

Evaluations of high-quality cycling routes

*A research into the role of evaluations in high-quality cycling
route policies*

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Preface

Dear reader,

In front of you lies my master thesis within the master Spatial Planning. This document marks the end of a very long and interesting journey that I see as a significant personal achievement. I'd like to take a moment to express my heartfelt gratitude to those who were crucial during this journey.

Firstly, I would like to thank my supervisor Kevin. I am aware of the fact that I am far from the ideal student to supervise during a thesis trajectory, but Kevin stayed very patient with me. Even though at times I paused working on my thesis for weeks to months, he was always ready to respond and help when I decided to show a sign of life again. Furthermore, the feedback he provided motivated me to improve my thinking and elevated the quality of my thesis.

Next, my gratitude goes to all the respondents who generously dedicated their time, cooperation and insights to contribute to my thesis. Without them, I would definitely have failed.

Last but not least, I would like to thank my family and friends for their unwavering support and interest in my thesis. Their encouragement and belief fueled my motivation and kept me going. I would also want to thank my colleagues and fellow students whose encouragement, feedback, and insightful advice have helped improve my thesis and keep me motivated.

I hope you enjoy reading my thesis!

Aimée van Zutphen

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Abstract

This research aimed to gain insight into the extent in which policies regarding high-quality cycling routes are evidence-based through a critical analysis of evaluation practices. As evaluations can be very valuable to future policies, it is important to understand the current state of evaluation processes concerning high-quality cycling routes. Therefore, the following main question was formulated for this research: **To what extent are high-quality cycling routes evaluated consistently and how has this evaluation practice informed cycling policies?**

Two qualitative case studies (Gelderland and Utrecht) were used to analyse the policymaking- and evaluation process and key stakeholders. Data was gathered from policy- and evaluation documents and semi-structured interviews.

This study revealed that the influence of actors other than the provincial and municipal policymakers and political administrators was very limited. Both provinces use bicycle counts as (one of the) main form(s) of data gathering, but both provinces also use questionnaires for different purposes.

Newly formed cycling policies are influenced by evaluations in several ways: firstly, evaluations can serve as a foundation or inspiration for new policies. Evaluations also serve as a justification for the Provincial Executive and the Provincial Council.

In short, high-quality cycling routes are evaluated relatively consistently in the case of Gelderland and Utrecht. The difference between the evaluation practices is probably caused by the total length of the period in which the provinces are actively engaged in high-quality cycling routes. Evaluations and the knowledge derived from them are not always used as a direct foundation for new policy. The use is relatively conceptual. This makes it hard to say if the little variation between the evaluation practices from Gelderland and Utrecht prove to impact cycling policies differently.

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1. Introduction

1.1. Problem definition

In recent decades, cycling has experienced a consistent surge in popularity and it became a significant mode of transportation in numerous countries. The bicycle has emerged as a sustainable and practical solution to combat issues like traffic congestion and pollution, owing to its compact size and relative affordability (Heinen et al., 2010). Cycling has many other benefits compared to other transport modes (Handy et al., 2014). Cycling comes at a significantly lower cost compared to conventional motorized transportation methods, benefiting both individuals and society overall (Blue, 2013). There are also environmental benefits to bicycle use as it is a pollution-free mode of transport (De Hartog et al., 2010; Handy et al., 2014). Furthermore, cycling also provides health benefits as, for example, it is associated with a lower mortality rate (Handy et al., 2014). These health benefits are at the base of the economic benefits of bicycle use as it, among others, decreases sick leave for workers (Fishman, Schepers & Kamphuis, 2015).

Traditionally, cycling was primarily seen as a means of short distance travel due to its limited speed, physical effort and vulnerability to weather conditions. Consequently, cycling policies predominantly focused on urban-level design. Nevertheless, with the introduction of electric bicycle technology, the range for cycling has significantly expanded and the physical effort involved has diminished. These innovative developments open up the possibility of positioning the bicycle as a viable mode of transportation not only within urban areas but also at regional and cross-regional levels (Cairns et al., 2017).

High-quality cycling routes have been developed since the early 2000's to provide an alternative to the car for journeys under 20 kilometres (MuConsult B.V., 2007). While the first cycling routes were aimed at congestion prone motorways, the aim has shifted towards better bicycle accessibility (Gelders Fietsnetwerk, 2010).

The Dutch national government, as well as regional and local governments aim to increase bike use while decreasing the use of other transport modes, high-quality cycling routes can contribute to this increase. The Dutch government wants to make the Netherland more bike friendly as it is better for people's health and the environment (Rijksoverheid, 2018). The government's goal is to increase the number of commuters on a bike (or by bike in combination with public transport) by 200.000. This supports the national goals to improve accessibility, living standards, sustainability and public health.

Ultimately, governments use, among other things, policies and its in- and outputs to reach their goals to increase the number of cyclists. However, the outcomes may vary in different places as the

outcomes of policy are influenced by the social-spatial context in which it is put into practice (Harms et al., 2016). Cycling policies can be very successful in one place, but fail or have a totally different effect in another place.

Policymakers need to determine the effects of their policy in different contexts. In order to do that, data on various topics (e.g. demographics, bicycle use, overall health etc.) is needed and it is crucial to monitor possible changes over time. When monitored correctly, as part of an evaluation, detected changes and their effects on the effectiveness of the policies can be determined. This makes evaluations crucial as input for future policies and the potential adaptation of current policies (Jann & Wegrich, 2007).

However, that is the theory. In practice, evaluations are far less prominent in the making of policies than it seems in policy theory. This is caused by communication issues and political influences (Weiss, 1999; Hertin et al., 2009). For example, when the people that make the evaluations focus on the wrong indicators (from the policymaker's perspective) it can result in unused evaluations or if political administrators decide to shift their focus and not continue a line of policy it makes the evaluation useless. Cycling policies are not an exception. Bressers (2008) states that involved actors use evaluations in a biased way to portray an image that is more fitting to their needs. Furthermore, there is much less bicycle related data in comparison with other forms of transport, such as cars.

All the factors mentioned above make it challenging for policymakers to effectively evaluate their policies. The number of studies on the evaluation process of high-quality cycling routes policies is still limited. As evaluations can be very valuable to future policies, it is important to understand the current state of evaluation processes concerning high-quality cycling routes.

1.2. Aim of the research

This research focusses on the evaluation processes of high-quality cycling routes. This will (partially) close the, previously mentioned, knowledge gap concerning the evaluation processes of policies about high-quality cycling routes.

Therefore, the main aim of this research is the following:

Gaining insight into the extent in which policies regarding high-quality cycling routes are evidence-based through a critical analysis of evaluation practices.

1.3. Research questions

In order to reach the aim of this research, the following questions were formulated:

Main question:

To what extent are high-quality cycling routes evaluated consistently and how has this evaluation practice informed cycling policies?

Sub questions:

- How are high-quality cycling routes defined? To what extent are high-quality cycling routes conceptualized consistently?
- What actors are involved in the policymaking process related to high-quality cycling routes?
- What policy evaluation practices are used for high-quality cycling routes?
- To what extent are currently used evaluation practices consistent?
- How are newly formed cycling policies influenced by the evaluation practices of high-quality cycling routes?

1.4. Relevance

1.4.1. Societal relevance

As mentioned before, cycling has many benefits in comparison to other modes of transport. Cycling is, among others, a cheaper and more sustainable mode of transportation compared to motorized modes of transport (Blue, 2013; Heinen et al., 2010). Studies have confirmed that an increase in cycling can enhance urban accessibility (Olde Kalter, 2007), reduce environmental impact and can positively influence people's health (World Health Organization, 2021). This is the reason that governments invest a lot in cycling infrastructure, including high-quality cycling routes. Pucher, Dill and Handy (2010) have highlighted the crucial role of public policy in promoting cycling. While evaluation is an important element of policy, there remains much to learn and to improve concerning the evaluation process of high-quality cycling routes.

When it comes to policy practice, a study by the KiM Netherlands Institute for Transport Policy Analysis (Van Hattem & Van der Horst, 2022) states that regular ex-ante evaluations do take place in infrastructure projects. However, the situation differs when it comes to ex-post evaluations. In infrastructure projects there is little retrospective analysis, and when it does occur it is not systematic and does not cover all relevant aspects (Van Hattem & Van der Horst, 2022). This research can help gain a better understanding of the role that evaluation plays in the policy cycle. While this study will not result in a step-to-step instruction to perfectly align policy and evaluation, by describing the process of policy evaluation in two different provinces, it can help to enable a more effective use of evaluation in the policy process.

