nijmegen by 2025. The policy to be introduced involves amongst others the government and the retailer which are the two key stakeholders for this research, and which are explained in section 2.2. The policy of zero emission zones can be characterised as transformative since existing behaviour and patterns need to be transformed which relates back to the literature review of articles on spatial environmental policy transformation. The behaviour transformation of the central actor ‘the retailer’ according to the Theory of planned behaviour should be reflected in the research model. The readiness in which insight is attempted to be gained is formed by a variety of components that have their origins in the Theory of planned behaviour.

Since it involves transformation, behaviour must be transformed. The basis for behaviour change can be found in the individual's attitude. Attitude reflects the thoughts of the individual about the importance of consequences (Ajzen, 1991). Attitude defines an individual's positive or negative appraisal of a behavioural option (Ajzen, 1991; Yarimoglu & Gunay, 2020). It is the reflection of individuals' feelings, fundamental values and the trust in institutions (Ajzen, 2020). A positive attitude follows from acceptance of the behaviour to be transformed (Chuang, et al., 2018). In literature, according to Gifford (2011), a gap is still often observed between pro-environmental attitudes and eventual behaviour.

Player, et al. (2023) looked at the acceptance of zero emission zones and what factors influence it. As mentioned, acceptance feeds the individual's attitude and here the link is made to the Theory of planned behaviour and the zero emission zone. In this relationship, aspects also follow back from Spatial environmental policy transformation, namely the importance of evidence-based policies to increase community acceptance.

The individual's attitude is determined by socio-demographic factors, travel-related factors and psychological factors (Player, et al., 2023). These factors are focused on the individual car user in the study by Player, et al. (2023) but in this study they are used as an application for the retailer. Socio-demographic factors and psychological factors remain the same however travel-related factors become the business factors. The operationalization of these factors will follow later.

Justifying the sole use of the concept of attitude from the theory of planned behaviour in the research model and disregarding the concepts subjective norms and behavioural change is the fact that it is in first instance the only applicable concept for describing a retailers' willingness. Subjective norms are about what the person thinks others - in his immediate environment - think of the (to be performed) behaviour and how they judge it. With regard to the subject under investigation, there are no opinions of others that can influence the behaviour. The third determinant of behaviour is perceived behavioural control. Perceived behavioural control is about the extent to which the person believes the behaviour is easy to perform. This involves both the retailers' own skills and the systematic factors that promote or hinder the behaviour. This element is certainly important with respect to the introduction of the zero emission zone but will return in a different and later place in the research model.

Once attitude has been characterised by the factors based on Player et al. (2023), the willingness to engage of the small local retailer in the particular behaviour is examined. To describe the link between attitude and willingness, a small part of the Theory of reasoned action also established by Ajzen (1985) is considered in addition to the Theory of planned behaviour. Following from this theory, the willingness of a person to perform a certain action is the immediate determinant of that action. The concepts of willingness and attitude are combined in this research which means an integration of two theories. Willingness is determined by the heterogeneous nature of the individual and the social influence, together forming the attitude of the behaviour. Attitudinal consideration is reflected in the willingness of an individual to

cooperate. The Theory of planned behaviour can also help in predicting the future willingness to change the attitude and norms in response to an individual pay-back resulting from occurring circumstances (Ajzen, 2020). Chuang, et al., (2018) and Nordlund (2003) have found a positive relation between attitude and willingness. When someone accepts that a certain change must be made, someone will also be willing to take steps to do so.

I expect that the degree of participation in decision-making processes can influence the relationship between attitude and willingness. The basis for this line of thinking is the importance expressed in the Theory of planned behaviour and Spatial environmental policy transformation about thorough decision-making. A person may accept a change in behaviour but if they are not heard, acceptance may be negatively affected resulting in negative willingness. Conversely, there may initially be a negative attitude toward a behaviour change but through participation the attitude can be positively influenced resulting in a positive willingness. Participation can motivate and sharpen policy content: resulting in a changing power structure. The interaction between individuals is strengthened. This relationship has not yet been studied and whether there is actually a relationship of participation on attitude and subsequently on willingness remains to be studied for this case. This is why an interrupted arrow was chosen in the model. The solid arrow already indicates an established relationship from the literature which is the case for the relation between attitude and willingness. However also the relationship between the two concepts needs to be examined for this case due to a high context dependency (Korstjens & Moser, 2016).

Attitude, participation in decision making and willingness form the first part of the research model. The second part of the research model starts with willingness. The main relationship is the relation between willingness and the final readiness of the local retailer. A retailer may still be willing to cooperate, this does not mean that the retailer is actually prepared to cooperate. The skew in this relationship can be explained by the retailer's individual and collective capabilities. Understanding these capabilities shows overlap with the concept of behavioural control from the Theory of planned behaviour. This involves the belief but also the reality of the retailer as to whether the actual intended behaviour is achievable. The degree of ease with which the behaviour can be practised depends on the retailers' capabilities. A retailer may still be willing to cooperate; when the retailers' capabilities do not lend themselves, it leads to inadequate readiness. Readiness of change is fuelled by capabilities (Ahmad Alolabi, et al., 2021; Holt & Vardaman, 2013). Small retailers often have limited resources and skills to

improve their behaviour (Rizos, et al., 2016). This relationship has already been established which is why a continuous arrow was chosen again here.

In the second part of the research model, an influence is again expected from participation in the decision-making process. This influence is not directly on the relationship between willingness and readiness, but participation possibly influences the capacities of the retailer. The possibility is reflected in the interrupted arrow. When capabilities are not sufficient to match willingness to readiness, participation in decision-making and listening to those involved can be used to see if this gap can be narrowed. On the other hand, doing nothing about the retailer's capabilities can lead to negative readiness regardless of whether the benevolence was there. The prerequisite for the relationship is that there is a gap in the capabilities of the retailer. Whether this condition is met and whether there is a degree of influence in all these concepts needs to be examined.

The sub-questions help in answering the relationships explained above and visualised in figure four. Finally, the last box on the right side of the research model in which readiness is visualised forms the answer to the main question. The expectations are already somewhat hinted at in the underpinnings of the conceptual model described above but will be mentioned again here.

As a researcher, I expect the factors constituting attitude to be fairly exhaustive where important aspects may still be found that could serve as additions. In addition, I expect that the role of participation in the decision-making process will be of great significance on both the willingness and the capabilities. This expectation is based on the theoretical framework. The influence of the decision-making process can be profound and even attitude-changing in its absence. I find it difficult to estimate how this influence is going to be for this case since it depends very much on the attitude established and to what extent there is discrepancy in that among the retailers. In any case, I do not necessarily expect that from a positive attitude a positive willingness will automatically follow which is a relationship established by Chuang, et al., (2018) and Nordlund (2003). My expectation tends more towards the gap in the relationship between pro-environmental attitudes and eventual behaviour by Gifford (2011). I do expect to some extent a positive attitude and understanding of the introduction, but I think the implementation and creation of the policy is hugely important which ties in with the theoretical framework. An attitude can fluctuate along the way due to a variety of influences.

Finally, I expect a certain degree of entrepreneurial vulnerability to be perceived. This expectation from myself and Royal Haskoning DHV was also the direct reason for the research. This vulnerability, in my expectation, also follows from insufficient capabilities of the small retailer. A shortage of time and finances is expected. In which I possibly expect a role for the occurrence of corona through which small business owners have been hit hard financially. When these possible shortcomings are supplemented by the national government, this could well have a positive effect on readiness. Here again lies the importance of involving actors in decision making because the state must in some way become aware of potential shortcomings. However, it seems difficult to me to gain insight into each actor's circumstances which is also evident from previous policy implementations. Hearing everyone is difficult. This is reinforced by the fact that listening to such a relative mall group as the small business owner is unlikely to be seen as a priority of the government despite the major impact that implementing the zone will have on this group.

Following from the relevance, theoretical framework, own expectations and their underpinnings results the central research model visualised in Figure four.

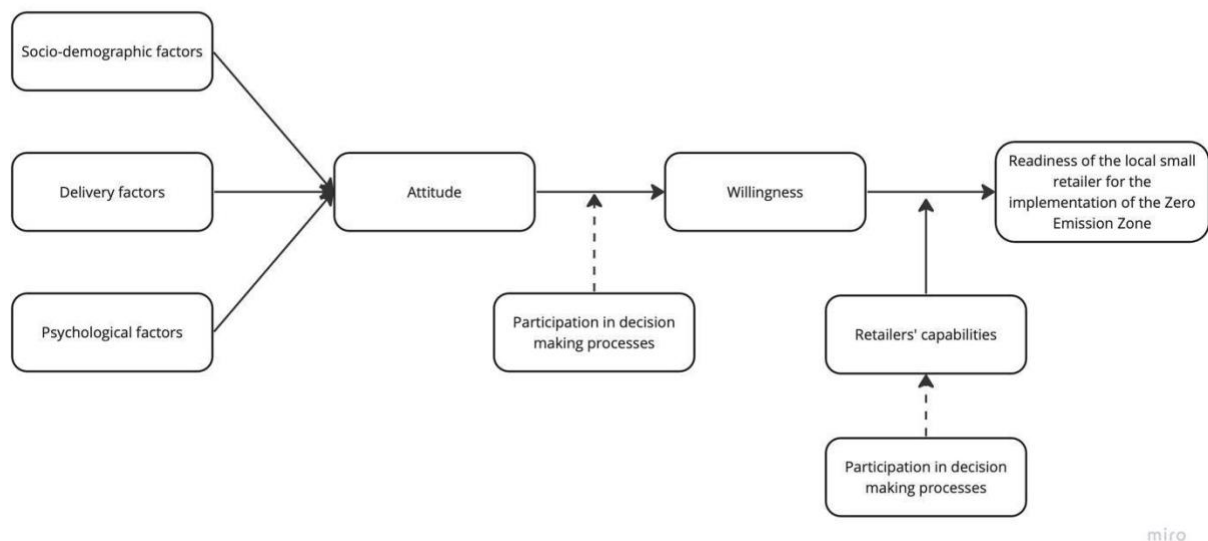


Figure 4: The research model

### 3. Methodology

Investigating the Nijmegen case study and finding answers to the research questions requires research methods. The methodology substantiates the methods you have used to test expectations in addition to answering research questions. A sound methodology makes the research replicable which ensures the reliability of results. The structure of the methodology chapter is as follows: first, it focuses on the research philosophy which forms the foundation of the reasoning within the research. It then zooms in on the actual research methods. Initially, this is done by looking at the research strategy after which the next step within the research is considered in each case. After the strategy is determined, the methods for carrying out the strategy in which the data are collected will follow. The methods in terms of data collection will conclude this chapter.

#### 3.1. Research philosophy

For guiding research, research paradigms are fundamental (Guba & Lincoln, 1994). The choice of a paradigm reflects the researcher's basic belief system which is also related to the researcher's worldview. The fundamental assumptions a researcher makes about reality (i.e., ontology) and the learning process of it (i.e., epistemology) determine the capacity of philosophical reflection (Solem, 2003). The relationship between ontology, epistemology and their usefulness in doing research is shown in figure five which depicts a conceptual framework for analysing methodological assumptions.

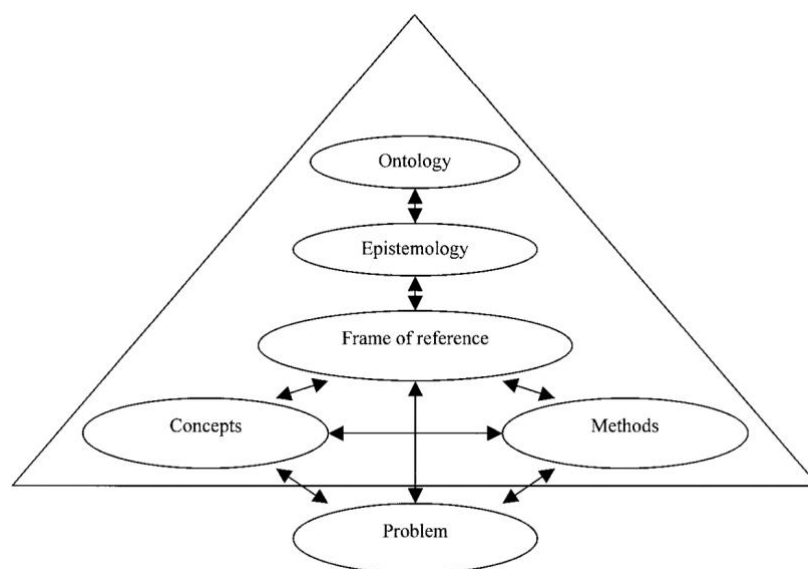


Figure 5: Conceptual framework for analysing methodological suppositions (Solem, 1992)

Research in the field of logistics has long been dominated by objectivist methodological assumptions and positivism (Arlbjørn & Halldorsson, 2001). This was reflected by realism regarding ontology and positivism when it comes to epistemology. Around the turn of the century, there came the realisation that doing quantitative research led mainly to identifying phenomena but not analysing and describing them more deeply. The lack of ontological and epistemological assumptions within the logistics research field led to calls for a more holistic and multidisciplinary research approach by challenging and reflecting on meta-theoretical assumptions in order to improve logistics in the end (Solem, 2003).

Because of the weight of paradigm choice for the conduct of research, questions about methodology are secondary to this (Guba & Lincoln, 1994; Moses & Knutsen, 2012). In other words, social action can be better explained by examining the intentions, assumptions and meanings associated with it. This includes examining social rules that construct social reality and how these social realities influence actors' intentions and meaning structures.

The (social) complexity of the issues under investigation is reflected in the pragmatic philosophical thinking. Actions within the social structure are defined with the underlying idea that society is constantly in a state of becoming (Goldkuhl, 2012). The position of the local retailer is influenced by the social structure in which insight is expected to be obtained. This research attempts to make the knowledge obtained valuable for generalisation from a local to general scale.

When it comes to case study research, it appears that both positivists and interpretivists employ this form of research (Bhatta Prasad, 2018; Harrison, et al., 2017). Yet, an interpretivist view is more inclined since positivism includes objectivity which would not benefit this research. Interpretivists try to understand the experienced human world which is needed which is a prerequisite for this study (Cohen & Manion, 1994). Whereas in pragmatism, the essence is understanding the social complexity, interpretivism adds the personal meaning of the individual of the world. In this, there is also overlap with critical theory, however the goal is not to change or criticise the individuals' meanings but to understand, evaluate and use them as future building blocks.

## 3.2. Research strategy

A research strategy follows from the research philosophy and the methodical choice between quantitative, qualitative, and mixed methods research designs (van Thiel 2014). The research is categorised as case study research and is descriptive and evaluative in nature. Descriptive as different situations need to be described, such as the implementation of the zero emission zone. Describing the situations in which retailers find themselves is also of a descriptive nature. Resulting from this, the main question is also descriptive in which a phenomenon is further analysed for a specific case. In addition, the research is also evaluative in nature since from certain already played out series of events and factors the readiness of the local retailers will be formed. The data found will be used by Royal Haskoning DHV for practical purposes.

Both inductive and deductive reasoning underlie this research. Inductive as an observation has been made from available literature and in practice by Royal Haskoning DHV. They noted a degree of vulnerability of the small business owner because. On the surface, the impacts on their operations following from the implementation of a zero emission zone seemed significantly greater than for other affected parties. These observations are tested for a particular case after which hopefully a pattern will follow from which can be generalised. The choice of inductive reasoning also follows from the limited amount of literature available. However, attention must also be paid to the deductive nature of the research. This is because the research model serves as a framework for assessment. The research line of this study ultimately covers more deductive reasoning as it starts from certain theories. However, the theories do not underpin the entire research framework since, as mentioned earlier, little research has been done on the topic and therefore an actual generalisation is still lacking. In the study, useful theories that cover parts of the research are gathered in order to obtain as thorough a coverage of the topic as possible. After this, expectations are established which are written down in section 2.6. These are then analysed after which the expectations are either confirmed or rejected. This research design is reflected in deductive reasoning. Nevertheless, I found the naming of partially inductive reasoning important, following from the observation at Royal Haskoning DHV and the lack of research in this area.

For best analysing the relationships from the research model, the choice was made to examine one case study. The justification for this follows in section 3.1.1. Following from the design of the research, the research philosophy applied and the choice to delve further into one case study, a qualitative research approach is adopted. The data collected consists of non-numerical data reflecting underlying thoughts and experiences. This data more trickly emerges from a quantitative research design. With the use of qualitative data, a social or human problem will be described (Creswell, 2009). By choosing a qualitative research approach, space is given to the respondent in a variety of ways. The qualitative data that will be collected is sensitive to the social context and consists of an adaptable treat in order to allow exploration of emergent issues (De Jonckheere & Vaughn, 2019). The data being collected is about the attitude, willingness, capabilities and level of participation of the small local retailer. It also looks at the role of the municipality regarding the implementation of the zero emission zone and the feeling of the respondent about the role of the municipality. The actors' perspectives are used as a starting point in this qualitative research.