1.4.2. Scientific relevance

There are two sides to the scientific relevance of this research. First, this study aims to contribute to the literature focussing on a perspective that has not been studied extensively yet (Harms et al.,

2016). There has been a good amount of research on cycling, however these studies focus on concrete policy measures (Pucher & Buehler, 2008; Harms et al., 2016; Nijland & Van Wee, 2006) instead of the effect of the policies and the way evaluations are used.

This study also hopes to add to the existing theory on policy evaluation (in spatial planning), as the data gathered in this study can be used to reflect on existing theories and beliefs. It follows the suggestion of Van Geet et al. (2019) that says to focus on the evaluation of policy design outcomes in future research. According to Pattyn (2014, p. 44) policy evaluation is *“the scientific analysis of a certain policy or part of a policy, aimed at determining the merit or worth of the policy on the basis of certain criteria”*. Nowadays policy evaluations are considered common sense and a taken-for-granted requirement for a well-performing public sector (Dahler-Larsen, 2012). There has been a trend in academic research towards research on evaluations of policies that are no single measure, program or project but broader than that (Mastenbroek et al., 2015; Bussman, 2010). Furthermore, there is literature on the role of stakeholders in evaluation results and if these evaluations might be biased (Cullen et al. 2011, p. 349). However, there has not been much research on policy evaluations in spatial planning and more specifically, cycling infrastructure.

2. Theoretical framework

2.1. Critical review of academic literature

In the critical review of academic literature, the most important concepts in this research are explained. First, the concept of high-quality cycling routes will be explained. The concept of bikeability is also an important aspect in this research and will be explained second. Lastly, there will be an explanation on policy processes and evaluation.

2.1.1. High-quality cycling routes

In order to be able to understand high-quality cycling routes and its (policy) evaluations, the concept of high-quality cycling routes needs to be explained.

The origin of high-quality cycling routes

Since the early 2000's there has been a shift from cycling policy for short distances to medium long distances. There was a need for a better regional cycling network that takes faster types of cyclists into account (Evers, 2004). The project 'Met de Fiets minder File', in 2006, can be seen as the introduction of high-quality cycling routes (MuConsult B.V., 2007). In that project, high-quality cycling routes are seen as a chance to provide an alternative to the congestion on motorways. This idea has been implemented in the overarching project 'Fileproof' by the Dutch Ministry of Infrastructure and Watermanagement (Rijkswaterstaat, 2007). Not only long-distance travellers use motorways, but also people who only travel 15 to 20 kilometres. This puts pressure on motorways, which leads to congestion. One of the ideas in the 'Fileproof' project was to increase the attractiveness of cycling routes parallel to congestion prone motorways. By increasing the quality of cycling routes governments hope to convince car users to use their bike on distances below 20 kilometres.

High-quality cycling lanes became more popular over the years and more high-quality cycling routes have been implemented or planned. While the first cycling routes were aimed at congestion prone motorways, the aim has shifted towards better bicycle accessibility (Gelders Fietsnetwerk, 2010).

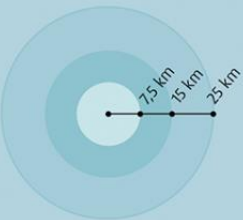
HOOGWAARDIG FIETSNETWERK



Legenda

- Bestaande routes
- Realisatie
- Ambitie / planvorming

Daily Urban System



0 50 100 km

5 Mei 2021

Figure 1 An overview of the (future) high-quality cycling routes in the Netherlands (source: Fietsersbond, 2021)

The characteristics of high-quality cycling routes

To provide a better understanding of high-quality cycling routes as infrastructure, the characteristics that these routes should meet are briefly discussed.

High-quality cycling routes are part of a bigger network that consists of both the existing cycling infrastructure as well as other modes of transport like public transport (CROW, 2014). Within the hierarchy of the existing cycling infrastructure the high-quality cycling routes are on top as they form a connection between residential areas and important services in the area in a direct or indirect way. These important services are things like business parks, hospitals and educational facilities (CROW, 2014).

The European Cyclists' Federation (2014, p. 1) have defined the six characteristics that high-quality cycling routes should meet. These are the following:

- *“At least 5km long;*
- *≥3.0m wide if one-directional, and ≥4.0m if bi-directional;*
- *Separated from motorized traffic and pedestrians;*
- *Avoid steep climbs and prioritize mild gradients;*
- *Avoid frequent stops, e.g. by giving priority at a crossing to enable an average speed of ≥20km/h;*
- *Provide regular maintenance, winter service, public lighting, service stations etc.”.*

Besides these characteristics, CROW (2014) has defined five main requirements formulated by planners and policy-makers. These are the following:

- **Coherence:** high-quality cycling routes form the basis of regional cycling networks.
- **Directness:** high-quality cycling routes provide direct connections between destinations within a region, e.g. between residential areas and business parks.
- **Attractiveness:** high-quality cycling routes seamlessly blend into their surroundings, enhancing the overall experience for both users and the surrounding environment.
- **Safety:** high-quality cycling routes ensure mostly unhindered travel, prioritizing safety.
- **Comfort:** high-quality cycling routes are generously wide, facilitating safe overtaking and meeting top-tier quality standards for pavement flatness and smoothness.

Comparing the European Cyclists' Federation's characteristics and CROW's requirements there are a few differences and a few similarities. The European Cyclists' Federation uses a specific length, which is at least 5 km long, while CROW does not use a specific length as a characteristic.

Furthermore, the European Cyclists' Federation characteristics mentions routes that are separated from motorized traffic and pedestrians, avoid steep climbs and prioritize mild gradients and provide regular maintenance, winter service, public lighting etc. while CROW mentions that the routes form the basis of regional cycling networks, high-quality cycling routes provide direct connections between destinations within a region and seamlessly blend into their surroundings. Routes that are separated from motorized traffic and pedestrians can be seen as a measure to prioritize safety, but safety is not specifically mentioned by the European Cyclists' Federation.

What is mentioned by both the European Cyclists' Federation and CROW are the fact that the routes should be wide and ensure mostly unhindered travel, so these characteristics can be seen as the basis of high-quality bicycle routes.

2.1.2. The concept bikeability

In order to understand why people (don't) use high-quality cycling routes it is important to understand the concept 'bikeability'.

Bikeability can be defined as the extent to which an area, region or country is convenient and safe for bike use. However, there is no universally used definition of the term (Kellstedt et al., 2021). Bikeability is a combination of the concepts bicycle comfort, bicycle friendliness, bicycle accessibility and bicycle suitability. The Netherlands can be seen as a great example of a country with high bikeability. The country's high cycling levels and emphasis on cycling research and policy makes this clear (Van Goeverden & Godefrooij, 2011).

The Fietsersbond (2009), which is the Dutch cyclists' union, has done research on cycle balance, which is basically the same as bikeability. They have formulated ten important factors in the evaluation of bicycle infrastructure; these ten factors all influence the bikeability of an area. These factors are the following:

- 1) *Directness*: cyclists can take the most direct route possible (the least amount of detours), connections guarantee the smoothest flow possible and the priority of traffic lights is set in favour of the cycle route.
- 2) *Comfort (obstruction)*: The cycle route must be designed in a way that all types of cyclists can cycle safely without hindering each other and without hinder of motorized traffic.
- 3) *Comfort (road surface)*: the quality of the road surface of the cycle route.
- 4) *Attractiveness*: this refers to the environmental characteristics that determine the cyclists' experiences during the bicycle ride.
- 5) *Competitiveness in comparison to the car*: the extent to which the bicycle competes with other modes of transport in terms of travel time and costs.

- 6) *Bicycle use*: the number of cyclists.
- 7) *Road safety for bike users*: the safety of cyclists on the road has an impact on the number of cyclists.
- 8) *Urban density*: keeping travel distances short, a compact urban environment and ensuring daily facilities within cycling distance promote bicycle use.
- 9) *Cyclist satisfaction*: people will choose to cycle more if cyclists are satisfied with the cycle routes.
- 10) *Cycling policy*: it is important to look at the cycling policy as the cycling policy that is created now will have an effect on the cycling environment of the future.

Bikeability according to Lowry et al. (2012) is defined as the comfort and convenience of cycling routes over the whole city network. Arellana et al. (2020) stated that comfort and safety were the most used factors in the making of bikeability indexes.

There are multiple studies that show the importance of comfort and safety for cyclists. These studies conclude that cyclists choose longer routes instead of shorter routes if that means that they can ride on bicycle-designated streets, which are safer and more comfortable for cyclists (Sener et al. 2009; Hood et al. 2011; Larsen and El-Geneidy 2011; Broach et al. 2012). Although, these detours depend on the length of the trip (Larsen and El-Geneidy 2011; Krizek et al. 2007) and the type of cyclists. Morning commuters take less detours than recreational cyclists and people who cycle in the afternoon, this is caused by (the lack of) time constraints (Krizek et al. 2007).

2.1.3. Policy (evaluation) theory

The policymaking and evaluating process is one of the main aspects of this study. To be more specific, public policymaking.

According to Birkland (2019) public policy is the outcome of a process in which decisions are made and also not made by the involved actors. The actors involved in public policymaking vary from citizens to non-profit organisations to governmental institutions. These actors have different interests in the policymaking process and try to influence these policies for their own gain (Birkland, 2019). The interaction and cooperation between the different actors involved make policymaking a complex matter. In order to understand these complex processes, there are some theoretical models that have been developed (Jann & Wegrich, 2007). Some of these theories seem a bit simple, but they represent a rather complex process.

A much-used model in public policy making is the 'Public policy cycle'. This model helps to gain more insight in the policymaking process and can be used to structure empirical data (Jann &

Wegrich, 2007). The model does not focus on the actors involved, but on the general properties of the policymaking process. The different stages do not by definition follow a chronological order as one can also go back to stages. E.g., when formulating policy one can discover that something misses in the agenda setting process. One can go back to put the missing point on the agenda and then continue the formulating stage. Moreover, some parts of the evaluation can already be done during the implementation stage.

The policy cycle is widely used, even though it has its limitations (Cairney, 2015; Maas et al., 2012; Jann & Wegrich, 2007). It is a simplified model, so one must be aware of the far more complex reality that is not always easy to understand. Furthermore, the different stages in the model are not so black and white, which can make it hard to distinguish the different stages (Jann & Wegrich, 2007). The reason it is used in this research is the heuristic to receive more insight in the process of policy making while providing a framework in which one can structure the massive quantity of literature on policy making.

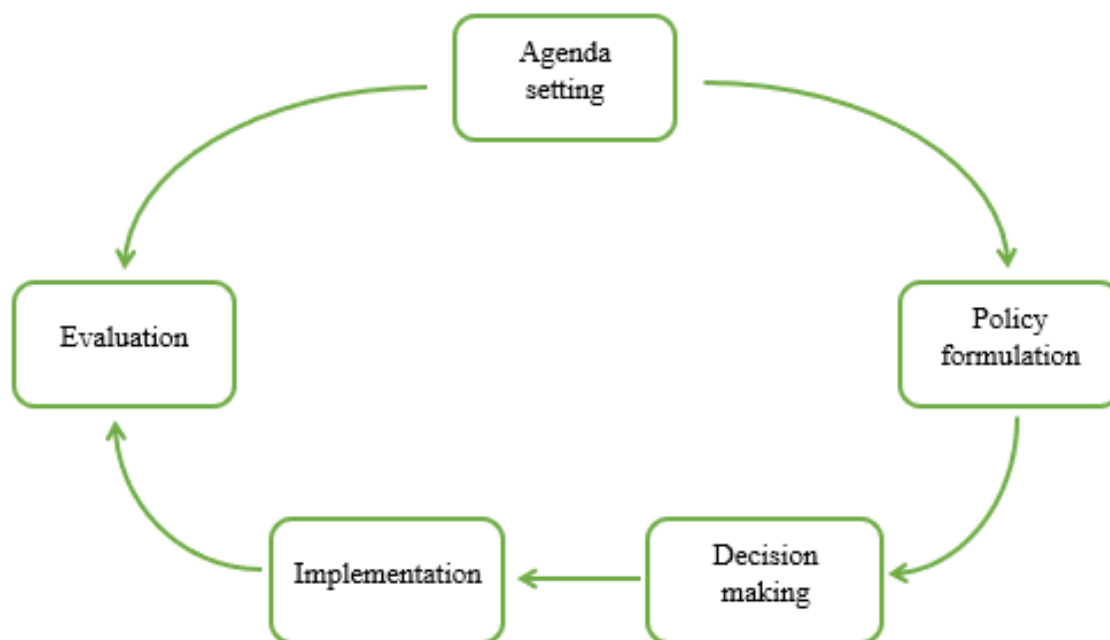


Figure 2 The public policy cycle as described by Jann & Wegrich (2007)

The first stage is the agenda setting stage. In this stage the problem or issue is recognised. There should be a need for intervention of the government to tackle the issue (Hoogerwerf, 2008). The different actors try to influence the agenda setting process, but no actor has direct influence on all of the mechanisms behind agenda setting (Jann & Wegrich, 2007). According to Birkland (2007) the agenda is filled with perceptions, interests and beliefs of the actors involved.

The second stage consists of issues that have been put on the agenda. These issues are translated into policies (Jann & Wegrich, 2007; Hoogerwerf, 2008). During this stage the policymakers

formulate the goals of certain policies, which can be very useful in the evaluation stage. The different interests of the involved actors are weighed against each other and against the costs and effects of the possible policies (Jann & Wegrich, 2007).

The third stage cannot easily be distinguished from the last stage as policymaking and decision making are very much interrelated (Jann & Wegrich, 2007). This is the stage in which a decision is made of which of the options would be the best solution to the issue. It weighs the interests of all actors involved while also looking at the social and financial aspects.

The fourth stage, the implementation, happens after the policy has been formulated and decided upon. This stage includes the distribution of tasks, funds and responsibilities. During this stage the policy can still be changed, delayed or stopped if needed. This stage is not top down but a process in which social aspects, institutional aspects and networks play are involved (Jann & Wegrich, 2007).

The fifth and last stage is the evaluation stage. In this stage the policy is being evaluated while looking if the goals that have been formulated in the second stage have been met. Policies can be continued, adapted or discontinued depending on the evaluation (Jann & Wegrich, 2007; Bressers, 2008). The policy cycle can stop after this stage, but it can also continue.

In this model, it seems that effects of policies are being measured and that they are used to make decisions about the future of the policies. However, multiple studies have shown that evaluations are little used as the basis for policy decisions (Hertin et al., 2009; Owens, Rayner, & Bina, 2004). When evaluations are used, they are often used in a biased way to help the interests of the involved actors (Bressers, 2008; Hertin et al., 2009; Jann & Wegrich, 2007; Owens et al., 2004). This shows that the ability of actors to evaluate their own policies can be questioned (Owens et al., 2004). Furthermore, evaluations are sometimes unusable due to a lack, misuse or misinterpretation of data (Bressers, 2008).

In view of the aspects above, evaluations are mostly used in four ways:

- **Instrumental use:** When evaluations result in instrumental learning, the outcome is used as direct input for further policy (Hertin et al., 2009). These evaluations are labelled as formative evaluations (Bressers, 2008).
- **Conceptual use:** When evaluations result in new knowledge or perspectives of a certain area, it is referred to as conceptual learning (Hertin et al., 2009). This can influence the way in which different actors think about a policy, without necessarily meaning direct action. As time progresses and contextual or political conditions surrounding the policy shifts, the conceptual effects can drive changes, ultimately leading to substantial changes to the policy (Bayley, 2008).

- **Political or symbolic use:** When evaluations are used for political purposes it is labelled as a summative evaluation (Bressers, 2008). These evaluations are used to denounce or applaud a line of policy (Hertin et al., 2009).
- **Process use:** Process use refers to the impact on individuals and organizations stemming from their involvement in an evaluation. Engaging in an evaluation can cause shifts in individual thoughts and behaviours, consequently stimulating cultural and organizational transformations (Preskill et al., 2003).

2.1.4. Evaluation

Rhaman Khan and Khandaker (2017) argue that monitoring and evaluation are very important elements in order to determine to what extent goals of policies are achieved. Monitoring and evaluation measure the effectiveness and efficiency of policy or 'policy performance' (Vedung, 1997). Evaluation can be defined as "*the normative assessment of public policy activities, whether prospective or retrospective*" (Gasper, 2005, p. 1). It assesses the relevance, effectiveness and/or efficiency of a policy over a specific period of time (Arkesteijn et al., 2007).

Evaluation can happen at different times and in various ways, thereby pursuing different objectives. The types of evaluation are the following (Kenniscentrum voor beleid en regelgeving, 2023):

1) **Ex ante evaluation**

In an ex ante evaluation, one or more policy options are examined for their potential consequences. Ex ante evaluations take place prior to the implementation of a proposal and can address aspects such as potential effectiveness, efficiency, expected side effects, and feasibility.

2) **Ex durante evaluation**

Ex durante evaluation is an evaluation approach that focuses on what needs to happen at a time when adjustments are still possible, rather than what should have happened retrospectively. In this case, it pertains to what needs to be done to make the relevant regulations work effectively. An implementation assessment is an example of an ex durante evaluation.

3) **Monitoring**

By monitoring, you collect and analyse relevant information about policy implementation and the extent to which goals have been achieved during the execution of the policy. Such information can be used to assess progress periodically and make adjustments if necessary, or it can be used over time in an ex post evaluation of effectiveness and efficiency.