The steps taken to move from existing theory to reporting research findings are shown in Figure six. Importantly, it is a continuous process. Elements are not concluded to then remain in solitude. There is continuous revisiting of previous information gathered and adjusting, improving, eliminating and adding to it.

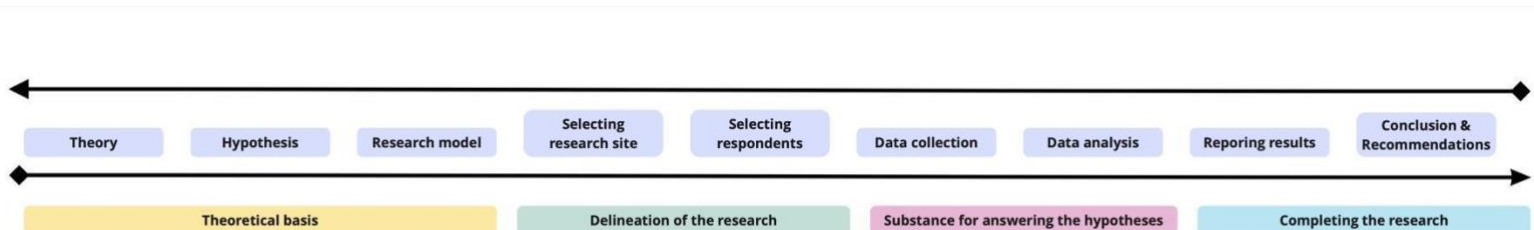


Figure 6: Research steps

### 3.3. Research methods

Different kinds of research methods are applied in this research. First literature review was done for the creation of the research model. Literature review involves looking for scientific and theoretical information that supports the line of thought within the research. The literature review provides substantiation for the position of the individual's research (Guerin, et al., 2018). Current available knowledge is explored and expectations following from it are being established which will be tested by use of conducting interviews & desk research which will be discussed separately.

### 3.3.1. Case selection

The choice was made to delve into one study. This is because of time & the content strength of the data to be collected. There were a number of conditions for selecting the study. First, a municipality was targeted that had already formed policies around the zero emission zone. Logically, there was no municipality where the implementation had already been completed since the 'start' takes place in 2025. Resulting in the fact that, as a researcher, I had to deal with being in the middle of the process as it were. Preference was given to a municipality that had already indicated the zones for the respondent selection to take place. Finally, for practical reasons, the travel distance had to be no more than 30 minutes.

In the end, the choice fell on Nijmegen. This study met all the above criteria and Royal HaskoningDHV had indicated that it had available contacts in the municipality. The municipality of Nijmegen has established three zero emission zones and had already created policy around them. Establishing three zones can be seen as optimistic where one zone meets the requirement of the climate agreement. For now, the municipality of Nijmegen seems to be the only municipality that has established separate zones within its own municipal boundaries. The three zones are shown in figure seven & eight.

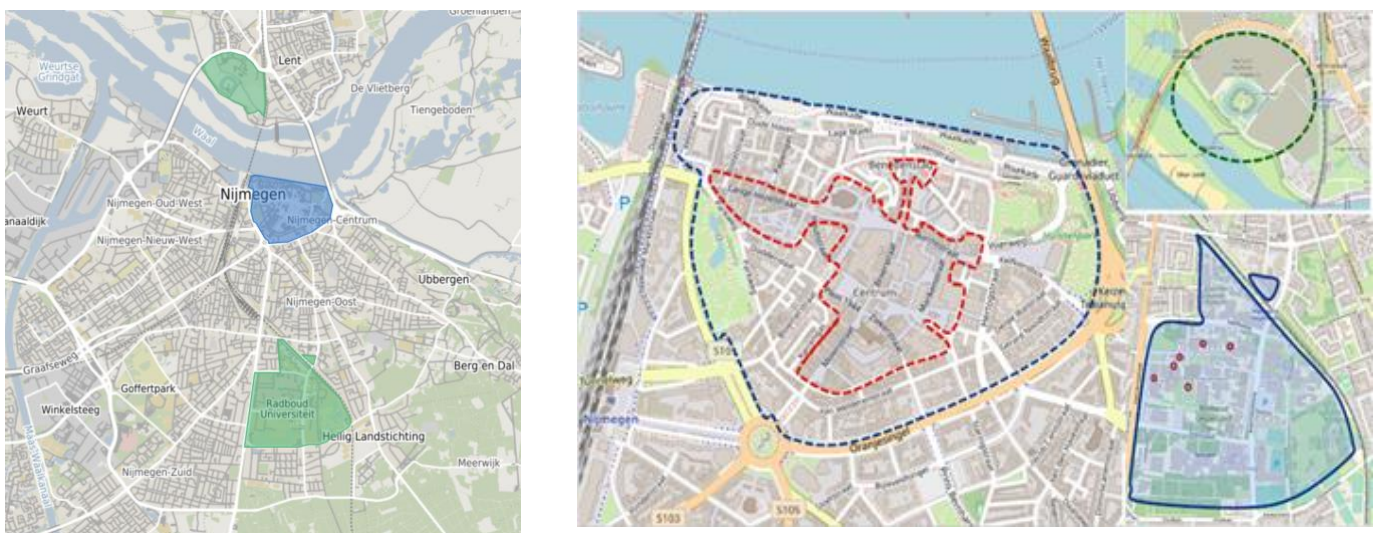


Figure 7 & 8: The three zero emission zones established by the municipality of Nijmegen (Gemeente Nijmegen, n.d.; Huis voor de Binnenstad, n.d.)

For this study, only the inner-city zero emission zone is considered. This applies as a delineation for the study, but the choice for one zone is also because the target group of the small local business owner is particularly and at least in higher numbers located in the inner city.

### 3.3.1. Desk research

To answer the first sub-question ("What are the (local) challenges to implementing a zero emission zone?"), desk research is used as a research method. Desk research involves searching for information and/or practical information. For this research, both are sought. The sources of information will be discussed in section 3.4.1. The first sub-question also serves as an introductory question to clarify the possible issues to gather answers to the following sub-questions that will be answered by conducting interviews which will be explained in the following sections.

### 3.3.2. Interviews

Interviews involve an observational situation in which the researcher directs the conversation with the person being researched through asking questions. Interviews are conducted with local business owners which is the core of the research. However, interviews will also be conducted with experts. First, more insight into the respondents will be gained after which the concepts of the research model will be operationalized to finally explain the interview questions to be asked.

#### 3.3.2.1. Respondents

The retailers had to meet several inclusion criteria. The inclusion criteria automatically contained exclusion criteria. The preference was to speak to the owner of the store, but this was not necessary should another employee also be able to provide the necessary information. The inclusion criteria show overlap with the business factors that together with socio-demographic and the psychological factors determine the retailer's attitude. The overlap can be observed in the operationalization section which will follow later. No further requirements have been set for the socio-demographic factors. The psychological factors do not have any requirements either, insight into this is gained during the interviews.

Inclusion criteria			
<b>Location</b>	Located in Nijmegen	<b>Business</b>	Own company van/other means of transport
	Located within the Zero Emission Zone		Deliveries in own management
	The retailer owns one store		Independent from external parties

*Table 1: The inclusion criteria of the respondents*

### 3.3.2.2. Operationalisation

The concepts of the research model need to be operationalized. The tables below make the variables' contents explicit based on the existing literature. By operationalizing, concepts are made more understandable and manageable in such a way that they can eventually be examined and assessed. The operationalization is done as follows. In Table two, all sub-questions are mentioned again, followed by the research method and the relationship from the research model that is explained by the specific question. While the first sub-question is named in the table, it will be examined in a different way than the other sub-questions. For sub-question 1, there is no need for operationalization to answer it. For this reason, the first sub question is marked grey in table two.

Next, table two is integrated into tables three through seven in which the relevant concepts from the research model are mentioned and operationalized. The relevant sub question to the concept will be cited in the third column of table three to eight as sq 1 which relates to sub question 1, etc. Then in the 4th column, questions will be named which will be asked to respondents indicating how the relationships are examined and assessed.

	Sub question	Research method	Relationship to be explained from the research model
1.	What are the (local) challenges to implementing a zero emission zone?	Desk research	Not applicable
2.	How do <b>socio-demographic factors</b> , <b>delivery factors</b> and <b>psychological factors</b> shape the <b>attitude</b> of small local retailers and their <b>willingness</b> to participate in the implementation of the zero emission zone in Nijmegen?	Interviews	The relationship between socio-demographic factors, delivery factors, psychological factors and attitude  The relationship between attitude and willingness
3.	What has been the role of the local retailer in <b>decision-making</b> around the zero emission zone policy and how does this affect the local retailer's <b>attitude &amp; willingness</b> towards it?	Interviews	The influence of participation in decision making processes on the relation between attitude and willingness
4.	How do retailers evaluate their own <b>capabilities</b> and are they influenced by their role in <b>decision-making processes</b> ?	Interviews	The influence of participation in decision making processes and retailers capabilities
5.	In what ways do <b>retailers' capabilities</b> influence the retailers' <b>willingness &amp; readiness for implementation</b> ?	Interviews	The influence of the retailers' capabilities (with in regard the influence of participation in decision making processes) on the relationship between willingness and readiness

Table 2: Clarification about the to be researched concepts and relation with the sub questions.

The questions belonging to table three and four speak for themselves in the researcher's opinion and are therefore not included in the table.

<b>Socio-demographic factors</b>	Sq 2	Gender
		Age
		Year of establishment
		Type of store
		Target group

Table 3: Operationalization of the social-demographic factors based on Player et al. (2023)

<b>Businesses factors</b>	Sq 2	Type of delivery
		Delivery responsibility
		Quantity of deliveries
		Current transportation mode
		Location within the Zero Emission Zone

Table 4: Operationalization of the business factors based on Player et al. (2023)

<b>Psychological factors</b>	Sq 2	Environmental moral obligation	Do you feel a need for interventions that benefit the environment?
		Perceptions of LEZ stringency	Do you feel a need for a Zero Emission Zone? Do you understand the logistics being addressed?
		Connection with the city	Do you feel part of Nijmegen?

			How do you see your contribution to downtown Nijmegen?
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Table 5: Operationalization of the psychological factors based on Player et al. (2023)

<b>Retailers' capabilities</b>	Sq 4 & 5	Financial	Do you expect to be able to make the investment financially? Do you notice any aftermath of corona financially that might affect this?
		Knowledge	Do you know what to invest in? Can you inform yourselves or do you need help with that?
		Time	Is there enough time? Has there been communication to you on time?

Table 6: Operationalization of 'Retailers capabilities'

<b>Participation in decision making processes</b>	sq 3 & 4	Relationship between the municipality and the retailer	How do you describe the relationship between retailers and the municipality?
		The extension informed	When did you first hear about the zero emission zone? How did you first hear about the zero emission zone?

		The extension involved	Are you involved in the decision-making process around the zero emission zone? When, in what way and in which phase?
		Feeling of vulnerability	As retailers, do you feel vulnerable in decision-making? More vulnerable than, for example, a chain store located downtown.

*Table 7: Operationalisation of 'Participation in decision making processes.*

The operationalization of the concept attitude is missing, as it is formed by the factors described in tables three, four and five. The operationalization of the concept of willingness is elaborated in table 6. It should be noted that this operationalization, which is based on Morton, et al. (2021), and Ajzen (1985; 1991; 2002) overlaps with the operationalization of other concepts. In addition, as a researcher, I also intended to keep an open attitude for this concept towards the respondent. All questions included in operationalization tables are for guidance and do not stand alone, but an even looser question format is used for the concept of willingness. Willingness is expected to be defined differently for each respondent in which insight is gained through the interviews.

<b>Willingness</b>	Sq 2, 3 & 5	Outcome efficacy	Do you see the possibility for the success of the zero emission zone?
		Negative effects	What do you look up to? What are the disadvantages?
		Positive effects	What benefits might it provide?
		Problem perception	Do you feel a need for a Zero Emission Zone? Do you understand the logistics being addressed?

Table 8: Operationalization of 'attitude' based on Morton, et al. (2021) and Ajzen (1985, 1991, 2002)

### 3.3.2.3. Interview content

In structuring the study, the consideration was between conducting questionnaires and interviews. There are arguments why interviews are more applicable than questionnaires in this study. First, questionnaires are a good research strategy when high response rates are intended (Rowley, 2012). My preference was to delve into one case study. This is because of time and the ultimate content strength of the data gathered. Now, the number of retailers who fall within the inclusion criteria is relatively small. Thus, more emphasis is placed on the substantive power of the data than on the quantity of data, making interviews preferable to questionnaires. Secondly in view of the substantive power of the data, more insight into individual perspectives is gained through interviews. Among other things, this is consistent with the researcher's open attitude toward the concept of willingness, which was described earlier.

The operationalization of the components of the research model forms the core of the interview guide. However, the tables three to eight are not exhaustive for the whole interview. In addition to this, the questions during the actual interview are also not asked in this respective order. The whole interview guide can be found in appendix two.

Not only the retailers are interviewed. To round out the story, it is intended at the beginning to speak with the zero emission advisor for Nijmegen. He is spoken with before contact is made with the local retailers. It is an exploratory interview in which the current status of the zero emission zone in Nijmegen but also the national policy on this matter will be asked. In addition, the research design will be presented in which expectations regarding results will be asked. From the interviews with the retailers, results will follow that will be presented to a municipal employee, preferably a project leader. These two interviews with experts in the field serve as support. The interviews with the retailers form the core. The study is independent of the municipality, but the municipality is nevertheless an important player in the case. It was therefore decided to involve the municipality in the study in this way and provide access to the results.

## 3.4. Data collection

### 3.4.1. Desk research

All kinds of different sources will be used to answer the first sub-question. Within this study, answering the first sub-question acts in isolation. Whereas the other sub-questions are answered in similar ways, the approach to answering the first sub-question is different. Nevertheless, this sub-question plays an important role as it reveals the issues after which they can be examined to see if they match the experiences of the retailers. The method and conduct of desk research can be considered as small research within the big picture.

The first thing to do is to clearly define what challenges there are associated with implementing a zero emission zone. For gaining inside into the challenges different sources will be conducted. This may include policy documents, news articles, reports, etc. The information found should next be compiled and analysed. Within the data, narratives should be considered: where do sources contrast or have similarities, etc. All different kind of sources should then in the end be consulted to answer the first sub question.

### 3.4.2. Interviews

Respondents needed to be approached for data collection. The experts are approached with the help of Royal HaskoningDHV. They suggested the right people after which contact has been made via e-mail. Eventually there is spoken to Tim Wille, the zero emission advisor for the municipality of Nijmegen and Paul Manten, the project leader of the zero emission zone of Nijmegen. The interview with Tim Wille was for orientation and the interview with Paul Manten was last conducted with the purpose of presenting findings.

For approaching the other respondents, a day has been planned on the 8<sup>th</sup> of April on which the researcher visited all possible respondents in the store. A list of possible suitable respondents had been prepared in advance based on my own online research and asking around among acquaintances. After the topic was explained, willingness to cooperate in the study has been asked. A number of questions asked during the encounter clarified whether the store met the inclusion criteria. From this day followed two concrete appointments and several contact details. After emailing eight retailers in response to contact information obtained, three more concrete appointments followed. One respondent originated from my own network and one respondent was suggested by another respondent. In the end, seven retailers were interviewed as well as the two experts.

All interviews took place physically except one which was conducted telephonically. The interviews are recorded except for the final interview with the municipal project leader due to technical failure. The interviews were transcribed and coded using Atlas.ti.

## 3.5. Data analysis

### 3.5.1. Document analysis

As can be seen in table nine, a lot of different sources were consulted for answering sub question one. To avoid losing the overview between the information found in these sources, the information found was worked out by topic in a separate file.

From the information found, five main topics emerged. As indicated earlier, storylines are sought within the topics. Relationships between sources can be established. Reports and policy documents were also often used for clarification, rebuttal and/or reinforcement. These features

can be found in table nine. Finally, these findings are reported in section 4.1. The sources in table nine apply in addition to literature and (news) articles.

<b>Name</b>	<b>Type of source</b>	<b>Compiled by</b>	<b>Year</b>
<b>Regional population and household forecast 2022-2050: Cities and suburbs continue to grow</b> <i>(Regionale bevolkings- en huishoudensprognose 2022–2050: Steden en randgemeenten groeien verder)</i>	Report	Dutch Environmental Assessment Agency & Central Bureau of Statistics	Numbers through 2025, published in 2019
<b>Mobility ambition document 2019-2030: Nijmegen Well on the Way</b> <i>(Ambitiedocument mobiliteit 2019-2030: Nijmegen Goed op Weg)</i>	Policy document	Municipality of Nijmegen	Published in 2019 and in practice until 2030
<b>National Charging Infrastructure Agenda</b> <i>(Nationale Agenda Laadinfrastructuur)</i>	Policy document	Ministry of Infrastructure and Water Management	Published in 2019
<b>City Logistics Implementation Agenda</b> <i>(Uitvoeringsagenda Stadslogistiek)</i>	Implementation Agenda	Ministry of Infrastructure and Water Management	Published in February 2021
<b>National Communication Strategy Zero Emission Zone</b> <i>(Nationale Communicatiestrategie Zero Emissie zone)</i>	Implementation Agenda	Ministry of Infrastructure and Water Management	Published in January 2021

<b>Climate Agreement</b> <i>(Klimaatakkoord)</i>	Policy document	Central Government	Published in June 2019
<b>Evaluation report</b> <b>Harmonization environmental zones</b> <i>(Evaluatierapport Harmonisatie milieuzones)</i>	Evaluation report	Client: The Ministry of Infrastructure and Public Works Prepared by: Buck Consultants International & Royal Haskoning DHV	Published in July 2022
<b>Zero-emissions zone: Possible privacy issues for sending a notice letter</b> <i>(Nul-emissie zone: Mogelijke privacyaspecten voor het sturen van een aankondigingsbrief)</i>	Memorandum	Requested by: Royal Haskoning DHV Prepared by: Martijn Bodelier & Jan Herfkens of GreenbergTraurig	Published in April 2023
<b>Parliamentary debate</b> <i>(Kamerdebat)</i>	Recording of the debate	Caroline van der Plas (BoerBurgerBeweging) asking questions to the Vivianne Heijnen, the Minister of Infrastructure and Water	Held on May 23

Table 9: Sources used for desk research.

### 3.5.2. Interviews

Atlas.ti was used for the data analysis. First, open coding was done in which the data was divided into sections. Next, axial coding was performed to look for relationships between categories. This was done using the themes applied in the interview guide but also codes were assigned to the relationships in the research model. Eventually, the process of axial coding devolved into selective coding in which the integration of codes, groups and networks led to insights, theories and results. This process was applied for the retailers' interviews which paid attention to the complexities and nuances therein and respected the unique characters of the respondents while keeping an eye out for cross-cutting themes.

Furthermore, an overlap between the results found in the desk research and the interviews was examined. Should there be any overlap in these findings, this constitutes triangulation. Results should not be drawn from a single source (e.g., a single interview quote). While reporting the results, consideration is given to results based on multiple sources whether this is support from another interview or from another type of source, preferably from both.

The interview with zero emission advisor Tim Wille was transcribed and coded for overview but it served mainly for orientation. The interview with project leader Paul Manten was not transcribed and coded due to technical failure. The interview was also mainly about presenting the results and his views on them.

### 3.6. Validity

Van Thiel (2014) describes two types of validity: internal validity and external validity. Internal validity covers the question whether the researcher measured what they wanted to measure. This is established by operationalizing the variables based on theoretical constructs. The operationalization needs to be exhaustive. The research model also needs to be based on relationships established in prior research (Yin, 2003). On the other hand, when doing qualitative research, it should be considered that you are dealing with people and therefore with emotions. The danger of people over emotionally reacting to the subject lurks here. Store owners talked about "their life project" on which they depend enormously. The fact that it is not unexpected that people can react with emotion was acknowledged. This may potentially affect internal validity.

External validity reflects the generalizability of the research (van Thiel, 2014). This research comprises one case study which makes generalizability to another context difficult. However, it is strived for the highest possible level of response with the greatest possible heterogeneity. Proper preparation and preliminary interviews for insight is done to minimise threats to external validity. The number of respondents in this study may seem low. This results from the fact that there was simply only a small target group that met the aforementioned inclusion criteria and that the data collected was quickly saturated. Within the collected data, a line was quickly discernible from which was not far from being deviated when interviewing an additional respondent. Therefore, adding multiple respondents was not expected to have made the results more meaningful. In addition, speaking to other respondents within the municipal boundaries

is not possible due to the small target population but it is impossible to tell if respondents in another case study will give the same results since the results are hugely context dependent.

There is a certain degree of interaction between internal and external validity. The better it is ensured that the results can be generalised to other contexts the more difficult the relationship can be explained by undesirable external factors. In addition, the triangulation of research methods used in this study increases both validity and reliability. Triangulation provides as complete, detailed and balanced view of a phenomenon as possible (van Thiel, 2014).

### 3.7. Reliability

Reliability covers the accuracy and the consistency with which variables are measured (van Thiel, 2014). Distortion should be avoided to make the right explanation. The accuracy refers to the measurement instruments used. To make the answers obtained as reliable as possible, the given concepts are substantiated with several questions. A standard questionnaire for qualitative data collection will be used to maintain congruence within the data collected. In addition, there must be continuity guaranteed by a high degree of repeatability. This condition is met by selecting a representative research sample and thoughtful choice of research instruments. For reliability, links are also sought between data collected from different sources to avoid drawing conclusions based on one type of source.

## 4. Results

The challenges for the implementation of a zero emission zone and the relationships in the conceptual model will be elaborated in this result section for the case study of Nijmegen. First the desk research done is reported from which the challenges toward implementing a zero emission zone are discussed. Second, the attitude following from the different factors will be elaborated after which the relationship between attitude and willingness will be examined including the possible influence of the participation process. Once the willingness of the local retailer is established, insight is gained into how the retailers estimate their own capabilities. This too is possibly influenced by the participation in the decision-making process. Eventually a final judgement on the readiness of the local retailer for the introduction of the zero emission zone will be formed.

### 4.1. The challenges for the implementation of a zero emission zone

For the first sub-question, challenges to implementing a zero emission zone are elaborated based on various sources. For this question literary sources, news articles, policy documents, a chamber debate and memoranda were reviewed. On reflection, the interviews with Tim Wille and Paul Manten also brought interesting insights regarding challenges. Points from these interviews will therefore be highlighted where relevant.

In addition to external insights and opinions, I provide my own reflections on the potential challenges where relevant. Five themes following from the different sources are discussed for the elaboration of the challenges, which may also contain overlap. First, urban and demographic developments are considered. These include both national and local developments. Second, the role of the national government is examined which crosses over into the other three topics, namely challenges around charging infrastructure, communication and financial challenges.

#### 4.1.1. Urban and demographic developments

Cities continue to grow. The population increase which is prognosed at 18.9 million inhabitants in the Netherlands in 2035 will mainly take place in and around cities (PBL, 2019). The municipality of Nijmegen is seen as a strong grower in the East of the Netherlands along with the municipalities of Zwolle and Arnhem. The expected increase in inhabitants is estimated at

10-15% until 2035. The number of jobs will also grow along with it, with an additional 15,000 jobs expected between 2017 and 2022 (Municipality of Nijmegen, 2019).

The municipality expresses its concerns in their ambition document mobility 2019-2030 about the impact that a growing number of residents will have on the liveability and accessibility of the city of Nijmegen. In the ambition document 'Nijmegen well on its way' ('*Nijmegen goed op weg*'), the City of Nijmegen has set out its ambitions for mobility for the period 2019-2030. These apply as a building block for the environmental vision (*omgevingsvisie*). One reason for drafting the document is the concern and associated challenges posed by a growing number of inner-city movements. Additional movements will put additional pressure on the current system, resulting in possible negative side effects. When there are more residents in the city, inner-city demand automatically increases resulting in a growth of inner-city traffic flows.

The ambition document expresses different wishes than the previous ambition document which was in effect from 2011 to 2019. The current ambition document running from 2019 to 2030 aims to better utilise the current network, where in the previous document the preference had been for new infrastructural developments. The municipality indicates in the ambition document that it is not obvious to drastically change the inner city layout due to the historically grown character of the city centre being seen as compact with traffic attracting spots in the middle of the city.

Absorbing the increase in population and accommodating this within the current infrastructural network in order to maintain and, where possible, improve accessibility and attractiveness, brings challenges. The municipality has drawn up four main tasks, namely the city of Nijmegen as an attractive city, sustainable city, economically resilient city and a social and healthy city. The main task of a sustainable city is particularly relevant to this study. The relevant information described in this regard is cited in the following four sections.

Finally, I expect a challenge in the municipality's ambitious choice to implement three zero emission zones. Implementing one zone is already difficult for getting all the preconditions right. Perhaps phasing the implementation of the zones would have been better for a successful implementation. I can imagine myself that doing it right for three zones requires a lot in which only hindsight can learn from mistakes made. The next two years will show to what extent this concern for the municipality's ambitious attitude is justified.

#### 4.1.2. The role of the national government

In both literature, documents and the chamber debate, concerns are expressed about the role the government should adopt regarding the implementation of a zero emission zone. In particular, this concerns the responsibilities of each policy level, the dependency between them and the facilitating role the government should have regarding this intervention.

For a long time, the responsibility of urban logistics was placed on the private sector where supply and demand meet. The perception formed in policy about urban logistics has been slowly changing since 2010 (Wittlöv, 2012). For a long time, urban logistics was considered a problem rather than a crucial component of urban development. Slowly, the government increasingly intervened indirectly regarding urban freight transport by, among other things, providing more budget, actively promoting sustainable transport, and conducting more research on the role of urban freight transport within (their own) city borders. Several reasons led to increased interest in this urban component. The government felt it needed to have a stronger hand in the development of this sector due to the tremendous growth and competitiveness that emerged and the resulting growing importance to the urban economy of the sector. Negative social and environmental consequences of urban logistics were also observed, affecting health and the urban environment (Wittlöv, 2012).

This trend of an increase in interest in logistics is also observed in the Netherlands (Knowledge Institute for Mobility Policy, 2017). Consequently, the Climate Agreement (*het Klimaatakkoord*) cites the above reasons for the need to take far-reaching decisions in this sector. The initiative of introducing zero emission zones in the largest Dutch cities therefore follows from the Climate Agreement. The design of these zones is the responsibility of the respective municipality. The ambition document focuses on the role that the municipality of Nijmegen sees for itself regarding its implementation. The municipality should both regulate and facilitate the zero emission zone. According to the ambition document, the facilitating role includes spatially enabling storage or transfer points and the realisation of public charging infrastructure. In turn, the market is responsible for developing sustainable concepts, recruiting customers and making the business case. In this measure clearly resides the cooperation intended. The government does not "dare" to leave urban logistics to itself and wants to steer development in line with the observed trend of an increase governmental interest in urban logistics.

Where challenges may lie is in the execution of one's own tasks, the clarity of each person's duties and the dependence of different parties on each other. The municipality itself has provided clarity in their own set of tasks but it is unknown whether they are in communication with key parties about the implementation of the private sector's set of tasks. Is the private sector aware of the expectations the municipality has for them?

The national government having a facilitating role regarding implementation also follows from the chamber debate. For example, Vivianne Heijnen, the State Secretary of Infrastructure and Water Management (*Ministerie van Infrastructuur & Waterstaat*), indicates that from January 1, the national government will make it possible for a municipality to establish a zero emission zone. It is then up to the municipalities themselves to implement a zone. From the Urban Logistics Implementation Agenda (*Uitvoeringsagenda Stadslogistiek*), it becomes clearer which tasks belong to the government. For example, they have mapped the numbers of special transport vehicles and made necessary adjustments to the Reglement Traffic rules and Road signs (*Reglement Verkeersregels en Verkeerstekens*). By January 1, 2022, the Ministry of Infrastructure and Water Management and municipalities should have set up a system of exemptions and dispensations that is as uniform as possible through a national desk according to their own roadmap stated in the Urban Logistics Implementation Agenda. Through the national desk, exemptions are possible at the national level that are laid down in the Reglement Traffic rules and Road signs. Finally, the national government is responsible for granting subsidies and facilitating sufficient charging infrastructure.

Project leader Paul Manten says he feels a clear dependence on the national government. Multiple parties hold the municipality accountable for the facilitation of communication, subsidies and charging infrastructure but this is not always fair according to Paul Manten. The municipality is often dependent from the national government when it comes to the facilitation. The interview revealed that these three deficiencies were there due to plans not being ready yet from the national government. Until they are, Paul Manten says he cannot make any promises to other parties. A municipality cannot communicate something that has not yet been actually determined, according to Paul Manten.

The national government intended to have a uniform exemption and dispensation system in place by January 2022, but this does not appear to have been achieved yet. Accordingly, Paul

Manten indicated that they are waiting for this and also from the parliamentary questions that have been asked on this subject, it appeared that there is still a lot unclear on this subject and nothing has been established or regulated yet.

Finalising this section, I think there are a lot of challenges yet to be overcome in the role that the government itself has adopted regarding implementation. The fact that logistics has long been responsible for its own direction of development and is now being directed may well create resistance. The argument that they, as a national government, want something, they should also facilitate it, is easy to make. I expect the final responsibility to be placed on the government by many parties through its role as initiator despite trying to avoid this themselves by placing responsibilities on others. There is a chance that parties may continue to look at each other. Business owners and the transportation sector see municipalities as the closest point of contact, while they in turn emphasise the dependence of the municipality on the national government. The national government, in turn, may refer to the obligation imposed from European legislation.

In the next sectors 'charging infrastructure' and financial' we will delve further into the challenges in these areas. At least it can be deduced from the above that there is a high degree of dependency due to defined sets of tasks in which difficulties have already been encountered in implementation and more might follow.

#### 4.1.3. Charging infrastructure

Issues around power grid capacity are seen as a major bottleneck to the smooth implementation of zero emission zones (Verheggen, 2022). For a long time, the uncertainty has been on the supply side of manufacturers. Carriers argued as a position for not moving to electric that there was simply no supply available from major manufacturers. Conversely, manufacturers gave lack of demand as the reason for not producing electric vehicles. Because of the announcement of zero emission zones, the need is more concrete than ever so steps are being taken on the supply side, resulting in a hefty increase in production and a large and differentiated supply of electric commercial vehicles (Transport & Logistiek, 2023).

Currently, there are significant concerns about charging infrastructure. This discomfort falls mainly on the shoulders of small transporters (Verheggen, 2022). Where large transportation

companies independently facilitate charging on their own premises, the small business owner is much more dependent on a single charging station. On the other hand, the current power grid simply cannot handle the combined demand of large and small transport businesses and retailers now (Bolscher & Swart, 2022).

Heijnen's (2022) letter to parliament also acknowledges this concern: 'The introduction of zero-emission zones for urban logistics will cause an increase in demand. It is vital that the availability of charging infrastructure keeps pace with the growing number of battery-electric vans and trucks.' However, to date, the lack of charging infrastructure is seen as one of the biggest barriers to fleet electrification (Bolscher & Swart, 2023).

The lack of a providing charging network is a challenge but in solving this challenge immediately follows the next challenge. As described in the section "The Role of the national Government" above, part of the responsibility lies with them, as also recognized by the Ministry of Infrastructure and Water Management. However, several parties are jointly responsible for the rollout of the (fast) charging infrastructure according to the National Charging Infrastructure Agenda (*Nationale Agenda Laad Infrastructuur*). This Agenda was drawn up as a basis for an integral approach to charging infrastructure in the Netherlands. With the introduction of zero emission zones, it is recognized that the demand for a robust charging network is increasing. The National Charging Infrastructure Agenda was drawn up by various parties and includes ambitions and intended actions that are periodically evaluated and updated where necessary.

The challenge according to the National Agenda Charging Infrastructure is the lack of ownership. Market parties, the central government, provinces and municipalities are currently jointly responsible for the rollout of the (fast) charging infrastructure. However, the question is who feels responsible to start pulling the development. This threshold is also mentioned in the National Charging Infrastructure Agenda. The only clarity provided in the National Agenda Charging Infrastructure about responsibilities is that the supply and operation of the charging infrastructure remains primarily the responsibility of market parties. However, the question also arises for me as to who is responsible for the charging station application. Should business owners arrange their own charging stations, or will there be dedicated municipal charging stations? According to Paul Manten and Tim Wille, nothing had yet been decided by the municipality about the concrete placement of charging stations.

Concerns around charging infrastructure are, besides media articles, expressed in Parliamentary questions and the interviews with Tim Wille and Paul Manten. However, herein lies the responsibility of the government. Zero emission advisor Tim Wille mentioned in the interview that there is a big danger that the government wants everybody to electrify but that they do not have the electricity to do so. He fears that there will not be enough capabilities on the grid to facilitate electrification.

During the chamber debate in which the chamber questions were asked, the government itself acknowledges the role that they have and there is no reference in this to the role that other parties have herein. Vivianne Heijnen mentions that there are plenty of times the government can intervene if the charging infrastructure is not sufficient.

I also think the challenge lies in dealing in a sustainable and efficient way with the current network and the network that is yet to be built. I do not think that all the problems will be solved by supplementing the network, but that there are also opportunities in improving the current network. This thought is supported in an article from Transport & Logistics (2023). The solution to grid congestion lies in making smarter use of it. Spreading peak load, smarter use of capacity and promoting alternatives are put forward as solutions in the article.