4) **Ex post evaluation**

After the policy proposal has been implemented, you assess over time (ex post) the realized effects and efficiency of the executed proposal. There are different types of ex post evaluations. In a policy or legislative evaluation, you examine the realized effectiveness and efficiency of the policy or legislative proposal. This involves assessing to what extent policy objectives were achieved through the use of the policy instrument or legislation and how efficient that has been.

2.1.5. Monitoring

Evaluation needs standards. An example is regular data collection (Verdug, 1997). This is where monitoring gets important. Monitoring can be defined as the ongoing process of tracking policy activities and the progress of projects after policy operationalization (Arkesteijn et al., 2007).

The progress is determined by specific indicators, which are qualitative and/or quantitative (Seasons, 2003). These specific indicators help to determine if the policy meets certain criteria (Browne & Ryan, 2011). One indicator or, preferably, a combination of multiple indicators should be used to monitor each goal in policy. Using only one indicator will provide less information and it is desirable to attain as much information as possible (Rae & Wong, 2012). Browne & Ryan (2011) argue that it is also important that both qualitative and quantitative assessment are incorporated while monitoring measures. Moreover, monitoring indicators should be used over various themes to produce a well-integrated monitoring process (Rae & Wong, 2012).

Monitoring and evaluation can take place at the programme level (meso-level), assessing the effectiveness of a combination of policy instruments, as well as at the instrument level (micro-level), focusing on evaluating the effectiveness of a certain policy instrument (Harmelink et al., 2005). It is important to consider the precise conditions, the use of resources and the evaluation timelines in this process, as these are crucial aspects (Marsden & Reardon, 2017).

In infrastructure planning, such as the realisation of bicycle paths, monitoring and evaluation are essential as public funding is involved. Public funding should be allocated towards policy operationalization that has the best performance in the light of the intended goals (Johansson et al., 2017). As monitoring and evaluation help to create knowledge that is used in judgements regarding the policy strategy, it is of political importance.

2.1.6. Policy adjustment

An outcome of monitoring and evaluation can be that the policy is not adequately contributing to reaching the intended goals. This can happen because of multiple reasons, such as inconsistency, incoherence or incongruence of goals and instruments. If this happens policy adjustment is needed (Van Geet et al., 2019). If the policy adjustments are not made it will lead to unsatisfying results in

the end (Browne & Ryan, 2011). According to Howlett & Rayner (2013) policy designs get adjusted over time through the processes of layering, drift, conversion, exhaustion and replacement. These different processes can affect multiple elements of the policy cycle.

2.2. Conceptual framework

The previous paragraphs consist of several concepts that will form the conceptual framework of this research, which will be the base of the further study in this research and the analysis of the data.

The involved actors try to influence the agenda setting process. Subsequently, policy is formulated and decisions on the policies are made and implemented. After the policy making process, the institutions and involved actors conduct an evaluation of the policy, by looking at the extent to which the goals of the policy have been met. These evaluations can take different forms, which are ex ante evaluation, ex durante evaluation, monitoring or ex post evaluation. As bikeability has a direct effect on the use of high-quality cycling routes, it is important to take the characteristics of bikeability into account when evaluating policies concerning high-quality cycling routes. Furthermore, these evaluations can be used in four different ways, which are instrumental use, conceptual use, political/symbolic use or process use. The results of the evaluation may lead to policy adjustment. This has an influence on existing and future high-quality cycling routes by adjusting the policies and starting the process all over.

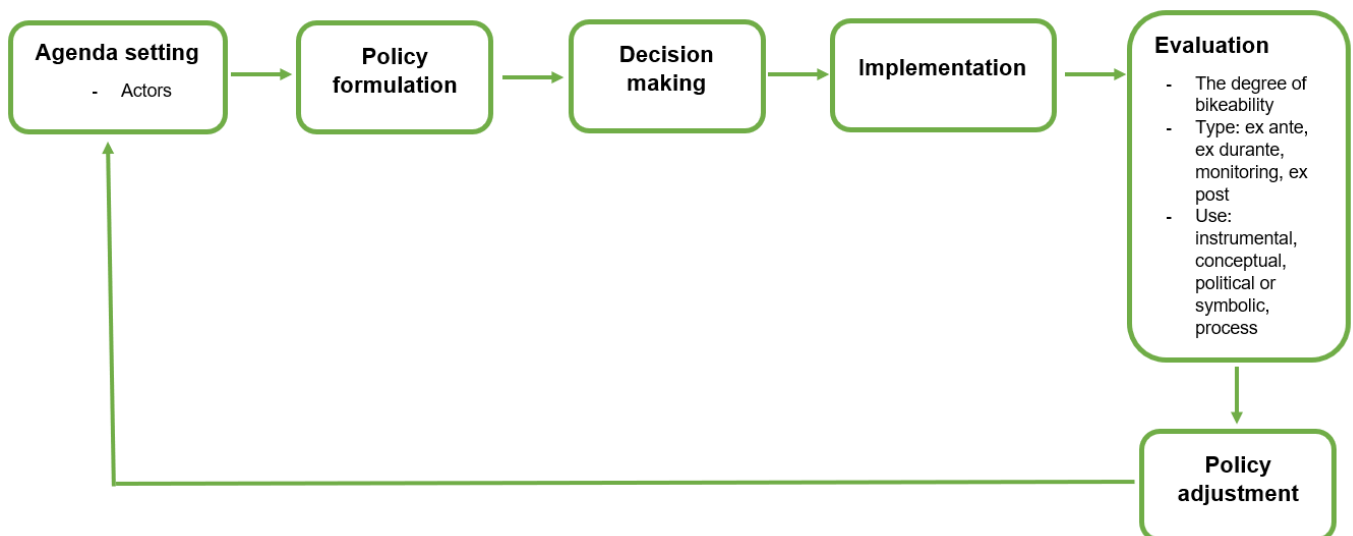


Figure 3 Conceptual framework

2.2.1. Operationalization

It is important to know how the research questions as stated in chapter 1 relate to the theories in this chapter. For every subquestion there are certain parts of theory which are important to understand in order to eventually answer the question, which are the following:

- The first subquestion focusses on the definition of high-quality cycling routes. The theoretical concepts important for this question are the characteristics of cycling infrastructure as well as the ten indicators of bikeability.
- The second question is about the actors that are involved in the policymaking process. The important theoretical concept for this question is the policy cycle. More specifically, the role of different actors in the different stages of the policy cycle.
- The third question looks into the evaluation practices. The important theoretical concepts for this are the evaluation phase in the policy cycle, the different types of data and the different types of evaluation.
- The fourth question looks into the consistency of the evaluation practices used. The important theoretical concept in this case is the policy cycle with emphasis on the evaluation phase.
- The fifth and last subquestion focusses on new policies and how they are influenced by evaluation practices. The most important theoretical concepts for this question are the four different types of evaluation use and policy adjustment.

These theoretical concepts will be used later in this research to organize the information from the results as best as possible in order to be able to answer the research questions in the conclusion.

A schematic representation of the operationalization can be found in appendix 2.

3. Research methods

3.1. Research philosophy

The main objective of research is to generate new knowledge. However, what qualifies as knowledge depends on the philosophical base of the research (Guba & Lincoln, 1994; Saunders et al., 2009). Therefore, research philosophy acts as the foundation for determining the research methods and strategies used, offering transparency to reviewers regarding the reasoning behind specific decisions (Creswell, 2013). Presenting a coherent account of a researcher's philosophy also helps to uncover any biases (Miles & Huberman, 1994).

To establish one's philosophical position, it's crucial to define ontological (the nature of reality) and epistemological (what constitutes knowledge and how its claims are justified) beliefs. As this research focuses on the viewpoints of various stakeholders in cycling policy, the chosen ontological standpoint leans toward constructivism. In the constructivist view, realities exist as *“apprehendable in the form of multiple, intangible mental constructions [...] and dependent for their form and content on the individual persons or groups holding the constructions”* (Guba & Lincoln, 1994, p. 110). Consequently, knowledge consists of constructions that gather relative consensus among competent interpreters (Guba & Lincoln, 1994).

Epistemologically this indicates the need for an approach that enables the study of these constructions. Hence, an interpretive standpoint is suitable in this context. Interpretive research focuses on verbal and written expressions, aiming to reveal the subjective meanings influencing human decision-making and motivations (Yanow, 2007; Sadovnik, 2007; Saunders et al., 2009)

3.2. Research strategy

In order to conduct this research and reach the aim, a qualitative research approach is needed. Vennix (2011) states that a qualitative study is the best option when analysing processes.

Qualitative research is defined in numerous ways, but it's basically studying the meaning groups or individuals assign to situations or issues in their natural settings in an observational and communicative way (Sadovnik, 2007; Vennix, 2011; Creswell, 2013). A qualitative study allows a researcher to study the influence of different actors and conditions on a subject and produce a complex and overall image of the matter in question.