This section clearly shows overlap with the previous section on the role of the national government. The lack of ownership and the dependency of different parties regarding charging infrastructure result in challenges that have not yet been addressed. To this day, the current network is questioned and concrete plans regarding charging infrastructure are still lacking.

#### 4.1.4. Financial concerns

A major concern lies in the feasibility of the investment. For relevance, only concerns about the feasibility of the investment for the small business owner are considered here. This concern often appears in (news) articles (Faas, 2022; Van der Maas, 2023; Verheggen, 2023), but also questions are raised about it in the Parliamentary debate.

The Nijmegen ambition document states that affordability for electric driving is a precondition. It is also stated several times in the chamber debate by Vivianne Heijnen that the government

is not going to force anyone to do the impossible. Not holding anyone to the impossible relates to the financial side but also to the replacement possibilities of certain vehicles.

The dispensations and exemptions that will be made concrete in the coming period are in line with Vivianne Heijnen's statement. The exemptions and dispensations counter will be regulated nationally. In addition, the government offers room for municipalities to grant customization for exceptional cases, also known as the hardship clause (*hardheidsclausule*). This could include business owners who are nearing retirement and therefore are not willing and able to make the investment. How governments deal with this is still unclear. In the interview, project leader Paul Manten indicated that he certainly wants to investigate these cases, but that a clear national exemption and dispensation desk must first be established in order to see which breaches need to be closed.

Also, the government has made available subsidies which have already been addressed earlier in section 1.1.3. In the chamber debate, questions were raised in chamber questions about the content of this subsidy in response to initial experiences. The chamber debate revealed that in April 2023 an available subsidy pot for electric commercial vehicles of 33 million euros, was oversubscribed four times within a day. Currently, there are more applications than money. A total of 185 million euros has been made available for subsidies until 2025. This seems far from sufficient when applications exceeded four times the offered budget in 2023 alone.

However, the website of the Netherlands Enterprise Agency (*Rijksdienst voor Ondernemend Nederland*) states that of the 33 million budgets made available, 10.75 million is still available as of June 26, 2023. Also, applications can still be submitted. The comment made is that not all applications have been assessed yet which may explain the skewness in the information on the website and the comment in the parliamentary debate. The oversubscription of the budget is in fact acknowledged by Vivianne Heijnen in the parliamentary debate. According to her, it is partly because of this that other ways of finding additional subsidies are being considered. She does point out that the subsidy pot is sometimes spent, and the ambitions of vehicle owners and the government sometimes exceed the budget. For owners of large vehicles, Vivianne Heijnen says there is hope because one billion euros will be available from the truck tax that will benefit making large freight transport more sustainable.

The challenge around the financial aspect does not need much more addition. The retailer's capabilities are not sufficient, and for the time being this gap is not closed for every retailer by subsidies. In particular, the small retailer with simply generally lesser financial capabilities compared to a large chain store seems to suffer from this. For the time being, the subsidy involves a maximum amount of 5000 euros, which in my opinion does not immediately relieve a retailer of the financial worries surrounding the purchase of a new delivery van. It seems yet unclear whether the municipality can and will contribute financially. Project leader Paul Manten again gave the same response to this about the municipality's dependence on the government. However, he did indicate his willingness to investigate cases that might fall within the hardship clause. In addition, he rightly indicated that the granting of municipal subsidies will also involve competition around location factors when one municipality decides to grant municipal subsidies.

#### 4.1.5. Communication

In terms of communication, some challenges can be observed. Since 2021, more attention has been paid to the aspect of communication regarding the zero emission zones. For example, a national communication strategy has been set up (January 2021) in which a twofold goal emerges. Firstly, informing by letting all stakeholders know that the zero emission zone is coming and what it means for them and secondly activating all stakeholders by communicating the urgency. This communication strategy indicates that stakeholders should be informed by the municipality four years before the introduction of the zero emission zone in order to give stakeholders sufficient preparation time. Further communication requirements, reflected in both the Climate Agreement, the National Communication strategy and the Urban Logistics Agenda, are shown in textbox one.

A municipality will announce the intention to introduce a zero-emission zone at least 4 years in advance. the Municipal Executive of a municipality will address at least 3 points:

The geographical extent of the zone, indicated at least indicatively by means of a spot on the map showing the maximum extent; the exact boundaries of the zone will be determined in more detail in consultation with stakeholders;

A description of the steps to be taken until 2025, including the involvement of business owners and other stakeholders, attention to the necessary charging and refuelling infrastructure and planning;

The relationship between the zero-emission zone and any environmental zone if one is present in the municipality.

Textbox 1: Requirements of the communication following from the Climate Agreement, the National Communication Strategy & the Urban Logistics Agenda

Coordinating communications around the theme is a challenge in itself. Questions include whether there is a preference for centralised or decentralised communication approaches. In addition, communication can be done from municipalities but also from branch organisations. On the other hand, opportunities also exist because multiple parties may be able to respond to the information needs. The means of communication and the large number of possible senders can actually reinforce each other. Communication should be grafted onto the level of knowledge of those involved and continuously keep in line with that. This is difficult when.

Yet in reality, good communication often proves difficult. Communication around, for example, the High Speed Line (*Hogesnelheidslijn*) and the Betuwe Line fell short (Merton & De Leeuw, 2021). Research was conducted around the harmonisation of environmental zones in 2022 and also focused on communication around their implementation and enforcement (Inia, et al., 2022). This research did not cover the municipality of Nijmegen because there is no environmental zone there. The evaluation looked at communication in the 14 municipalities with an implemented environmental zone by 2022. The experiences around communication were generally positive from passenger car owners. The owners of vehicles to which the environmental zone applied were approached by letter and this was considered an important means of communication. The website with all information about the zones was also considered pleasant and informative. However, municipal and branch organisations were critical about the provision of information to other vehicles besides passenger car owners. The owners were only informed two years after the general establishments, which according to most of these vehicle owners was too late to adjust their fleet and operations where necessary.

Consequently, industry associations and municipalities themselves indicated that they admired supplementing the general national communication where necessary. In this, several municipalities did acknowledge that they themselves supplemented the communication (too) late or (too) limited. An important conclusion from the evaluation report is that small retailers in particular are more difficult to reach through regular communication channels of governments and branches and interest groups.

Around reaching stakeholders and the challenges around privacy aspects regarding it, Royal HaskoningDHV requested a memorandum, which eventually came into their hands in April 2023 (Bodelier & Herfkens, 2023). Properly informing and thereby providing retailers with the ability to prepare is not only socially and economically desirable, but also legally relevant. The question of whether a retailer can adequately prepare for implementation is important for the extent to which any fines will stand up in court. Privacy law aspects play a role in identifying which natural persons and/or legal entities may be written to. In some cases, this requires the collection of personal data. Royal HaskoningDHV has seen a potential challenge in this and has therefore asked the question under what privacy law conditions can a letter of announcement be sent to legal and natural persons about the introduction of a zero-emission zone that includes personal data (such as licence plates, names, etc.).

The memorandum indicates that information on legal persons is not personal data within the meaning of the General Data Regulation (*Algemene Verordening Gegevensbescherming (AVG)*) which allows sending announcement letters to legal persons. In addition, sending a letter of announcement to natural persons is also possible on the basis that the processing of data is necessary in the exercise of public authority. However, according to Bodelier & Herfkens (2023) this only applies to the data of retailers from one's own municipality. Municipalities should send legally motivated letters only to retailers within their own municipality (this scope is thus larger than just the zero emission zone to be introduced). When they want to reach people outside their own municipality, they must request information they do not already possess, where it is believed that the municipality is thereby going beyond its legal remit. For reaching affected people outside the municipality, a different method of information should be applied.

However, it is important to reach as many people as possible. Consider, for example, an electrician from a neighbouring municipality who must provide a service in downtown Nijmegen. In his own municipality there may not be a zero emission zone, but in order to perform his work, he will need a zero emission vehicle by a certain year. However, this group of retailers has not been considered within this study. Still, all the above written indicates the difficulty of establishing a thorough communication.

For now, these concerns also seem to exist among project leader Paul Manten, zero emission advisor Tim Wille and the government. Paul Manten says that it is difficult to reach everyone and asks the question where is the boundary of the people we as a municipality must reach? In addition, he again indicates the dependence of the municipality on the national government. He does not want, as a municipality, to start communicating something that is not yet sufficiently clear, which he believes is the case for now. Zero emission advisor, Tim Wille finds it especially challenging to shape the content frameworks of communication. How can we make the retailer more willing regarding implementation is one of the questions asked by him regarding the communication.

Vivianne Heijnen responds to questions around communication related to the challenges described above that investments are being made in communication and a big bang is being made in the next 1.5 years. It has taken a while because, according to her, 2025 is also "still a while away". She also clearly cites the shared responsibility of communication. Sector organisations must also partly set up the communication to their own clients themselves so that more customizations can take place at the applied level.

Reaching out to all stakeholders is important for creating support in society. In my view, this already seems to be a difficult task because it is an obligation that is imposed which people quickly resent. In addition, to my understanding, the current concerns surrounding communication are difficult to reconcile with the desire for participation in policymaking. What is communicated is what has been established. Informing is different from involving. Informing precedes involving, but the communication still seems to raise questions. Straightening this out results in challenges.

## 4.2. Defining attitude

From now on the relationships from the conceptual model are discussed based on the interviews conducted with the challenges above described in mind. The sub-questions have been worked out into addressable headings. The concepts and relationships are discussed in several sections working from left to right in the research model. First, attitudes are defined after which attention is paid to the perceived degree of participation in the decision-making process. This degree of participation appears in several parts of the research model and is therefore cited in several parts of the text. The third section looks at the first relationship between two main concepts, namely the relationship between attitude and willingness. In 4.5 the concept retailers' capabilities are considered. Where after, two further relationships are described: the relationship between participation and willingness in section 4.6., & the relationship between willingness and readiness in section 4.7. Finally, section 4.8. evaluates the research findings based on the validity and reliability of the research methods.

The following sections involve frequent use of quotes. I decided to present them also in the original Dutch form since some emotions are difficult to translate and, in my opinion, the meaning of a quote was more apparent in Dutch than in English. The general structure below is used for referencing the quotes to the corresponding transcript:

*[number of the interview transcript, number of the paragraph of the corresponding quote]*

All the findings and quotes are in this way traceable, but the transcripts are not included in the thesis itself. In table 10 which will be found in section 4.2.1., reflect the left column to the number of the interview transcript. This numbering is used as a reference to the relevant transcript which will follow at the end of each quote translation.

As operationalized earlier, the retailer's attitude consists of three kinds of factors which are explained separately. Figure 6 gives a view of which part of the research model is discussed in this section.

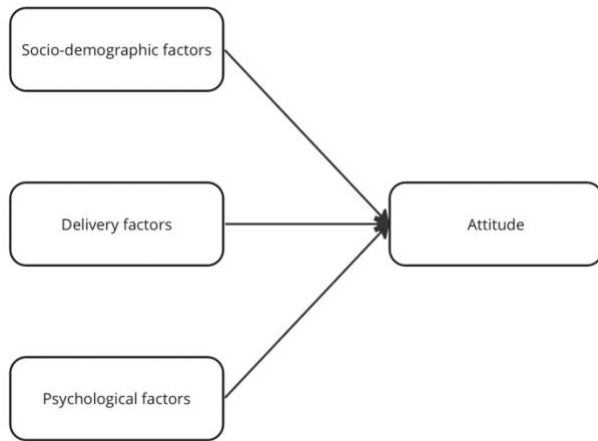


Figure 6: Defining the attitude of the retailer according to the conceptual model.

#### 4.2.1. Social-demographic factors

The social-demographic factors cover the general information of the respondent and are shown in table 10. ‘Gender’ refers to the person spoken with ‘f’ (*female*) and ‘m’ (*man*). All the people spoken to are the owners of the specific stores.

	<b>Name of store</b>	<b>Gender</b>	<b>Type of store</b>	<b>Founded in</b>	<b>Audience group</b>
<b>1.</b>	<b>Decora Bloemdecoraties</b>	F	Flowers	1957	Many day-trippers and regulars for delivery
<b>2.</b>	<b>Heydenrijck Wonen</b>	F	Furniture and home accessories	2006	Many day-trippers and targeted purchases
<b>3.</b>	<b>Kaashandel De Wit</b>	M	Cheese	1938	Many day visitors including regulars
<b>4.</b>	<b>Doorman</b>	F	Household appliances	1913	Many targeted purchases from the area including regular customers
<b>5.</b>	<b>Moenen Woninginrichting</b>	M	Interior (floors, curtains, carpets etcetera)	1978	Many targeted purchases from the area including regular customers

6.	<b>Museumwinkel</b>	M	Taxidermy	2008	Day trippers but also many people who travel far distances to visit the store
7.	<b>De Heeren Wonen</b>	M	Furniture and home accessories	2008	Many regular customers

Table 10: The socio-demographic factors of the respondents

The stores are all located in the zero emission zone. The locations are shown in Figure 7.

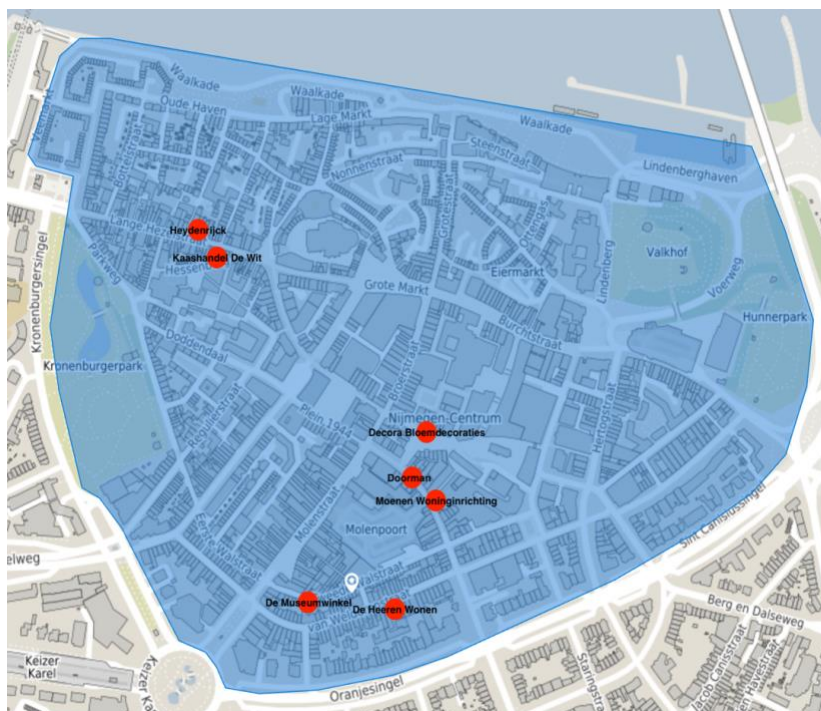


Figure 7: The locations of the stores of the owners spoken to

#### 4.2.2. Delivery factors

Six of the seven respondents own vans. Doorman has the largest fleet with three large and one small van. Moenen Woninginrichting owns one large and one small van. The remaining respondents own one van.

Kaashandel de Wit changed their business operations two years ago and switched from their own delivery van to three of their own electric delivery bikes. The result of this change is that they now only deliver within the city's singles, whereas previously they delivered throughout the whole municipality of Nijmegen. This switch was made with the zero emission zone in

mind. According to him, the required investment in an electric vehicle was disproportionate to the amount of deliveries:

*'I'm not going to spend tens of thousands of euros for an electric car that I'm still very limited with (Kaashandel De Wit).'*

*('Ik ga niet tientallen duizenden euro's uitgeven voor een elektrisch autootje waarmee ik nog heel beperkt ben'. (Kaashandel De Wit)) [3,80]*

In addition, of all the respondents, he was the only one with food that needed to be transported in refrigerated form. Electric vehicles with refrigeration were not available two years ago, which made the switch to an electric bicycle with refrigeration a logical step. He is happy with it: financially he has not lost much and in addition the bikes are a small mode of transportation that moves easily through crowds and traffic. Kaashandel De Wit does worry a lot about how its suppliers will adjust:

*'The big problem with us is in delivery. That's what worries me the most.' (Kaashandel De Wit)*

*('Het grote probleem zit bij ons in de aanlevering. Daar maak ik mij nog het meeste zorgen over.' (Kaashandel De Wit)) [3,82]*

All respondents have self-managed deliveries. The quantity of the deliveries differs but they all acknowledge that managing their own deliveries results in a day job. Most respondents always have someone on the road for deliveries and item pick up. The reasons for the self-responsibility of the deliveries are diverse. Doorman indicates that the store also manages its own reparations and considers the delivery of the items part of the service provided. Heydenrijck Wonen only works with unique pieces. They purchase those pieces, restore them where necessary, transport them to the store for exhibition and then deliver them to the customer. The same goes for de Museumwinkel: dead animals come into the workplace, they are set up and then placed in the showroom downtown. When it comes to unique products, outsourcing is practically impossible. Outsourcing is also seen as costly by, for example, Decora Bloemdecoraties. It often involves the delivery of one product in most cases by the seven respondents which makes outsourcing not profitable or feasible.