This makes a qualitative study the most suitable to achieve the previously stated aim of this research, as it is the best way to examine the policy processes concerning high-quality cycling routes as experienced by actors involved in the policy making process.

This research has an explorative nature as the processes of making high-quality cycling routes policy is quite under-examined. Nevertheless, policy research has been conducted in other policy fields, so this research won't be completely inductive as it will build on earlier policy research.

The strategy used in this research is the multiple case study, which is an exploration of multiple bounded cases over time that will result in an in-depth understanding of the phenomena studied (Gerring, 2009; Creswell, 2013). Case studies have multiple advantages: they are very useful to answer why and how questions, it provides the chance to study a subject in its natural context and obtain an in-depth insight into the subject and multiple case studies in particular compare individual cases to improve the external validity of the study, which makes it easier to generalise conclusion (Verschuren, 2003; Saunders et al., 2009; Vennix, 2011; Creswell, 2013; Verschuren & Doorewaard, 2015).

This research aims to get an in-depth understanding of the why and how in evaluation processes concerning high-quality cycling routes and the way these evaluations are being used in policy making. Therefore, the most fitting strategy to achieve this aim is the multiple case study design.

The cases are on a provincial level, as high-quality cycling routes are regional and are regulated by provinces. Two cases will be picked, to make sure that there is a certain level of generalization possible with the results while also providing an in-depth study of the selected cases (Creswell, 2013). This level of depth is considered valuable to provide a clear image of the matter because this research is fairly explorative in nature.

The two cases were selected through purposeful sampling. In purposeful sampling potential cases are identified and the extent to which each of these cases possesses valuable knowledge or experience relevant to the research topic is evaluated (Palinkas et al., 2015). Purposeful sampling is particularly valuable for case studies, which, by their nature, involve a limited sample size (Gerring, 2009).

The two cases selected are the province of Gelderland and the province of Utrecht. Both provinces have executed one or more evaluations on high-quality cycling routes and have a lot of attention for the bicycle in their policies. According to the Fietsersbond (2019) the province of Utrecht has a high ambition regarding bicycle policy and an extensive elaboration on bicycle themes in policy. The province of Gelderland has a less extensive elaboration on bicycle themes, however the high-quality cycling route theme in Gelderland's policy is the most elaborate of the 12 Dutch provinces.

The presence of evaluations on high-quality cycling routes, along with the high ambition regarding bicycle policy and an elaboration on high-quality cycling routes in policy have been the reason for choosing these two cases.

3.3. Data collection

The sub-questions will help answer the main question of this research. For each sub-question there is a need for different knowledge. Below, there will be an overview of the five sub questions, the knowledge needed to answer the question and the corresponding data collection method. The collection of data will be done by using multiple data collection methods, the multi-method (Saunders et al., 2009). According to Swanborn (1987), combining multiple data collection techniques will contribute to the (internal) validity of the research.

- How are high-quality cycling routes defined? To what extent are high-quality cycling routes conceptualized consistently?
- What actors are involved in the policymaking process related to high-quality cycling routes?
- What policy evaluation practices are used for high-quality cycling routes?
- To what extent are currently used evaluation practices consistent?
- How are newly formed cycling policies influenced by the evaluation practices of high-quality cycling routes?

For the first sub-question, the knowledge needed can be found in policy documents of the different provinces in the Netherlands and policy documents by cycling organizations. This information will be analysed by comparing the concept of high-quality cycling routes in the different provinces. Furthermore, different high-quality cycling routes within each selected province will be compared to see if there are differences between the high-quality cycling routes within a province.

For the second sub-question, the information will come out of the interviews with employees from the two provinces.

For the third sub-question, desk research will be done. During the desk research the evaluation documents of the high-quality cycling routes in Gelderland and Utrecht will be placed in the context of the existing theories on policy evaluations. This will help determine the policy evaluation practices used for high-quality cycling routes. Furthermore, policymakers and other experts will be interviewed, and these interviews will also be used to answer this sub question. In the interviews the interviewees will be asked about the evaluation practices concerning high-quality cycling routes.

For the fourth sub-question, desk research will be done to compare existing evaluation documents concerning cycle routes. Furthermore, policymakers and other experts will be interviewed, and these interviews will also be used to answer this sub question. In the interviews the interviewees will be asked to elaborate on the evaluation practices concerning high-quality cycling routes and if each cycle route is evaluated in the same way.

The last subquestion has been included to reach the aim of the research. In order to make relevant recommendations it is important to know the influence of evaluations on cycling policies. First, desk research will be done into new policy documents and evaluations. There will be a comparison between the new policies and the evaluations prior to the creation of these policies to see if and to what extent the evaluations have been used in the policy. Furthermore, policymakers and other experts will be interviewed, and these interviews will also be used to answer this sub question. In the interviews they will have a chance to explain to what extent and how the evaluations have been used to create new policy.

3.4. Reliability and validity

3.4.1. Reliability

There are multiple ways in which the reliability of a research can be ensured. One of those ways is to monitor the steps taken in the research (Van Thiel, 2014). This includes a method chapter in which the methods and the choices made are in this research are explained in detail. This method chapter can be used by other researchers to evaluate the reliability of this study (Boeije et al., 2009).

Another way of achieving reliability is repeating measurements by using different methods in this research. This is called triangulation (Boeije et al., 2009). This research uses triangulation, as this research combines interview data and data acquired from desk research and policy analysis.

3.4.2. Validity

Two types of validity can be distinguished: internal and external validity. Internal validity refers to the extent to which you can be positive that a cause-and-effect relationship established in a study cannot be explained by other factors. The internal validity of a research can be optimized in several ways. One way to optimize it is to describe the operationalization of the study. If the principle of the one conducting the research is clear, the internal validity will be higher (Van Thiel, 2014). Another way to optimize the internal validity is to make a sound recording of the interviews. This research uses in-depth interviews. To achieve the highest possible internal validity is important that the interviewer checks frequently if the interviewee is understood correctly, to prevent misinterpretations. A sound recording helps the researcher to use the exact answers of the interviewee, instead of using memory only and having the chance to remember parts wrong (Boeije et al., 2009). After the interviews, the interviews should be transcribed using the sound recording. After transcribing, the transcripts will be coded using Atlas.ti. The same coding scheme, to categorize the information, will be used for all interviews to increase the internal validity (Boeije et al., 2009). The use of Atlas.ti helps to store a large body of data in a systematic way, which helps increase the validity (Van Thiel, 2014).

External validity refers to the extent to which the outcomes of a research can be generalized (Van Thiel, 2014). Using a multiple case study has some disadvantages concerning the external validity as it is more difficult to use the results in such a way that it can be universally used (Doorewaard & Verschuren, 2007). However, even though the external validity is affected by the choice for a multiple case study, this method is chosen as it is more important to gain in-depth knowledge of the cases as this topic is not researched much yet.

3.5. Research Methods

In the previous paragraphs, it is determined what methods are being used in this research and why. In this paragraph, the methods are more broadly explained.

3.5.1. Desk research

One of the main data collection methods in this research is desk research. Desk research provides a chance of gaining a lot of data. Nowadays the amount of available data is huge due to digitalization (Saunders et al., 2009). The documents used in this research are policy documents, publications and reports from bicycle organizations and government sources. These documents will be used to analyse the evaluation practices of high-quality cycling routes and gain information on the topic of high-quality cycling routes.

3.5.2. In-depth interviews

As mentioned before, one of the main data collection sources in this research will consist semi-structured, in-depth interviews. All the interviewees are, to a certain extent, involved in bicycle policy in one of the selected provinces or the Netherlands. An overview of the interviewees is provided below:

Gelderland:

- Wietse Bruggink: Project manager high-quality cycle routes at Gelderland
- Ed Oldengarm: Representative Fietsersbond Gelderland

Utrecht:

- Malou Friedhoff: Policy officer 'Bicycle' at the province of Utrecht

General:

- Rick Lindeman: Project manager 'Bicycle' at Rijkswaterstaat and 'road captain' in the domain for cycling data at Tour de Force
- Joost de Kruiff: Expert in Dutch Cycling Intelligence and program manager Mobility and Innovation at TU Delft

- Alina Prey: Behavioural research consultant at Goudappel. She developed the questionnaire for the qualitative data collection for Tour de Force

A snowball approach has been used to find interviewees. The first names were found through desk research. During the interviews with these interviewees, there was a question about other actors that might be interesting for my research. If they were indeed interesting for this study, these actors were interviewed. This question was asked until no new, relevant names came up.

The interviews focused on the policy on high-quality cycling routes and the role of the interviewee in the policy making and evaluating process.