In addition to the Museumwinkel & Heydenrijck Wonen having an external workplace, De Heeren makes use of the Binnenstadservice for an external warehouse. Suppliers for De Heeren deliver the goods to the warehouse of the Binnenstadservice which removes the need for big trucks to deliver in the inner city. The retailers themselves are still responsible for transporting the goods to the desired location whether this is the showroom or the client's address.

#### 4.2.3. Psychological factors

The connection to the city is thorough. All seven respondents have been established in the downtown area for at least seven years. The stores they have are also the only establishments which strengthens the bond with the store and the area. In addition, Kaashandel de Wit & Doorman are family owned and the current owners grew up in the building above.

*'We are just Nijmegen.'* (Doorman)  
*('Wij zijn gewoon Nijmegen.'* (Doorman)) [4,18]

The stores located in De Lange Hezelstraat indicated that in addition to having a good connection with the city, they also have a nice and privileged feeling towards their location in the specific street. The Lange Hezelstraat is a beautiful street with only specialty stores in which they say they contribute nicely.

*'We are extremely enthusiastic about the street. I think it's the most beautiful place in Nijmegen.'*  
*('Wij zijn razend enthousiast over de straat. Het is denk ik de mooiste van Nijmegen.'*  
*(Heydenrijck Wonen))* [2,10]

De Museumwinkel was a bit more negatively expressed about its connection with Nijmegen. The owner stuck around here after his studies but does not really feel that enough is being done to make himself feel comfortable in Nijmegen as a retailer. It has grown so that he is based in Nijmegen but the degree of connection with the city is not such that he could not establish himself elsewhere.

*'It's just an expiring business to stay in Nijmegen with your business.'* (Museumwinkel)  
*('Het is gewoon een aflopende zaak om met je zaak in Nijmegen te blijven.'* (Museumwinkel))

[2,96]

The concepts of 'environmental moral obligation', 'environmental identity', 'perception of zero emission zone stringency' and 'zero emission zone acceptability' are jointly captured by several questions. For example, it was asked if the business owner understood why the zero emission zone is being implemented and if they understood that logistics are being targeted. By continuing with a variety of individually separate questions, these four concepts became more understandable to the entire group of respondents. First, all business owners understand the need to take actions that benefit the environment.

*'Now the environment is very important and that's okay too you know. You want to give your children and great grandchildren an earth too.'* (Decora Bloemdecoraties)

*('Nu is het milieu heel belangrijk en dat is ook goed hoor. Je wilt je kinderen en achterkleinkinderen ook een aarde gunnen.'* (Decora Bloemdecoraties))<sup>[1,20]</sup>

*'First and foremost, that something needs to be done there we all agree, and I also really do think we are willing to work on it.'* (Kaashandel De Wit)

*('Vooropgesteld dat er wat moet gebeuren daar zijn we het allemaal over eens en ik denk ook echt wel dat we bereid zijn om eraan mee te werken.'* (Kaashandel De Wit))<sup>[3,58]</sup>

*'I don't think there's any retailer who doesn't want to participate.'* (Moenen Woninginrichting)

*('Er is denk ik geen ondernemer die niet mee wil doen.'* (Moenen Woninginrichting))<sup>[5,76]</sup>

However, opinions were divided on whether city logistics would then be addressed. All retailers except de Museumshop and De Heeren Wonen indicated that they found it understandable that logistics would be addressed. During the interviews, the question was also asked whether it was understandable that logistics is being tackled in this way and should not, for example, be looked at more strictly in terms of passenger transport or another sector. Kaashandel de Wit was adamant that passenger transport has already been addressed. On the other side was De Heeren Wonen with the position that they agreed with the statement to address another sector because that would be easier and more feasible than addressing logistics but they too acknowledged that passenger transport has already been addressed. Still, Nijmegen's city centre can certainly not be called completely car-free but hence it seems to be perceived that way by the respondent.

*'Yes, you are not allowed as a car into the centre anymore. Parking garages are around the centre, there could be a few more and that's where you go as a consumer. And the rest you walk in the centre. Fine there's nothing wrong with that. So that private car is already gone so it doesn't come into the centre anymore. The only thing that still enters the centre is the logistic traffic and then it is also very logical that they say we are tackling logistics.'*

*(Kaashandel De Wit)*

*('Ja, je mag als auto het centrum niet meer in. Parkeergarages zijn om het centrum heen, er zouden er nog een paar bij mogen komen en daar ga je naartoe als consument. En de rest loop je in het centrum. Prima, daar is niks mis mee. Dus die particuliere auto is al weg dus die komt niet meer in het centrum. Het enige wat nog het centrum in komt is het logistieke verkeer en dan is het ook heel logisch dat ze zeggen we pakken de logistiek aan.'*

*(Kaashandel De Wit))* <sup>[3,56]</sup>

*'They haven't thought about logistics. Passenger transportation can more easily be electric. There is much more supply and people can park easily, Wedren, parking garages. People walk into town anyway. You can't take a car into town as a visitor. But for logistics, there just isn't a good solution yet' (De Heeren Wonen).*

*('Over de logistiek hebben ze niet nagedacht. Personenvervoer kan makkelijker elektrisch. Er is veel meer aanbod en mensen kunnen makkelijk parkeren, Wedren, parkeergarages. Mensen lopen toch de stad in. Je kan niet met de auto de stad in als bezoeker. Maar voor de logistiek is nog gewoon geen goede oplossing.' (De Heeren Wonen))* <sup>[7,109]</sup>

De Museumwinkel's position was clear. He did not agree with the introduction of the zero emission zone. He gave the example that the bigger picture should be sought than the small retailer, namely in reforming cab or bus transportation for example. However, of course, addressing logistics is broader than just the small business owner. The introduction of individual zones ultimately envisions a completely national zero emission logistics by creating a patchwork. Hidden in this then is the nature of logistics: it is about a transport flow. It may be the case that you start from a place without an emission zone to deliver in a zero emission zone so that you still end up having to make the transition when dispensation schemes for the retailer in question are not sufficient.

*'No, I also think it's very stupid of them and not smart at all. If they're doing it for the environment there are other measures, they can take [...] Yes look, there's no point in targeting those few small business owners.'* (De Museumwinkel)

*('Nee, ik vind het ook heel stom van ze en ook helemaal niet slim. Als ze het voor het milieu doen zijn er wel andere maatregelen die ze kunnen nemen. [...] Ja kijk, het heeft geen zin om die paar kleine ondernemers aan te pakken.'* (De Museumwinkel)) [6,58]

### 4.3. The perceived level of participation

The perceived level of participation is characterised by its absence. No general message has been sent out from the municipality with the notification about the (yet to be introduced) zero emission zone. At no stage until now (mid-June) has there been any municipal communication.

*'Nobody knew anything about it.'* (Heydenrijck Wonen)  
*('Niemand wist er iets van'. (Heydenrijck Wonen))* [2,26]

The interviews initially took inventory of how much knowledge there was about the zero emission zone. The lack of clear messaging leads retailers to be forced to inform themselves which some retailers have acted on and others have not yet acted on.

*'And then I started looking online myself and was shocked. Then I sent an email to the municipality of Nijmegen asking what the situation was. (Heydenrijck Wonen)*  
*('En toen ben ik zelf eens gaan speuren online om te kijken en schrok ik. Vervolgens heb ik een mail gestuurd naar de gemeente Nijmegen met de vraag 'hoe het ervoor stond'.*  
*(Heydenrijck Wonen))* [2,26]

*'Then I just went and entered my licence plate number.'* (De Museumwinkel)  
*('Toen ben ik mijn kenteken maar in gaan voeren.'* (De Museumwinkel)) [6,50]

Decora Bloemdecoraties, Doorman & De Heeren Wonen expressed the strongest feelings of not knowing what to do and had the least knowledge about the concept of a zero emission zone. Decora Bloemdecoraties & Doorman acknowledged they may have seen some pass somewhere, but this might have ended up at the bottom of the heap.

*'Yeah, you know, maybe I've had a vague letter from somewhere.'* (Decora Bloemdecoraties)  
*('Ja weetje, misschien heb ik wel ergens een vage brief van gehad.'* (Decora  
Bloemdecoraties))<sup>[1,24]</sup>

*'There is so much information coming in every day and there is also so much information  
coming in from the municipality that you then think nice if you are working on that every day,  
but it is almost impossible for us to keep up.'* (Doorman)  
*('Er komt iedere dag zoveel informatie en er komt ook zoveel informatie van de gemeente dat  
je dan denkt van leuk als je daar iedere dag mee bezig bent, maar dat is voor ons bijna niet  
bij te houden'.* (Doorman))<sup>[4,64]</sup>

The retailers who did become more informed indicated that they had seen something in the newsletter of Het Huis van de Binnenstad. This source was mentioned three times as a source of information, but it is characterised as 'a vague and incomplete message'. by Kaashandel de Wit. As a result of the (inadequate) reporting, the retailers themselves started looking for more information. This often remained at 'quickly looking up some information' while waiting for a concrete message from the municipality. The general thought was that if it applies to us, it seems logical that we should be informed.

*'I think it's smart if you inform people if you have to do something for each other that you do  
give them knowledge about it.'* (Moenen Woninginrichting)  
*('Het lijkt mij slim als je mensen informeert als je iets voor elkaar moet doen dat je die kennis  
erover geeft'.* (Moenen Woninginrichting))<sup>[5,68]</sup>

*'If you don't know you can't act'* (Heydenrijck Wonen)  
*('Als je het niet weet kan je ook niet handelen'* (Heydenrijck Wonen))<sup>[2,91]</sup>

The lack of communication is not in line with the obligations imposed nationwide on communication in the Climate Agreement, the National Communication Strategy and the City Logistics Agenda. All these three documents reported the same three obligations to communication which can be found in textbox one. The obligation to inform may also be something that will be legally challenged when appropriate. Decisions must be substantiated and resilient to rebuttal in court. This does not even seem unlikely following the information from the memorandum cited in section 4.1.5.

*'If they're going to fine me when we didn't know about it, I do want to take it to court. That's kind of how I am.'* (Moenen Woninginrichting)

*('Als ze gaan beboeten wanneer we er geen weet van hadden, wil ik het wel voor de rechter laten komen. Zo zit ik wel in elkaar.'* (Moenen Woninginrichting)) <sup>[5,52]</sup>

When these obligations to the communication came to light during the interviews, it was still stated that messaging from the municipality was lacking.

*'No, they really didn't. I think that's what pisses me off the most.'* (Heydenrijck Wonen)  
*('Nee, dat hebben ze echt niet gedaan. Ik denk dat ik daar nog het meest pissig over ben.'*  
*(Heydenrijck Wonen))* <sup>[2,52]</sup>

When communication is lacking, the opportunity for participation is also logically lacking. De Heeren, Kaashandel De Wit and Heydenrijck Wonen indicated that in previous 'projects' in the street, participation of the retailers was requested and facilitated and that this was experienced as positive. However, the opportunity for participation is still lacking in this case.

*'No, but in this case, we were not heard. Yes, I think that is really a bad thing. But there's already not much we can do about that now.'* (De Heeren Wonen)  
*('Nee, maar in dit geval zijn we niet gehoord. Ja dat vind ik echt een kwalijke zaak. 'Maar daar is nu al niet meer heel veel aan te doen.'* (De Heeren Wonen)) <sup>[7,101]</sup>

De Museumwinkel and Moenen Woninginrichting, in particular, were more negative about providing the opportunity for participation and previous experiences. It would only be about the municipality's own reputation. The actual level of participation would ultimately be disappointing. So, the "fear" in this case also reigns in the question of whether there is still an opportunity for public participation and if there is such an opportunity to what extent there will actually be listened to. The timing at the moment to ask for participation would be a strange choice since many main points have already been established such as zoning and regulations both municipal and national.

*'How often is it just for show that people are called together, and nothing is done with it in the end?' (Moenen Woninginrichting)*

*('Hoe vaak is het alleen maar voor de bühne dat mensen bij elkaar geroepen worden en er uiteindelijk niks mee gedaan wordt?' (Moenen Woninginrichting)) [5,58]*

*'Indeed, that is also a little bit how the municipality works, they ask afterwards. They actually announce it afterwards: 'We consulted the retailers; no, they informed the retailers. It is then nicely advertised in the newspaper' (De Museumwinkel).*

*('Dat is namelijk ook een beetje hoe de gemeente werkt, ze vragen het achteraf. Ze delen het eigenlijk achteraf meer van we hebben het overlegd met de ondernemers, nee ze hebben het medegedeeld aan de ondernemers. Het staat dan wel leuk in de krant' (De Museumwinkel))*

[6,102]

#### 4.4. The influence of participation on attitude & willingness

This section examines the relationship between retailers' attitude and retailers' willingness, visualised in Figure 8. Are they equal or is it possibly influenced by the influence of the decision-making process? A generally positive and understandable attitude follows from the definition of attitude in section 4.2.

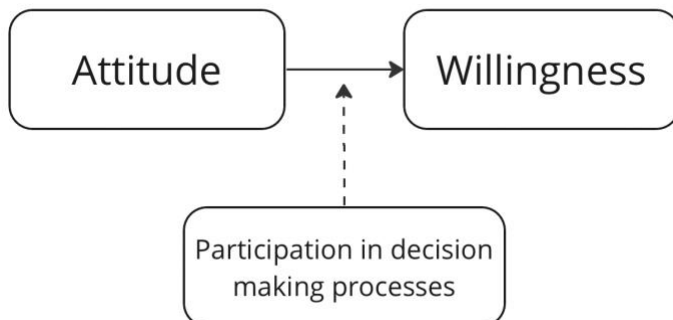


Figure 8: The relation between attitude and willingness and the potential role of participation in decision making processes.

In the decision-making process there was no concrete communication from the municipality, resulting in the lack of participation. The retailers' attitude is noticeably negatively affected by this which ultimately results in a negative willingness to cooperate. When questioning this relationship, many emotions surfaced among the retailers. The feeling of feeling forced and therein a powerlessness feeling repulsed many.

*'It all feels like imposed of we know better; we think for you, and we do decide for you. And that makes the hairs on the back of my neck stand up straight.'*

*(Kaashandel De Wit)*

*('Het voelt allemaal als opgelegd van wij weten het beter, wij denken voor jou en wij beslissen het wel voor jou. En daar gaan bij mij de nekharen recht overeind staan.'*

*(Kaashandel De Wit))* <sup>[3,96]</sup>

*'You just have to go along with government' (De Museumwinkel)*

*('Je hebt gewoon mee te gaan met overheid' (De Museumwinkel))* <sup>[6,106]</sup>

Previous experiences with the municipality have already been mentioned above, but this has led to a lack of trust on the part of the retailer. This results, among other things, from not having been heard before or the fact that in some eyes too little is done with participation. Another argument is the unpredictability of policy makers.

*'In 2000 we had a baseline and no more parking spaces would ever go off the street. Just go look, all the parking spaces are off the street. But we had an agreement, didn't we? The municipality's agreements apply just as long as the municipality feels like it.'* (Moenen

*Woninginrichting)*

*('In 2000 hadden we een nulmeting en er zouden nooit meer parkeerplaatsen van de straat af gaan. Ga maar eens kijken, alle parkeerplaatsen zijn van de straat af. Maar we hadden toch een afspraak? De afspraken van de gemeente gelden net zolang de gemeente daar zelf zin in*

*heeft.'* (Moenen Woninginrichting)) <sup>[5,56]</sup>

*'Seeing before believing.'* (Decora Bloemdecoraties)

*('Eerst zien dan geloven.'* (Decora Bloemdecoraties)) <sup>[1,28]</sup>

Following this, business owners also often see the municipality's choices as skewed and unfair without providing a rationale for making those choices.

*'They are pushing something on us financially, but on the other hand, what could also be better for the environment, they don't want. And then I think that is also hypocritical because then you are measuring with double standards.'* (Heydenrijck Wonen)

*(‘Ons duwen ze wel financieel iets in de schoenen, maar aan de andere kant, wat ook beter voor het milieu zou kunnen zijn, willen ze dan niet. En dan denk ik dat is ook hypocriet want dan meet je met 2 maten.’ (Heydenrijck Wonen)) [2,111]*

*I would like to switch to electric transport myself, but I don't think it's being done fairly. First you get made nice with for example no bpm and road tax but now a lot of those things are gone. I think that if we want green, if the government wants us to want green, they should promote it and I think that's happening way too little.’ (Moenen Woninginrichting)*  
*(‘Ik wil zelf graag over naar elektrisch vervoer, maar ik vind dat het niet eerlijk gebeurt. Eerst word je lekker gemaakt met bijvoorbeeld geen bpm en wegenbelasting maar nu zijn er een hoop van die dingen weggevallen. Ik vind dat als wij groen willen, als de regering wil dat we groen willen, dan moeten ze dat ook promoten en ik vind dat er veel te weinig gebeurt.’*  
*(Moenen Woninginrichting)) [5,32]*

Not being heard also results in some retailers being outed. This flattens the degree of desire to be heard. The idea that they have tried so many times and have been disappointed makes them feel hopeless. Moenen Woninginrichting and De Heeren Wonen indicate that they have been in all kinds of business councils, consultative groups, etc., for so long that they are now done with it.

*I've always done that. I've done that so many times, picking up things for our street, especially in the Het Huis van de Binnenstad. I don't feel like doing it anymore. I'm getting a little tired of it.’ (The Heeren Wonen)*  
*(‘Ik heb dat altijd gedaan. Ik heb dat zo vaak gedaan, voor onze straat dingen opgepakt, met name in het huis van de Binnenstad. Ik heb er geen zin meer in. Ik word er een beetje moe van.’ (De Heeren Wonen)) [7,123]*

Doorman, Decora Bloemdecoraties and De Heeren Wonen expressed the idea that the municipality always wants to be in the lead nationally which they find tiresome.

*'Then I don't really understand the need of why that always has to be the first one. Especially for such a big city. If you're then only concerned with that and if you then take away your downtown and your retailers with that.'* (Doorman)

*('Ik snap dan niet zo goed de behoefte van waarom dat dan altijd als allereerste moet zijn. Zeker voor zo 'n grote stad. Als je dan alleen maar bezig bent daarmee en als je dan je binnenstad en je ondernemers daarmee weghaalt.'* (Doorman)) [4,78]

The continuous changes and retailer go through in terms of the physical environment of the store, the operations, and the role the small retailer has in it led to the loss of enjoyment in being a retailer.

*'And sometimes it does feel, you say: is being a retailer still fun, as if you are being punished for being a retailer.'* (Kaashandel De Wit)

*('En soms voelt het wel eens, je zegt: is ondernemer zijn dan nog wel leuk, alsof je gestraft wordt om ondernemer te zijn'. (Kaashandel De Wit))* [3,114]

*'Very often there are attacks from outside. If it's not with the garbage bags, because that's a little thing, then it's this or that again. Then again, no billboard is allowed outside. Then you get the car. Those are all those little pinpricks that make it less fun.'* (Moenen

*Woninginrichting)*

*('Heel vaak worden er van buitenaf aanslagen gepleegd. Is het niet met de vuilniszakken, want dat is een dingetje, dan is het wel weer dit of dat. Dan mag er weer geen bord buiten staan. Dan krijg je de auto. Dat zijn allemaal van die kleine speldenprikjes wat ervoor zorgt dat het minder leuk maakt. (Moenen Woninginrichting))* [5,112]

A lack of understanding of small retailers is perceived by all business owners regarding the implementation of the zero emission zone. This feeling of lack of understanding from the municipality, fuelled by the above results in a negative willingness to cooperate whereas a generally positive attitude prevailed beforehand.

## 4.5. Perceived capabilities of the retailer

During the interviews, inquiries were made about how the retailer assesses his or her own capabilities. This was done in three areas: financial, time and knowledge.

Partly because nothing has been clearly communicated to the retailer yet, there is a feeling of a lack of time. As a researcher, I noticed that when 2025 was mentioned in an interview, people often reacted with shock. On the other hand, this image must also be partly nuanced because there are also retailers who have not yet immersed themselves in what it means for their own business operations. There are already tools available to the retailer on what the introduction means for your business operations. For example, the licence plate check is available and there is also a zero emission advisor appointed by the municipality. When retailers inform themselves, the concept of lack of time may not be too severe since almost no retailer needs to take steps by 2025. During the interviews, I did clearly reflect that 2025 would certainly not be the year of obligated transition for everyone, and various transitional arrangements etc. are still being developed.

Following on from the above, the lack of notice has also encouraged a degree of procrastination among retailers. Indeed, I expect the responsibility for this to be placed on the municipality. When they start communicating, the retailers will start informing themselves and then they may find out that there is not enough time despite being given the tools before.

For the concept of "knowledge," two aspects are considered: how the retailer assesses his or her own knowledge and the amount of knowledge they have about the subject in the eyes of the researcher. During the interviews, the researcher quickly found out about the amount of knowledge on the subject. Gauging knowledge about the researchers' knowledge about the topic beforehand was obviously necessary for the continuation of the interview. The results of this partly relate back to whether the retailers had already encountered the subject somewhere. When a message was deliberately read by the retailers, they did begin to familiarise themselves. The perusal then usually remained limited to what the concept entailed; the step to the changes it implies for business operations was often not taken yet. Heydenrijck was the respondent who was most familiar with both the concept and its consequences. She had also contacted the municipality about it after having read about it. Doorman, Decora Bloemdecoraties & De

Heeren Wonen were the ones who were least aware and where the content of the concept still needed some explanation.

During the interviews, I noticed that retailers did start thinking and asking critical questions. For example, three retailers started talking about charging issues: where will the charging stations be located? Will everyone get their own charging station? There was also a critical look at what the current market currently offers as options for replacement transportation. Some retailers doubted whether the desired vehicle was already available or had already contacted dealers about it. Concerns were also expressed about the radius of action. Many retailers deliver throughout the country or even internationally and do not like the idea of having to make several unwanted stops because of a too small range. So, there was a need for more knowledge and clarity. In this, however, lies also the own responsibility, which was certainly recognized. In particular, the two respondents, Doorman & De Heeren Wonen indicated that they thought it was a mistake for them to be 'poorly' informed and confirmed that they would have to learn more quickly.

Of the three themes, most concerns are in the financial area. First, the purchase price of an electric bus is very high and does not consider outstanding depreciation and other high expenses from past years. For example, Doorman indicated being very burdened by high electricity costs as a white goods store and De Museumwinkel and Kaashandel De Wit indicate that the timing of this investment is bad due to the loss of revenue during Covid. Besides the potentially unfortunate timing, all business owners except Moenen Woninginrichting assess the investment to be made as impossible until support is forthcoming. Moenen Woninginrichting position is that they can easily make the investment but will not make it without support.

In general, the retailer's possibilities are not viewed positively. There are also many doubts, including about the role of the municipality in this. The needs of the retailers in this regard will be further explained in the following two result sections.

## 4.6. The role of participation on the capabilities

Participation can affect opportunities both positively and negatively as explained earlier in the operationalization. The relationship between these two concepts, like the relationship between willingness and readiness needed for section 4.7., is shown in Figure 9.

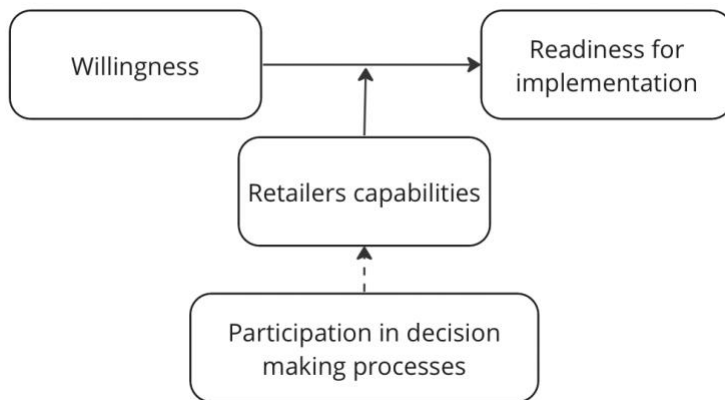


Figure 9: The final part of the conceptual model with the relationship between willingness and readiness with potential influences

In the case of this study, the opportunities are negatively affected by the lack of participation and messaging. The retailers have their own idea of the possibilities and rightly indicate that the investment is expected to be difficult for them in all three areas. If a municipality were to understand these uncertainties of the retailer, they might be able to offer support measures that could positively impact participation on opportunities. The retailer feels very aggrieved by the fact that they have not been heard. This fact seems to be the worst, retailers often don't even talk about the help needed. It is more about the municipality's understanding of the retailer's position which feeling is yet lacking among the retailers.

*'But then I think of do you know what it is to be your own retailer? Then I'm not talking about a big retailer but a small, independent retailer' (Kaashandel De Wit).*

*('Maar dan denk ik van weten jullie wel wat het is om een eigen ondernemer te zijn? Dan heb ik het niet over een grote ondernemer maar over een kleine, zelfstandige ondernemer.'*

*(Kaashandel De Wit)) [3,104]*

*'They have no idea what it's like with the small business owner, they don't have a clue about that at all.' (Heydenrijck Wonen)*

*('Zij hebben geen idee hoe het zit bij de kleine ondernemer, daar hebben ze helemaal geen kijk op.' (Heydenrijck Wonen)) [2,54]*

De Museumwinkel summarises the lack of support as a bad business climate that the municipality conducts. The municipality does not listen to the retailer and the vulnerability of the retailer is not recognized. This relationship also overlaps with the rationale for the retailer's role in the decision-making process which influenced willingness.

Retailers indicated that they wanted to be better understood. When asked during the interviews in what way they would like support, the respondents each had different ideas about it. Doorman preferred direct participation through a survey or information evenings. Moenen Woninginrichting also indicated that information evenings are necessary, provided the business owner is given a voice in them. Decora Bloemdecoraties expressed a desire to receive "just" a concrete plan to which steps can be taken.

*'Just that there will be a concrete plan and it will be communicated in a timely manner, then it will be fine.'* (Decora Bloemdecoraties)

*('Gewoon dat er een concreet plan komt en dat wordt tijdig gecommuniceerd, dan is het prima.'* (Decora Bloemdecoraties)) <sup>[1,85]</sup>

This attitude also shone through among a few other retailers. Direct participation is not always desired. This is partly due to already mentioned the lack of actual influence of external parties on decision-making despite being invited to participate. On the other hand, it also has to do with the high age of the respondents and the number of years in the business and already participation in all kinds of entrepreneurial committees and the like. This dual reason for not wanting direct participation is summed up in the retailer's feeling of being outed.

*'So, then the excitement goes off and you get less energy in your system so then you also start struggling more and more to keep everything going and stay sharp.'* (Kaashandel De Wit)

*('Dus dan gaat de spanning eraf en je krijgt minder energie in je systeem dus dan gaat het je ook steeds meer moeite kosten om alles op de been te houden en scherp te blijven'.*

*(Kaashandel De Wit)* <sup>[3,98]</sup>

*'You know I just resigned myself to how the municipality works. You can kick, I've done it so many times, in the beginning you're young but you still lose it. It's fighting Goliath.'* (De Museumwinkel)

*('Weet je dat ik mezelf er gewoon bij neergelegd heb hoe de gemeente werkt. Je kan schoppen, ik heb het zo vaak gedaan, in het begin ben je nog jong maar je verliest het toch. Het is vechten Goliath.'* (De Museumwinkel)) [6,132]

The other needs that emerged in the area of participation in decision-making processes will be addressed using the three themes that were also addressed in the options of opportunities namely financial, knowledge and time. In the area of knowledge, the desire to be taken by the hand is clearly indicated. The electric vehicle market is a market that is unfamiliar and difficult for many retailers to fathom. The general feeling is that they are willing to cooperate, but that it should be made as easy as possible for them.

*'I wouldn't know. I don't know anything about cars.'* (De Heeren)  
*('Ik zou het niet weten. Ik heb totaal geen verstand van auto's.'* (De Heeren)) [7,127]

*'Help can't hurt, of course.'* (De Museumwinkel)  
*('Hulp kan natuurlijk geen kwaad.'* (De Museumwinkel)) [6,82]

On the other hand, Moenen Woninginrichting clearly indicates that it does not need support in the area of knowledge. This follows from the statement below, but in this also lies a clear attitude toward municipal policy.

*'Purely financially, knowledge doesn't interest me. I'll get that from anywhere. I don't need anyone for that and certainly not the government. Knowledge doesn't matter to me.'* (Moenen Woninginrichting)  
*'Puur financieel, kennis interesseert mij niet. Dat haal ik wel overal vandaan. Daar heb ik niemand voor nodig en zeker niet de regering. Kennis maakt mij niks uit.'* (Moenen Woninginrichting) [5,36]

From the opportunities followed the feeling of having too little time. The retailers came up with several ways to overcome this problem. For example, there is a general need for exceptional positions. Heydenrijck indicated that, in her opinion, it is not too bad how many downtown business owners do their own deliveries and do not have the resources to invest. When those retailers are made transparent, their situations can be looked at and any exceptions can be applied. Now slowly more and more are becoming known about exemption schemes that might include some of these retailers. However, for the time being these only apply nationally and the question arises whether attention can perhaps also be paid to exemptions within the municipal boundaries. This desire is already apparent from the fact that retailers are often still in the process of writing off the current van and then must switch to another van. About four retailers indicated that they also see supply-side regulation as a possibility. When you are ready to replace the van there are only emission-free vehicles available and that in this way you are "forced" to switch. Retailers feel more justified in this than in being forced with these current regulations.

*'En hadden ze het gedaan met ga je vervangen dan moet je elektrisch vervangen vind ik het een ander verhaal.'* (De Heeren)

*('And had they done it with are you going to replace them then you have to replace electric I think it's a different story.'* (De Heeren)) <sup>[7,113]</sup>

*'It's the same as the government wanting you to be unable to buy 'regular' cars from 2025. That's fine, that's a different story from saying from 2025 the city will close down. If they don't sell them anymore that's fine and the cars that drive, they have to be dealt with.'*

*(Moenen Woninginrichting)*

*('Het is hetzelfde als dat de regering wil dat je vanaf 2025 geen 'gewone' auto's meer kan kopen. Dat is prima, dat is een ander verhaal dan dat je zegt vanaf 2025 gaat de stad dicht. Als ze niet meer verkocht worden prima en de auto's die er rijden daar moet mee gedeald worden.'* (Moenen Woninginrichting)) <sup>[5,70]</sup>

*'If business owners are due for a new van and then only electric vans are available and that you make the transition that way. So, the van is written off, I need a new one, that you're forced that way.'* (De Museumwinkel)

*('Als ondernemers toe zijn aan een nieuwe bestelbus en dat er dan enkel elektrische bestelbussen beschikbaar zijn en dat je op die manier de overgang maakt. Dus de bus is*

*afgeschreven, ik moet een nieuwe, dat je op die manier gedwongen wordt. (De  
Museumwinkel))* <sup>[6,111]</sup>

Herein lies, also, the need for a choice in which the sense of feeling compelled as previously named returns.

*'You know that that's a choice you make then. If you say I don't want that, a home without parking, then you shouldn't come live here.'* (Heydenrijck Wonen)

*'Dat weet je, dat is een keuze die je dan maakt. Als je zegt 'dat wil ik niet, een woning zonder parkeerplaats, dan moet je hier niet komen wonen.'* (Heydenrijck Wonen) <sup>[2,107]</sup>

*'We do not have a choice.'* (De Museumwinkel)  
(*'We hebben geen keuze.'* (De Museumwinkel)) <sup>[6,127]</sup>

Finally, the greatest need is still for financial support. After all, the retailers still recognize their own responsibility in terms of time and knowledge, but the financial responsibility is still sought from the municipality since they oblige the retailers. Now, of course, for the municipality it is ultimately another obligation from top down. It has been established nationally that this policy should be used but the closest point of contact for the retailers is the municipality.

*'If they force the switch, yes. Then I think they should even compensate for it'* (De Museumwinkel)

*('Als ze de overstap verplichten wel ja. Dan vind ik dat ze het zelfs moeten compenseren.'* (De Museumwinkel)) <sup>[6,86]</sup>

*'Will I get financial support from the municipality then?'* (Doorman)  
(*'Krijg ik dan financiële steun van de gemeente?'* (Doorman)) <sup>[4,60]</sup>

*'I'm not moving on buying electric cars now, I will do that as soon as we get financial help.'*  
(Moenen Woninginrichting)

*(‘Ik ga nu niet op aanschaf van elektrische auto’s over, dat doe ik zodra wij financieel geholpen worden.’ (Moenen Woninginrichting)) [5,34]*

In short, there is a great need for workability of plans. This is not necessarily achieved by the most intensive form of participation but the feeling of being understood and respected is what is demanded.

#### 4.7. The relationship between willingness & readiness

From negative readiness also follows negative readiness in the retailers' eyes. The retailers themselves are not yet prepared but lack the help to do so for the time being. The retailers also do not think that the government should expect them to save themselves in this situation. This should be supported both through communication and accommodating measures with respect to the themes of financial, time and knowledge.