The number of interviewees per case is less than initially intended. There are a few reasons for that. First of all, in the search for the right interviewee from both provinces it was made clear during the phone calls that there were not multiple people within these institutions that could answer my questions. In both Gelderland and Utrecht there was one specific person that could answer the interview questions. When asked if there were other people within these institutions that could answer the questions, they said that these other people would get their information from the interviewee, thus that it would not add anything to the research. Furthermore, it was intended to interview representatives of the Fietsersbond from both provinces, the representative of Gelderland was happy to contribute but the representatives of Utrecht did not reply to the email that was sent to them and multiple phone calls and voicemails.

3.5.3. Data analysis

To provide a systematic analysis of the data obtained from the interviews, the interviews were transcribed intelligent verbatim. In order to organize these transcriptions and prepare them for additional analysis codes were used, which are *“tags or labels for assigning units of meaning to the descriptive or inferential information compiled during a study”* (Miles & Huberman, 1994, p. 56). The value of using coding to process interviews lies in its effectiveness to structure and manage substantial volumes of qualitative data. This process of coding the interviews and the policy documents was facilitated using ATLAS.ti.

The coding process of the interviews and policy documents followed an iterative approach, as outlined in the work of Miles and Huberman (1994). Initially, a preliminary set of codes was developed based on the conceptual framework and the interview protocol. This set was then applied to code all the interviews and policy documents for the first time. If none of the existing codes was found suitable for a particular text segment, a new code was created and incorporated into the codebook. After this first or initial round of coding, all codes and their associated text segments were reviewed, and if needed, adjustments were made. Furthermore, as prominent themes and patterns

began to surface within the data, codes were grouped in a hierarchical way. This iterative process was consistently applied throughout the analysis.

The initial code book can be found in appendix 3 and the final code book can be found in appendix 4.

4. Results

4.1. High-quality bicycle routes

4.1.1. National policies

4.1.1.1. *Nationaal toekomstbeeld fiets (Tour de Force, 2022)*

The national vision for the future of bicycles (in dutch: Nationaal toekomstbeeld fiets, in short: NTF) is drawn up from the national collaboration in Tour de Force. This document describes how the bicycle can contribute to the spatial and social challenges in the Netherlands. It outlines a joint (national) vision of the future up to 2040 and maps out which investments are needed to give bicycle use the necessary, powerful impulse. And above all: what the collaboration should look like. Because to be able to take advantage of the power of the bike this requires a leap in scale. To achieve this, according to the NTF, municipalities, transport regions, provinces and the national government will have to work together on three tasks in the coming years:

1. Strengthening the cycling networks.
2. Improving parking facilities.
3. Encouraging bicycle use.

These three tasks are interrelated. In order to use the bicycle structurally, someone must be able to cycle, own a bicycle, choose the bicycle as a means of transport, subsequently being able to reach a destination by cycling in a smooth, safe and comfortable way and lastly, be able to park the bike safely and effortlessly.

Only if the whole journey is right, the bicycle can become of stable value for its user. By working on all three tasks, the effects of the measures of each task will be strengthened: more people will use an improved bicycle connection if there are good parking facilities available and the investments are accompanied by targeted efforts to stimulate bicycle use. The combination of network, parking facilities and stimulation is the trinity of successful cycling policy.

4.1.1.2. *Ambition document: Schaalsprong Fiets 2^e etappe (Tour de Force, n.d.)*

When Tour de Force started out, a concrete ambition was formulated, which was the following: 20% more bicycle kilometres in 2027. In the first stage of Tour de Force a lot was achieved already, but the finish line is not yet in sight. Therefore, Tour de Force is entering its second stage. Tour de Force wants to use the current positive attention for using the bicycle to realize the 'Schaalsprong Fiets' (translation: scale jump bicycle); to literally and figuratively make more room for the bicycle as a natural, attractive and safe way of moving, sports and recreation. Cycling is not an end itself, but a means that is widely useable.

Tour de Force distinguishes five social developments in which the bicycle can make a difference:

1. Cycling keeps cities accessible.
2. Cycling for a vital rural area.
3. Cycling for a better climate.
4. Cycling for better health.
5. Cycling offers opportunities.

Cyclists are as diverse as the Dutch society itself. There are various reasons to cycle, and there are different types of cyclists. Tour de force distinguishes six types of cyclists:

1. Bicycle commuters.
2. Logistic cyclists.
3. Children, high school students and students.
4. Recreational cyclists.
5. Sport cyclists.
6. 'Opstappers' (i.e., children, handicapped people, tourists, expats and migrants), 'overstappers' (people who get into new ways of cycling i.e., electric bikes, speed pedelecs, cargobikes, tricycles and racing bikes) and 'doortrappers' (people who threaten to stop using their bikes, such as the elderly).

The partner organizations within Tour de Force are each working in their own field to create a good cycling climate. Collaboration within Tour de Force offers added value.

Tour de Force distinguished five main themes that help the partners the most to jointly achieve a strong growth of the number of cycled kilometres.

A. Bicycle in the city

By making a direct link between spatial challenges and mobility, 'the bicycle' gets all kinds of chances. The design of public space in cities requires to redistribute space for different modalities. Tour de Force focuses on shaping the bike path of the future, supporting municipalities in the modernization of the (bicycle) parking standards and the stimulation of a full place for the bicycle in environmental visions and policies.

B. Bicycle in the chain

Bicycle and public transport form a golden combination for the distances over ten kilometres, if the conditions are right. Bicycle parking facilities and (partial) bicycle offer at transfer locations are of great importance. This also contributes to making the bicycle-car combination more attractive, certainly where car and public transport hubs physically meet. Tour de Force is currently focussing on the exploration of the potential of the bicycle as a

means of pre- and post-transport, experimenting with better use of existing bicycle parking facilities, strengthening and expanding bicycle parking at public transport hubs and providing knowledge and skills to improve and strengthen the range of services at those hubs.

C. A high-quality cycling network

A high-quality bicycle network makes the bicycle an obvious choice for commuters, children and students to go to work or school every day. Tour de Force focuses on increasing and appreciating the bicycle network, the construction of high-quality, safe and sustainable cycling infrastructure and strengthening additional cycling routes. This gives an impulse to regional economic development and to the Netherlands as a cycling holiday country.

D. Stimulating bicycle use and cycling initiatives

In addition to infrastructural measures, there are behavioural measures needed to increase bicycle use. Targeted campaigns are effective on specific target groups, for example encouraging parents to take their children to school by bicycle or informing employers about stimulating their employees to cycle to work. Tour de Force focuses on expanding the Tour de Force network, with organizations and/or businesses, to take the next step in the development of effective programs for the promotion of bicycle use.

E. Support for- and knowledge about the bicycle

The Tour de Force network has a great deal of knowledge about the bicycle, however there is still a lot to win in the field of bicycle data. Bicycle data can give us a lot. It can, for example, help substantiating the effectiveness of projects and activities. It is also necessary to have cycling knowledge within the sector in terms of both education and research. Tour de Force focuses on the bundling and the application of knowledge about the bicycle and the disclosure, insight or standardization of data on bicycle use.

4.1.2. Gelderland

4.1.2.1. Introduction

Gelderland is one of the twelve Dutch provinces. It is located in the centre-east of the country and is the largest Dutch province (by land area, second by total area). Gelderland shares borders with the provinces Flevoland, Utrecht, Overijssel, Limburg, North-Brabant and South-Holland and with Germany. The capital of the province is Arnhem.



Figure 4 The location of Gelderland in the Netherlands (source: Wikipedia, 2023)

4.1.2.2. Today's cycling policy

In close cooperation with municipalities, the province of Gelderland is building high-quality cycling routes around the bigger cities and large business locations. The province is one of the leading provinces in the Netherlands regarding high-quality cycling routes.

Vision for an accessible Gelderland

In Gelderland's vision document 'Vision for an accessible Gelderland' there is a part dedicated to the bicycle, as one of the 'building blocks' for an accessible Gelderland is focussing on cycling for short distance journeys. Gelderland is witnessing a growing number of people living and working in urban areas. As a result, the movements within and to/from Gelderland's cities are increasing, leading to traffic congestion issues. Currently, 50% of all journeys within 7 kilometres are made by car. Apart from causing accessibility problems, this is detrimental to health, the environment and urban liveability. To ensure health and accessibility, especially in urban areas, the province is committed to encouraging more people to use bicycles, with a strong focus on the safety of cyclists.

By 2030, Gelderland's goal, as stated in the 'Omgevingsvisie', is to have 35% of all journeys in Gelderland made by bicycle. In 2018, this figure stood at 28%, so there is significant potential to increase the bicycle's share.

Gelderland is trying to encourage people to walk and cycle more in four ways:

1. Strengthening the main cycling network of Gelderland

The province is aiming to enhance the quality and safety of Gelderland's main cycling network. This will make cycling more attractive and cause more people to use the bicycle.

Especially in urban areas, cycling offers numerous opportunities for shorter distances. To achieve this, the province will construct bike paths and coordinate the development of high-quality cycling routes. Gelderland will oversee the establishment of a high-quality, wide, and safe main cycling network, which includes municipal bike paths for which the municipalities are primarily responsible. Therefore, the province will collaborate with municipalities to build crucial sections of bike paths in the main cycling network that meet quality and width standards. The province will take the lead, follow through, and utilize all available tools to ensure its functionality.

2. Working towards a high-quality, wide, and safe main cycling network

By working towards a high-quality, wide, and safe main cycling network, routes to schools, hubs and work areas will become safer. The province will collaborate with businesses, educational institutions, and other government bodies to provide more bicycle parking spaces around schools, businesses and neighbourhoods, and improve access routes.

3. A broader, area-specific approach

Gelderland is aiming to take a broader, area-specific approach to consider all goals for a given area and the cycling possibilities. This includes considering cycling and bike storage options when making spatial decisions about residential and work locations.

4. Primary focus on cycling, followed by walking

The province's primary focus is on cycling, with a secondary emphasis on walking due to its health benefits. Gelderland expects municipalities to promote walking as it enhances liveability and makes villages and cities more attractive. Together with municipalities, the province will work on pedestrian routes to key hubs.

4.1.3. Utrecht

4.1.3.1. Introduction

Utrecht is one of the twelve Dutch provinces. It is located in the centre of the country and shares borders with the provinces Flevoland, Gelderland, North-Holland and South-Holland. The capital of the province is also called Utrecht. Utrecht Centraal, which is the busiest railway station of the Netherlands is located in the city of Utrecht.



Figure 5 The location of Utrecht in the Netherlands (source: Wikipedia, 2023)

4.1.3.2. Today's cycling policy

'Uitvoeringsprogramma Fiets'

The 'Uitvoeringsprogramma Fiets' is a policy document made by the province of Utrecht. It is an update of the 'Realisatieplan Fiets 2016-2020'. The document focusses on:

- Arranging the regional cycle network and making it future proof.
- Strengthening the position of the bicycle in the chain.
- Improving the quality of the 'last mile' to business parks.
- Increasing and spreading knowledge and data about the bicycle network and the use of the bicycle network.
- Stimulating bike use.

The document indicates which investments the province of Utrecht will make in the period 2019-2023. This forms the framework for all actions that will lead to realising Utrecht's ambitions, so that the budgets can be used efficiently and effectively.

The 'Uitvoeringsprogramma Fiets' describes four major challenges: realizing a quick, safe and comfortable regional cycling network, realizing sufficient and high-quality cycling facilities, collecting sufficient data on bicycle use and quality of the network and reaching target groups and seducing

them to cycle (more).

Utrecht applies the following six principles in the implementation of the program:

➤ **Steering based on commitment and connection**

There is widespread attention for the bicycle, within and outside the province as an organization. This implementation program therefore does not stand alone. It actually offers added value when it is linked to other tasks, policy fields and programmes. That is why the province of Utrecht seeks cooperation with initiatives within and outside the organization. This program responds to the demand and energy of stakeholders. The integrated approach includes the continuous and broad involvement of these parties to tackle projects together. This attempts to lead to more efficiency and win-win situations. The ambitions can only be achieved together.

➤ **Management**

Parties (especially municipalities) expect the province to play a coordinating role in the regional cycle network. This applies in particular to the realization of high-quality cycling routes and bike parking facilities and to encourage the use of bicycles. There are two reasons for the management role being shifted to the province: cycle routes usually run through different municipalities and there is often a lack of capacity. Because Utrecht attaches great importance to a number of high-quality cycling routes, the province mainly takes on the coordinating role there. In consultation with the municipalities involved, the province can take the lead in many matters: from letter of intent, research and implementation decision, to tendering.

➤ **Focus**

Focus is important to achieve results where the challenges are greatest. That is why the province - based on their regional role - is focusing on the realization of high-quality cycling routes and making the regional cycle network safe, comfortable and fast. Because the ambition is for people to cycle at least 50% of journeys shorter than 15 kilometres, the province is focusing on:

- Medium distances: 7,5 to 15 kilometres. On these journeys the bicycle only accounts for 18% of them;
- Corridors (these are routes where cyclists can continue cycling without obstacles) for the routes where bicycle use is highest;
- Bicycle facilities that enhance accessibility in the first and last mile (this is the last stretch between public transport and the final destination);
- The cycling potential among specific target groups.

➤ **From supply-oriented to demand-oriented**

In addition to a smooth, safe and comfortable network that meets the CROW guidelines, the province attempts to build knowledge about bicycle use, include the bicycle data in model analyses and assessment methods and approach targeted target groups to stimulate safe bicycle use. Utrecht regularly involves users in the development of activities: during interviews and in focus groups and design studios. This approach is used both for influencing behaviour and for adjusting the infrastructure.

➤ **Flexible programming**

What will happen in 60% of this implementation program is set (i.e. what we will carry out in terms of bicycle projects and activities in the coming years). The program is flexible for the remaining 40%, allowing the province to respond to questions from the region and to changing circumstances or urgency. This means that in this program there is room to respond to innovations and priorities that are not (yet) known and to projects for specific areas, such as work locations and regions within the province.

➤ **Invest, subsidize, support**

This implementation program is supported by the bicycle implementation program subsidy scheme, which is drawn up at the beginning of 2020. Municipalities and other parties were able to apply for a subsidy for projects that fit within one of the program components in this implementation program. Because Utrecht has increased the ambitions and budgets, the province has also substantially expanded the subsidy scheme to make more projects possible. Utrecht has also adapted the scheme in such a way that the high-quality cycling routes and larger works of art can be realised. In addition, Utrecht is investing more in its own network, in innovations related to the Bicycle Path of the Future, in the Utrecht Bike Community and in the regional behavioural campaign 'ik fiets'. Although there are more financial resources to implement the bicycle projects, Utrecht sees that more capacity (in the form of people) is also needed. The province's contribution therefore consists not only of money, but also of capacity.

The vision, the objective (from the 2019-2023 mobility program) and the ambition are translated into four lines of action. The four action lines are called:

- Regional cycling network - smooth, safe and comfortable;
- Strong chain;
- Smart cycling;
- Healthy and safe cycling behaviour.

4.1.4. Comparison

Presented above are the national policies regarding high-quality cycling routes as well as Gelderland's and Utrecht's policy. This paragraph will contain a comparison to state the similarities and differences between these policies. In order to structure this comparison, the ten indicators of bikeability, as mentioned in chapter two, will be used as a guideline. These indicators are the following: directness, comfort (obstruction), comfort (road surface), attractiveness, competitiveness in comparison to the car, bicycle use, road safety for bike users, urban density, cyclist satisfaction and cycling policy.

This paragraph will compare the national policies, Gelderland's policy and Utrecht's policy in all these indicators of bikeability.

Directness

The national policy documents as well as Utrecht's policy document mention directness in a way. When it comes to directness the national policies mention this indicator as "*being able to reach a destination by cycling in a smooth [...] way*". Utrecht is aiming to "*make the regional cycle network [...] fast*" and is realizing corridors on routes with the highest number of cyclists. Gelderland does not specifically mention anything that is directly linked to directness.

Comfort (obstruction)

In the case of comfort (obstruction) all policy documents mention it in a way. The national policy mentions the ability of cyclists to reach a destination in a safe and comfortable way. Gelderland's policy mentions the establishment of a high-quality, wide and safe main cycling network. Utrecht's policy focuses on making the regional cycle network safe and comfortable and is realizing corridors on routes with the highest number of cyclists.

Comfort (road surface)

As comfort in the sense of obstruction has a lot to do with comfort in the sense of road surface, the way it is mentioned in the policy documents is quite similar to the previous indicator. The national policy mentions the ability of cyclists to reach a destination in a safe and comfortable way. Gelderland's policy mentions the enhancement of the quality and safety on, as well as the establishment of a high-quality, wide and safe, main cycling network. Utrecht's policy focuses on making the regional cycle network safe and comfortable.

Attractiveness

None of the policy documents mention attractiveness in the sense of environmental characteristics or something directly linked to attractiveness.

Competitiveness in comparison to the car

When it comes to competitiveness in comparison to the car, all policy documents mention it in some

way. All documents aim to encourage bicycle use, which will most likely result in less car use. Gelderland and Utrecht specifically mention the potential of bicycles for short to medium distances. Furthermore, the national government as well as Utrecht mention the bicycle in a broader chain together with public transport, which helps the bicycle to compete with the car on longer journeys.