*‘It is very easily thought about, I think. The laxity with which they think about it I find disturbing. The nonchalance with which they think about it I find disturbing.’ (Kaashandel De Wit)*

*(‘Er wordt heel makkelijk over gedacht, vind ik. De laksheid waarmee ze erover denken vind ik storend. De nonchalance waarmee ze erover denken vind ik storend.’ (Kaashandel De Wit)) [3,90]*

*‘I don't think there has been any thought at all about the impact on a lot of business owners.’ (De Heeren)*

*(‘Ik denk dat er totaal niet is nagedacht over de gevolgen voor heel veel ondernemers.’ (De Heeren)) [7,133]*

The responsibility lies with the municipality according to the retailers. Kaashandel De Wit in particular is also concerned about the responsibility of their own suppliers. He has informed them of the fact that something is going to happen in Nijmegen, but otherwise it is not his problem, according to him. Still, in the back of his mind he is thinking, it's not going to happen that I won't get any more cheese. With the other retailers you don't notice this way of thinking and the fear for the suppliers because they must tackle their own business first, that is their first

priority. Kaashandel De Wit switched to electric bicycles three years ago, so he has more room to look beyond his own concerns.

*'I did mention it to the suppliers. Keep in mind, from 2025 it's going to change in Nijmegen but honestly that's their problem, but I do worry myself about it.'* (Kaashandel De Wit)  
(*'Ik heb het bij de leveranciers wel aangegeven. Houd er rekening mee, vanaf 2025 gaat het veranderen in Nijmegen maar dat is eerlijk gezegd hun probleem maar ik maak mezelf er wel zorgen over.'* (Kaashandel De Wit)) <sup>[3,86]</sup>

In addition to the insufficient capabilities, lurking procrastination among several retailers does not make it any more plausible that business owners are prepared. Nevertheless, some initial thoughts are already emerging among shopkeepers about what to do when the zone is actually implemented. In this, investing in a new bus does not even seem to be an option which also shows the negative and still uncertain willingness and readiness. At the moment, the retailer's motivation is completely at odds with what the government would prefer to see, and this is due to the municipal approach to this.

For example, retailers are thinking about a permanent closure. The retailers who are thinking about this, however, are mainly elderly retailers who do not consider making such a large investment just before retiring. The Museum Shop is also thinking about this, but his point of view is more fuelled by the fact that he thinks Nijmegen has a bad entrepreneurial climate.

*'When the contract expires on the property we'll quit, right? It's no other way'* (De Museumwinkel)  
(*'Als het contract afloopt van het pand dan stoppen we er toch mee? Het is niet anders.'* (Museumwinkel)) <sup>[6,132]</sup>

*'Yes, then I'll quit and put the bill to the municipality.'* (Kaashandel De Wit)  
(*'Ja, dan stop ik ermee en leg ik de rekening bij de gemeente.'* (Kaashandel De Wit)) <sup>[3,40]</sup>

It is worth noting that as previously mentioned, Heydenrijck Wonen wants to end her business operations due to her approaching retirement age. Both the chamber debate and the interview with project leader Paul Manten raised the possibility of instituting a hardship clause that this case could possibly fall under. Paul Manten also indicated that he would certainly investigate

that for further retirement cases. However, from the response Heydenrijck Wonen received from the municipality, as a result of requesting information after first becoming aware of the zero emission zone, there was no reference to the possibility of applying a hardship clause. On the contrary, it was stated that Heydenrijck should also make the switch in 2028 based on the characteristics of her current van. This communication resulted in an angry store owner who now says she is going to stop her business operations. She may already be taking steps to do this, or she may eventually decide to switch to an electric vehicle after all and then run into the fact that an exception is being made for her position. How the municipality will then account for this is a big question for me. The communication does not seem to parallel the actual developments in which a reassurance from the municipality to the retailer does not take place.

*'I am now 60, recently turned 60. I would have liked and could have gone on a few more years myself and this does play into it for us. This is decisive in that we quit earlier.'*

*(Heydenrijck)*

*('Ik ben nu 60, pas geworden. Ik had zelf best nog wel een paar jaartjes verder gewild en gekund en dit speelt wel mee voor ons. Dit is bepalend daarin dat wij er eerder mee ophouden.'* (Heydenrijck)) <sup>[2,40]</sup>

A less drastic option is to move the store to a location outside the zone. Some business owners also sell a product for which stores in the same sector would no longer locate themselves downtown. Consider the electronics retailer Doorman and the owners of the furniture and home furnishings stores heard for the study. Often the location choice when the store started was not an illogical choice but over decades the environment has changed so much that now the location factors are less favourable in a city centre. The introduction of the zero emission zone reinforces this feeling. However, the connection to the location keeps Moenen Woninginrichting, for example, from moving.

*'If I started an electronics store now, I wouldn't do it downtown.'* (Doorman)

*('Als ik nu een elektronikazaak zou beginnen, zou ik het niet meer in het centrum doen.'*

*(Doorman))* <sup>[4,40]</sup>

*'I've thought at times, too, whether I wouldn't be happier sitting on a furniture boulevard? That would make me very unhappy.'* (Moenen Woninginrichting)

*(‘Ik heb ook weleens gedacht hoor, of ik het niet fijner zou vinden om op een meubelboulevard te gaan zitten? Daar zou ik heel ongelukkig worden.’ (Moenen Woninginrichting)) [5,120]*

Another location is something that seems the most realistic for de Museumwinkel. Heydenrijck Wonen says she might have thought about another location if they had been informed in time. It makes no difference to them now: she is nearing retirement anyway. For De Heeren Wonen, it is not an option, but they do fear losing downtown business owners because of these regulations.

*‘I already went to Weurt with the warehouse because it’s just an expiring business to stay with your business in the municipality of Nijmegen.’ (De Museumwinkel)*  
*(‘Ik ben met de loods al naar Weurt gegaan want het is gewoon een aflopende zaak om met je zaak in de gemeente Nijmegen te blijven.’ (De Museumwinkel)) [6,96]*

*‘Yeah, then maybe we could have said: we’re going to move again with the business.’*  
*(Heydenrijck Wonen)*  
*(‘Ja, dan hadden we misschien nog kunnen zeggen: we gaan nog een keer verkassen met de zaak.’ (Heydenrijck Wonen)) [2,89]*

*‘I would hate to see a business go out of town because of these regulations.’ (De Heeren Wonen)*  
*(‘Ik zou het heel erg vinden als een zaak de stad uit gaat vanwege deze regelgeving.’ (De Heeren Wonen)) [7,117]*

Other types of transportation are not necessarily being thought about very much yet. Here too, according to the retailers, there are still many practical hurdles, partly due to the product characteristics. Furniture and preserved animals are large, which makes transport on bicycles impossible. Food products do become easier to deliver by bike to consumers, but the supply also needs to be organised which is difficult for now as it must be refrigerated, and capability is not yet satisfactory.

*‘Exactly, but they have no idea what we sell here. And then the municipality says very nicely: do that with the cargo bike and then I say to the man from the municipality, but do you know*

*what I get in on Tuesday morning? We are talking about 2 tons of cheese being delivered.'*  
(Kaashandel de Wit)

*('Precies, maar ze hebben geen idee wat wij hier verkopen. En dan zegt de gemeente heel leuk: doe dat maar met de bakfiets en dan zeg ik tegen de man van de gemeente, maar weet je wel wat ik binnenkrijg op dinsdagochtend? Het gaat bij ons om 2 ton kaas die wordt geleverd.'* (Kaashandel de Wit)) <sup>[3,22]</sup>

Decora Flower Decorations sells flowers that are relatively easy to transport by bicycle couriers. However, they indicate that bicycle couriers currently still charge very high prices and they do not expect consumers to want to compensate. Later in the interview, the same point of view regarding compensation was also used to justify why an electric van would not be feasible.

*'Yes, we also thought about using them for delivery, but they charge such prices. My customers are not going to pay that. If customers now pay 5 euros per order and it becomes 10, I can't do that. And then I have to say yes, but it will be delivered with an electric bicycle'*  
(Decora Bloemdecoraties).

*('Ja, we hebben er ook weleens over nagedacht om die te gebruiken om te bezorgen, maar die rekenen zulke prijzen. Mijn klanten gaan dat niet betalen. Als klanten nu 5 euro per bestelling betalen en dat wordt 10 ja, dat kan ik niet maken. En dan moet ik zeggen ja maar het wordt nu wel met een elektrische fiets bezorgd.'* (Decora Bloemdecoraties)) <sup>[1,50]</sup>

Another point of interest and a place of possible opportunity is the Binnenstad Service. The Heeren Wonen have been using this system for years. Should the Binnenstad Service move to zero-emission transportation and offer the capability to make deliveries to business owners from the warehouse this could be one solution. This way the Inner City Service acts as a hub but they can already use the network of retailers created. However, the Heeren Wonen also question this because should they then have a delivery from the store, they are dependent on their own bus for the time being. For now, many questions and uncertainties remain. Every solution comes with doubts and drawbacks.

## 4.8. Evaluation of validity & reliability

The evaluation of the validity and reliability of the research methods provides clarity on how well the research methods were able to gain insight into the problem and thereby achieve the aim of the thesis. Observing the validity and reliability is happening in retrospect according to the usefulness and strength of the results found. Beginning with the internal validity where some comments can be made. I find the degree of exhaustibility of the operationalization uncertain. This follows from the fact that not all concepts were operationalized because there was not yet enough available knowledge available for doing so. In addition, the operationalizations were used as the core of the interview questions which can lead to the retailer unconsciously steering towards a certain side by the interviewer. For example, the possible deficiencies in terms of finances, time and knowledge were particularly considered since these applied as operationalization for the concept of capabilities. To prevent respondents from not having their own input on important experiences for the study, the question was frequently asked if the respondent wanted to add any points or asked if I as the researcher was forgetting any important points.

In addition, points emerged that supported the concepts that were not named in the operationalization. For example, the importance of past experiences emerged for evaluating current willingness but also concerns around charging infrastructure emerged as 'new' based on the operationalization. These points, among others, count as nice additions to the existing literature but also makes the previous operationalization not completely exhaustive.

The danger of respondents reacting very emotionally regarding the topic was perceived. Following this, I noticed that I myself as a researcher also created emotion towards the topic. This was particularly evident when I last engaged in conversation with project leader Paul Manten. By conducting interviews with the business owners, I had formed quite a position against the municipality's way of doing things. Sometimes it was still difficult to remain open to, for example, refutations or explanations from the municipality for certain facts arising from the interviews. I do hope that I have remained as transparent as possible in reporting these results in which the story of the retailer is at the heart.

There was certainly emotion among the business owners, but I think that on the one hand that shows the 'realness'. I left everyone to feel free to give an honest opinion without steering in

it. The respondents were also not influenced by others or the setting since the interviews only took place in their own workplace with only the researcher as the interviewer.

External validity is difficult for this study due to the small target group, resulting in a low number of respondents and describing one case study. This is described both in section 3.6. and in the recommendations with possible solutions for it. Within the municipality of Nijmegen, external validity does exist in my expectation since in my understanding saturation of the data was achieved. Furthermore, involving other sectors within the research could give an interesting extra dimension and increase the external validity since this way you cover a wider area of the social world in which the introduction of the zero emission zone takes place. This could include the inclusion of transporters to have included both policy makers and implementers for both delivery, receiving and delivery. In addition, I do not expect the results of the study to be generalizable to another context. The results are far too context-dependent for that. No conclusions can be drawn for other research areas based on this study.

The reliability of the study is sound in my opinion. The same set of questions was used for each respondent who belonged to the targeted retailer group. Also, the choice of methods was based on the research strategy where, in my opinion, more useful methods were not available. The vast amount and different types of sources used also increase reliability. Several links can be observed between the theoretical framework, the sources consulted during the desk research and the data collected from the interviews. At multiple times sources were used to verify findings from which sometimes just the desired additional clarity or confirmation was provided but sometimes a critical note had to be placed on information found.

## 5. Conclusion

Royal HaskoningDHV identified a possible problem around the unpreparedness of the small local retailer regarding the introduction of a zero emission zone. This fear following from practice has also been supported from several other sources, stating that the small business owner is often underrepresented in decision-making processes, which may increase vulnerability. This study provides insight into the context of Nijmegen surrounding the implementation of the zero emission zone. The conclusion section will answer the following main question:

*To what extent are the small local retailers prepared for the implementation of the zero emission zone from 2025 in Nijmegen?*

The formulated sub questions help to answer the main question. In the next sections, the answers to the sub questions are briefly formulated, dwelling on the expectations regarding the results defined from the visualization of the research model. The research model shows the main concepts to be investigated and visualizes the possible relationships between them based on multiple resources and personal expectations. These main concepts are attitude, willingness, capability, and participation in the decision-making process. The first sub question covers the identification of challenges surrounding the implementation of a zero emission zone. Having a clear understanding of the anticipated and already experienced challenges helps in understanding the concepts and relationships within the research model. The first sub-question reads as follows: What are the (local) challenges to implementing a zero emission zone?

Challenges are identified as a result of consulting multiple sources while doing desk research. The challenges are in the following areas: urban, demographic, the role of governments, charging infrastructure, financial and communication. Urban challenges arise from the design of the city centre as compact with multiple traffic attracting sites downtown, which makes it difficult to adjust. In addition, demographically, Nijmegen's inner city continues to grow in terms of population. This results in challenges in terms of facilitating the growing amount of traffic flows but also accommodating the growing inner city demand from both consumers and retailers. Also, Nijmegen city council's ambitious choice to realise three zero emission zones may affect the quality of implementation.

The challenges around the responsibilities of governments flow back to facilitating sufficient charging infrastructure, a covering subsidy and exception scheme and communication. The problems around this follow from lack of clarity and ownership. Which party is responsible for providing sound preconditions for implementation is often unclear, and blame is repeatedly placed on other parties. For example, project leader Paul Manten regularly gives the municipality's dependence on the national government as the reason for the lack of communication & financial support.

For the time being, there are concerns with both governments and the entrepreneurial sector around a providing infrastructure network for electric vehicles. On the financial side, retailers consider the current options for obtaining financial support inadequate. For the time being there is still too little clarity on the envisaged national desk for exemption positions and the contribution made through the current subsidies is not regarded significant enough. There is also still little focus on the hardship clause that municipalities can determine within their own boundaries. Finally, there is a lack of both national and municipal communication, in which attention should also be paid to (privacy) aspects for later legal retention.

Following from answering sub-question one, it can be stated that the implementation of a zero emission zone is complex and can be seen as a sustainable environmental policy transformation that comes along with a lot of difficulties. As indicated earlier, the challenges that followed from sub-question one applies as guidance for the remaining sub questions that focus on defining the relationships within the research model. The basis for the answers to the remaining sub questions follows from the interviews conducted with small local retailers from Nijmegen. The (lack of) communication can be seen as the common theme for answering sub-question two to five, but also the challenges around charging infrastructure, financial concerns and the role of governments recurred in the interviews.

First to be considered is sub-question two which is formulated as follows: How do socio-demographic factors, delivery factors and psychological factors shape the attitude of small local retailers and their willingness to participate in the implementation of the zero emission zone in Nijmegen?

The attitude can be seen as positive in which there is a definite degree of understanding. The socio-demographic factors and business factors are relevant for the inclusion criteria and in the end for the characterization of the retailer, but they are not as such relevant for the characterization of the retailer's attitude. The psychological factors mainly form the positive attitude. The attitude is characterised by a generally strong bond of the retailer with the city of Nijmegen, a sense of moral obligation to invest in the environment and acceptance of the introduction of the zero emission zone. However, there is nevertheless dispute over whether retailers are the right target group for the zero emission zone. It is indicated by two respondents that the government's choice of targeting logistics is not thought through well enough, and other sectors may be easier to target first.

The expectation that participation in the decision-making process has an impact on the relationship between attitude and willingness is central in sub question three. The paragraphs below address the third sub question: What has been the role of the local retailer in decision-making around the zero emission zone policy, and how does this affect the local retailer's attitude & willingness towards it?

The perceived level of participation has a negative effect on the positive attitude. The positive attitude, influenced by a lack of participation, results in a negative willingness to cooperate. As a result, the proven scientifically positive relationship between attitude and willingness found in some research does not apply to this study. As expected by the researcher and Royal HaskoningDHV, there appears to be a clear role for participation in the decision-making process regarding the relationship between attitude and willingness.

Furthermore, the retailers were clear about the fact that the municipality had not informed them of the emergence of the zero emission zone. Some retailers were not yet aware of zero emission zones, and others have informed themselves around the topic. The lack of communication leads to uncertainties and lack of understanding about the introduction on behalf of the small local retailer. The lack of communication automatically results in a lack of participation. The chance for participation by a business owner is directly missed if the municipality has not informed them about the creation of a zero emission zone. The concerns and lack of understanding of the small local retailer are not relieved as a result of the lack of participation.

Negative willingness of the retailer is also influenced by previous experiences around participation in decision-making processes. Feelings of not being understood, being treated unfairly, feeling obligated, and losing the joy of being a retailer emerged when questioning the relationship between attitude and willingness.

Sub questions two and three answered the first part of the research model, namely the relationship between attitude and willingness. Next, we will consider sub-questions four and five, which look at the relationship between willingness and readiness, including retailers' capabilities and the influence of the decision-making process.

First, attention is paid to answering sub question four which forms the basis for the later answering of sub question five. Sub-question four includes the small local retailer's own assessment of their capabilities and again the possible influence of participation in decision-making processes to it. This assessment is framed in a sub question as follows: How do retailers evaluate their own capabilities, and are they influenced by their role in decision-making processes?

Concerns are raised in particular concerning the financial capacity, although some retailers feel they lack the time and knowledge due to the lack of communication. The retailers' financial concerns align with the challenges observed in answering sub question one. The lack of being heard results in the retailer's concerns not being addressed and they are left with an insufficient number of capabilities to invest. The expectation that a relationship can be observed between participation in decision-making processes and capabilities holds true here.

The final sub-question, number five, is used to assess the readiness of the small local retailer and is formulated as follows: In what ways do the retailers' capabilities influence the retailers' willingness & readiness for implementation?

A negative willingness follows from the relationship between participation in decision-making processes and capabilities established in answering sub question four. This negative willingness is driven by the absence of capabilities, which in turn is influenced by the absence of participation. In the end the negative willingness leads to a retailers' own perceived negative readiness for the implementation of the zero emission zone in 2025.

In addition, the expectation that capabilities have a significant influence on the relationship between willingness and readiness is also met. In the case of this study, negative willingness is in turn negatively affected by a lack of capabilities, which is a gap that is not yet closed by governments.

Retailers are considering quitting business operations when no compensation is offered. Concerns are also raised about the current occasion market and the adaptability of their own suppliers. The willingness of both the municipality and the national government to address the concerns is evident from interviews with project leader Paul Manten, zero emission advisor Tim Wille and the data collected from desk research. However, this benevolence from the government does not yet appear to parallel the experiences of retailers.

In conclusion, from desk research and conducting interviews follows a poor readiness of the small local retailer towards the implementation of the zero emission zone. A positive attitude is negatively influenced by the lack of communication and participation in decision-making processes, resulting in a negative willingness to participate. The negative willingness is only more negatively affected by the lack of capabilities, which in turn follows from again a lack of communication and participation in decision-making processes.

A warning and/or announcement letter would not have been out of place despite the municipality's reliance on the national government, which the municipality cites as a significant factor in the ongoing lack of communication. Informing the retailer would prevent any animosity from the local retailer towards the municipality, which is now the case for the small retailer in Nijmegen. Notifying the affected parties would not only have been appropriate, but it was also merely a requirement outlined in documents such as the Climate Agreement.

Ignoring the local retailer is seen as offensive by the local retailers themselves. In addition, the obligation imposed to adjust business operations cannot count on understanding for the time being without solid accommodation. Evidence-based policymaking is necessary according to the theoretical framework and is also cited by retailers as an important factor in maintaining a positive attitude towards implementation. For now, the general view that prevails among local retailers is that if you as a government want something to happen, you must communicate it and offer support.

There are concerns about how the government in its broadest sense will catch up in both a sentimental sense and with regard to the facilitation of preconditions. Answering these concerns will take up a lot of effort over the next one and a half years as 2025 approaches, and there is a lot to make up for.

## 6. Recommendations

### 6.1. Recommendations for follow-up research

There are a lot of issues surrounding the implementation of the zero emission zone in which this study provides very limited clarity. The limited clarity follows from the fact that the study only analyses one case study, addressing a small target group. Many more sectors will have to make major adjustments in response to the consequences of implementation. To get a clearer picture of how the zero emission zone is perceived, the study should be expanded.

It seems to me of added value that a similar study is conducted for multiple sectors. This could include carriers with or without special transportation needs such as refrigeration and service businesses outside the zero emission zones with a destination within the zero emission zones. Also, investigating ambulatory trade such as markets and fairs as well as the construction sector is interesting and required for rolling out sound policies.

In addition, to gain deeper insight into how the retailer feels addressed and what this depends on, it is interesting to broaden the scope of the research to other municipalities. The implementation of policy varies from one municipality to another, and important insights may also be gathered from this. In what ways municipalities can learn from each other is an important question for the enhancement of policymaking.

This study took place in the middle of implementation. Examining post-implementation would perhaps lead to a more comprehensive and extensive result, in which multiple sectors could be involved to ultimately examine the actual effectiveness of the policy. Additionally, I think it would be interesting to conduct the same study later to see if the relationships within the research model have changed. A comparative study between several zero emission zones within different countries could also possibly lead to surprising insights.

In addition, the concepts to be analysed within the research model and the small target population lent themselves to qualitative research. Quantitative research lends itself well to the topic and especially where an expansion of respondents/sectors is envisioned. Doing quantitative research within this topic helps increase the amount of robust, generalizable research findings.

Finally, I think it would be interesting to make a comparison between different projects. For example, in a municipality where both an environmental zone and soon a zero emission zone are coming into effect, an interesting comparative study could take place between the differences in policy development, participation, implementation and enforcement. In addition, I also expect a difference in types of physical interventions and how the municipality handles policy creation. This study focused on the obligation the government places on the retailer but actually the national government also places an obligation on the municipality. With this physical intervention there is no municipal initiative, which is often the case with other physical interventions within municipal boundaries. Delving into this aspect, namely the obligation imposed by the national government on the municipality compared to municipal initiatives, can provide an interesting deepening of the subject. In this, we will zoom in further on the working methods of the national government, to which only limited attention has been given in this study. The possibly interesting relationship between the origin of an intervention and participation is also shown by the fact that the results indicate that several respondents indicated that they had been involved and heard by the municipality during previous spatial interventions.

## 6.2. Recommendations for practice

As a preliminary remark, I think that if the guidelines from the prepared communication strategy around the introduction of the zero emission zone had been followed, the outspokenness of the local retailer towards the lack of communication and its consequences would have been a lot milder. Involving the retailer is very important for several aspects. By inviting the affected target group, the policy to be formed can count on attention, support is increased, later setbacks in practice can be avoided and it ensures mutual understanding.

Important to realise as a municipality is that informing does not equal involving. Participation starts with informing and can result in involvement but the possibility to involve needs to be

facilitated. Informing should be done at an early stage. Setting up guidelines in different documents was good. Had these been implemented, the outcome of this study might have been different. I think it makes it extra disappointing for the business owner when they find that agreements are not fulfilled by which they are affected. On the other hand, they do have a right to speak and a basis when they express dissatisfaction to the detriment of the municipality.

The reason for the lack of communication is the fact that the municipality does not want to disseminate information that is not yet certain. It is true that not all the policies and especially the preconditions have been finalised around the zero emission zone but, on the other hand, a lot is already known. Just informing, warning the retailer about the arrival of a zero emission zone is sufficient at this stage when more is not available.

The topic, the solution and its rationale, and where the retailer can go to ask questions and find more information should be clear. In that way, the business owners can keep themselves informed and there is no question of the municipality never letting anything be known. The established guidelines for communication also do not state that things like exemptions should be mentioned right away. I understand project leader Paul Manten's position for the lack of communication but on the other hand I also think a small message would have worked wonders. It would have at least ensured more understanding from the retailer. The municipality needs to understand that they are a retailer's first point of contact for questions.

Making recommendations on behalf of the retailer is difficult because of the difference in expressed needs about the way in which participation is desired. What emerges overwhelmingly is the need to be heard and understood. Engaging and hearing business owners can be done through the release of a survey or by the organisation of an information evening. These forms of participation may not be preferred by every respondent but at least then it cannot be said that the municipality has not made an effort to hear the affected parties. There also needs to be speed in clarifying the hardship clause. Where the municipality blames the government for not yet having the regulations, exceptions and licensing ready, it has just as well not yet got their regulations in order.

In addition, I am often surprised by the fact that there are such many municipal vision documents available but, in my opinion, they are not known enough to residents of the municipality. Considerable time and attention are devoted to these documents in which policy

expectations are put forward. In my opinion, this is important information for a resident that is available to them but is often not known about. Indeed, the 2019 ambition document already announced the zero emission zone. More attention to the existence and manner of consulting these kinds of documents strengthens resident engagement.

For communication, it is important to approach the retailer personally. For example, Moenen Woninginrichting has indicated that they prefer to be addressed by the name of the business in communications and not with 'to the residents of this property'. This alone feels impersonal.

Finally, I myself did a tour of the city for the recruitment of respondents, which made it surprisingly easy to strike up conversations with business owners. It is a shame not to approach those affected directly when they are literally omnipresent within one's own municipality. It is a missed opportunity when, as a municipality, you do not set aside a day to do so and make use of the knowledge and expertise of these retailers for the benefit of your own policy.

## 7. Reflection

Finally for this reflection, I reflect on my own process. I notice that I have come a long way. It took a very long time before I had a concrete topic, but with the help of both supervisor Arnoud and the supervisors at Royal Haskoning DHV I arrived at this interesting topic. I experienced the research as interesting. For once it was about more than just policy and the target group was one that I have not often had the opportunity to research in other projects. I really enjoyed doing actual research in the field by conducting interviews on location. This applies both to the interviews taking place in the retailers' shops and to a visit to Utrecht City Office and the office of &Morgen. However, the whole research felt very social, which made it fun but also sometimes different from more spatial planning oriented topics, where also my interests lie.

Over the past six months, I have regularly had some setbacks in terms of motivation. Nevertheless, I noticed that taking place in a thesis lab once a month motivated me to deliver work every time. I found participation in the thesis lab fun and valuable. Valuable, not so much for my thesis, which was initially the idea of participation. Royal Haskoning DHV did provide the subject, but during the research itself I was slightly dependent on the help of Royal HaskoningDHV. The little dependency allowed for an independent trajectory that I could organise according to my own schedule, which made it possible to complete my thesis before the summer. However, it was always nice to have Royal Haskoning's expertise at my disposal when I had questions. I consider the glimpse into the working field that participation in the thesis lab offered me to be very valuable. The contents of the thesis labs were interesting and valuable. Within my studies, this was the first contact with professionals within the field and a possible potential workplace.

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## Appendix 1: The retailers' interview guide

Introductie	
Bedanken	Bedankt voor uw komst/Dat ik langs mag komen
Voorstellen	Ik ben Nova, 22 jaar oud, master student Urban and Regional Mobility aan de Radboud Universiteit en ik ben hier voor het verzamelen van informatie voor mijn masterscriptie die ik deze zomer af wil ronden.
Doel van het interview	Door middel van dit interview hoop ik meer te weten te komen over jullie mening en houding tegenover de invoering van de Zero Emissie Zone.
Duur van het interview	Het interview zal ongeveer 45 minuten duren
Omgang met de gegevens	<p>Er wordt vertrouwelijk met de data omgegaan:</p> <p>0 Vind u het goed dat ik u met naam en bedrijf benoem in mijn respondentenlijst? <i>Zo niet hoe ik het bij de sector waarin uw bedrijf opereert (bijvoorbeeld een drankenhandel in Nijmegen)</i></p> <p><i>Zo ja, mogen er ook uitspraken gelinkt worden in de scriptie aan u als persoon/bedrijf?</i></p> <p>0 De scriptie zelf wordt enkel gelezen door de Universitaire begeleiders, Royal Haskoning en mogelijk de Zero Emissie Adviseur waarover aan het einde van het interview meer.</p>
Opname interview	Geeft u toestemming tot het opnemen van dit interview?

	<i>De opname zal met niemand worden gedeeld, dit is enkel voor eigen gebruik.</i>
<b>Informatie over de respondent</b>	
Karakterisering winkel	Naam Sector Hoe lang al in het vak? Hoe lang al in Nijmegen? Doelgroep <ul style="list-style-type: none"> <li>- Klantenbestand</li> </ul>
Band met Nijmegen	Hoe hier terechtgekomen? Relatie met de stad. <ul style="list-style-type: none"> <li>- Voelt u zich onderdeel van Nijmegen?</li> <li>- Hoe ziet u uw bijdrage aan de Nijmeegse binnenstad?</li> </ul>
Logistieke situatie	Huidige logistieke werkwijze <ul style="list-style-type: none"> <li>- Regelt u dit zelf?</li> <li>- Welke andere partijen zijn er betrokken?</li> <li>- Bezorgt u zelf ook aan klanten?</li> </ul> Hoeveelheid bezorgingen Huidige vervoermiddel
<b>Zero Emissie Zone</b>	
Op de hoogte van de Zero Emissie Zone	Bent u op de hoogte van de toekomstige invoering van de Zero Emissie Zone? <ul style="list-style-type: none"> <li>- Wat weet u er allemaal al van?</li> </ul> Heeft u al enig idee wat het voor uw bedrijfsvoering gaat betekenen? <ul style="list-style-type: none"> <li>- Kentekencheck bedrijfsvoertuig</li> <li>- Andere initiatieven zoals Velocity etc.</li> <li>-</li> </ul>

<b>Bereidheid</b>	
Probleem perceptie	Voelt u noodzaak voor een Zero Emissie Zone? Vindt u het begrijpelijk dat de logistiek wordt aangepakt?
Mate van ingrepen	Denkt u dat er veel moet gebeuren in uw situatie?
Mate van urgentie	Voelt u de noodzaak om nu al stappen te ondernemen? Kijkt u er tegenop? Wanneer denkt u dat het voor u urgent wordt om stappen te ondernemen?
Negatief	Waar kijkt u tegen op? Wat zijn de nadelen?
Positief	Welke voordelen levert het mogelijk op?
Uitkomst efficiëntie/algemene karakterisering houding	Alles afgewogen, voor- en nadelen
<b>Mogelijkheden</b>	
Financieel	Verwachten jullie de investering financieel te kunnen maken? Merken jullie financieel nog een nasleep van corona die hier mogelijk invloed op heeft?
Kennis	Weten jullie waarin er geïnvesteerd moet worden? Kunnen jullie het zelf of is er hulp nodig?
Tijd	Is er voldoende tijd? Is er op tijd naar jullie gecommuniceerd?
Ondersteuning vanuit bedrijf	Is er sprake van ondersteuning vanuit het bedrijf? Is dit een investering/een taak die enkel vanuit jullie als eigenaren wordt gedaan?

	Wordt dit wellicht uitbesteed aan medewerkers? Wordt er samen over nagedacht?
<b>Besluitvormingsproces</b>	
Geïnformeerd	Wanneer hebben jullie voor het eerst over de Zero Emissie Zone gehoord? Hoe hebben jullie voor het eerst over de Zero Emissie Zone gehoord?
Betrokkenheid	Zijn jullie betrokken bij het besluitvormingsproces rondom de Zero emissiezone? Wanneer en op welke manier? <ul style="list-style-type: none"> <li>- Informatiebijeenkomsten</li> <li>- Online</li> <li>- Enquêtes</li> <li>- Welk(e) fase/gebied?</li> </ul> <i>Zonering? Afstellen van emissieklassen?</i> <i>Etc.</i> <i>Ontwerpde fase? Goedkeurende fase?</i> <i>Etc.</i>
Relatie gemeente en ondernemers	Hoe omschrijven jullie de relatie tussen de ondernemers en de gemeente? Worden jullie gehoord?
Gevoel van kwetsbaarheid	Voelen jullie jezelf als ondernemer kwetsbaar in besluitvorming? Kwetsbaarder dan bijvoorbeeld een winkelketen die gevestigd is in het binnencentrum?
Invloed van de rol in besluitvorming	Zou/heeft het betrekken van de lokale ondernemer invloed op de houding/mogelijkheden van jullie tijdens de implementatie?

<b>Paraatheid voor de implementatie</b>	
Inschatting paraatheid	Denken jullie goed voorbereid te zijn op het daadwerkelijke zero emissiebeleid van de gemeente in 2030? Wat denkt u concreet dat er moet gaan gebeuren? Worden er stappen ondernomen? Of enkel pas wanneer het daadwerkelijk urgent is? - <i>Welke factoren zijn daarvoor bepalend?</i>
<b>Afsluiting</b>	
Bedanken voor medewerking	Bedankt voor de medewerking
Terugkomen op vertrouwelijkheid	Aanhalen wat bij de introductie geantwoord is door de respondent en navragen of hij hier nog op terug wil komen
Rol & Morgen	Interview gehad met Tim Wille - <i>Hij wil ook graag het document in zien</i> - <i>Aangeven dat ze hem altijd mogen contacteren wanneer er behoefte is aan advies</i>
Behoeft aan terugkoppeling	Wenst u inzage in de scriptie (eventueel enkel een beknopte samenvatting)?
Doorvragen naar contacten	Suggesties voor benaderen andere lokale ondernemers