Bicycle use

All policy documents mention an ambition to increase bicycle use by strengthening the regional cycling networks. The national government, Gelderland and Utrecht are all aiming to encourage people to use the bicycle (more).

Road safety for bike users

Safety is an important issue in all policy documents. The national policy mentions the ability of cyclists to reach a destination in a safe way. Gelderland is committed to encourage more people to use their bicycles, with a strong focus on the safety of cyclists. Utrecht's policy focuses on making the regional cycle network "*safe, comfortable and fast*".

Urban density

Urban density and the ability to reach daily facilities within cycling distance is harder to find in the policy documents. The national policy does mention the importance of the ability to reach a destination by cycling in a smooth, safe and comfortable way and the potential of cycling in order to keep cities accessible. Gelderland mentions the importance of considering bicycle use when making spatial decision about residential and work locations. Utrecht does not specifically mention anything directly related to urban density, although it does aim to enhance accessibility in the first and last mile with the help of bicycle facilities.

Cyclist satisfaction

None of the policy documents mention cyclist satisfaction in specific, however all indicators mentioned above contribute to cyclist satisfaction in one way or another.

In short, this comparison shows the value all policy documents attribute to the indicators of bikeability. Looking back at the theory, it was stated that comfort and safety were the most used factors in the making of bikeability indexes. This is in line with the most important bikeability indicators found in this comparison of the policy documents as the biggest emphasis goes to comfort (both), competitiveness in comparison to the car, bicycle use and safety. As directness is not mentioned by Gelderland, it seems to be valued a little less than the indicators mentioned before. Urban density can be found in all documents, but not as clearly as the indicators mentioned before, so while it is important enough to add there is no specific focus on it in the documents. Attractiveness and cyclist satisfaction are two indicators that are not specifically included in the policy documents. It seems like these indicators are not valued as much by the policymakers.

It is noteworthy that all policy documents emphasize the importance of qualitative bicycle parking/storage and services at public transportation hubs. While it is not one of the indicators of bikeability it seems to be an important factor for policymakers.

4.2. Actor analysis

4.2.1. Actor Network Gelderland

The interviews revealed 4 main actors: the province of Gelderland, the municipalities through which the high-quality cycling routes go, the Fietsersbond and Tour de Force. The actors have been pictured in an actor network (figure 5) along with their connections to each other.

The province of Gelderland is quite far when it comes to the development of high-quality cycling routes. In this process the province takes the leading role in the development and policy regarding high-quality cycling routes in Gelderland. The main actors within the province are the policymakers and political administrators.

Important actors are municipalities, the Fietsersbond and Tour de Force. Municipalities have a major influence on whether or not a route is realised, as they have control over and finance the section of the route in their municipality. Within the municipalities the policymakers and the political administrators hold this control. If a municipality decides that it does not want to cooperate in realising a high-quality cycling route, the province should take another look at the idea and change or even cancel it.

The Fietsersbond takes an advisory role in the process. As the Fietsersbond is in close contact with the province's and municipalities' policymakers. The Fietsersbond is seen as a reliable source for input on cycling related matters as it is an association that defends the interests of cyclists and is often involved in supporting research regarding cycling. They can be seen as experts on cycling and have specific knowledge on different types of cyclists and cycling in different environments, so their opinion is valuable when making decisions.

Tour de Force is of importance regarding knowledge sharing on the topic of high-quality cycling routes. Tour de Force facilitates knowledge sharing on this topic between provinces and they can help to communicate outcomes of studies to other parties.

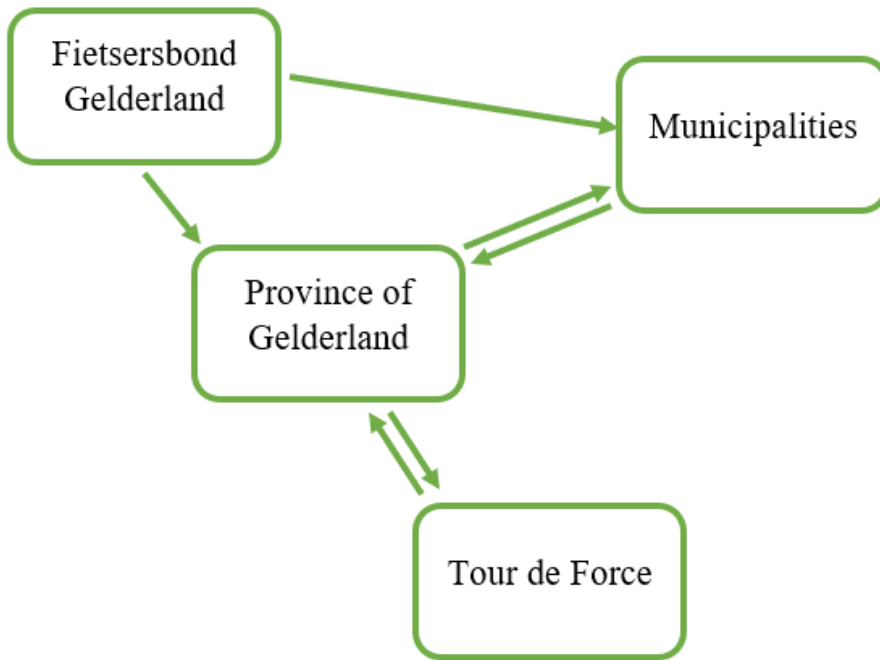


Figure 6 Actor network Gelderland

4.2.2. Actor Network Utrecht

The interviews revealed 4 main actors: the province of Utrecht, the municipalities through which the high-quality cycling routes go, landowners and the advisory board (consisting of people from the ANWB, Veilig Verkeer Nederland, Fietersbond, Natuur- en Milieufederatie Utrecht and Rijkswaterstaat). The actors have been pictured in an actor network (figure 7) along with their connections to each other.

The main actor within the network is the province of Utrecht. The main actors within the province are the policymakers and political administrators. The province decides the route of the high-quality cycling routes. The province is in close contact with the other main actors to make the process go as smooth as possible and actually establish the routes. This is the reason that the province takes the leading role in the development of policy regarding high-quality cycling routes in Utrecht. Other very important actors are the municipalities through which the high-quality cycling routes go. Within the municipalities the policymakers and the political administrators are the ones involved in making the decisions concerning the high-quality cycling routes. The municipalities finance their parts of the high-quality cycling routes and own the needed infrastructure. While improving their municipality's accessibility they also need to guarantee that the high-quality cycling routes do not negatively impact the liveability of their municipality. Landowners are important in relation to the municipalities, as parts of the routes might not yet be in possession of the municipality or if they object to the planned route. The Tour de Force also takes a consulting role in relation to the province. Tour de

Force is aiming to create a standardized way for provinces to evaluate their high-quality cycling routes

The remaining actors are all in the advisory board. In that role they are in close cooperation with the province regarding high-quality cycling routes and the policies that go with them. These actors are representatives of the following organizations, according to Malou Friedhoff:

- ANWB: The Royal Dutch Touring Club ANWB is an association in the Netherlands that focuses on travellers and traffic. The ANWB supports all modes of travel and provides test reports, travel services and roadside assistance. The ANWB has more than four million members.
- Veilig Verkeer Nederland (VVN): VVN is a broad social organisation that is committed to the sustainable approach to road safety with special attention to the vulnerable in society.
- Fietsersbond: The Fietsersbond (Cyclists' Union) is an organisation that represents the interests of cyclists in the Netherlands. The main goal of the Fietsersbond is to expand and improve bicycle friendly infrastructure.
- Natuur- en Milieufederatie Utrecht (NMU): The NMU is an organisation for nature, environment and landscape in the province of Utrecht. Regarding mobility, the NMU is committed to sustainable, healthy and clean mobility.
- Rijkswaterstaat: Rijkswaterstaat is part of the Dutch Ministry of Infrastructure and Water Management and responsible for the design, construction, management and maintenance of the main infrastructure facilities in the Netherlands.

The website of the province of Utrecht also mentions two other actors as part of the advisory board, which are the following:

- Wielersplatform Utrecht: Wielersplatform Utrecht is committed to sports cyclists. They do this by organizing events and by working with the cycle racing associations in Utrecht to ensure more safety and better accessibility with the city and region.
- Independent expert Gijs Kreike: Gijs Kreike is projectmanager at Sweco and a former board member of Business Peloton Utrecht. He also supports the council faction of D66 Houten. He has a master in Town and Regional Planning from the University of Sheffield.

The advisory board is in close cooperation with Utrecht Bike Community and involves members of the province's cycling community on an ad hoc basis.

So, the province is the main actor when it comes to cycling policy regarding high-quality cycling routes. They, together with municipalities, decide what plans will or will not be carried out. The

province does not decide everything with only the municipalities but works together closely with the remaining actors to come to the most preferable outcome.

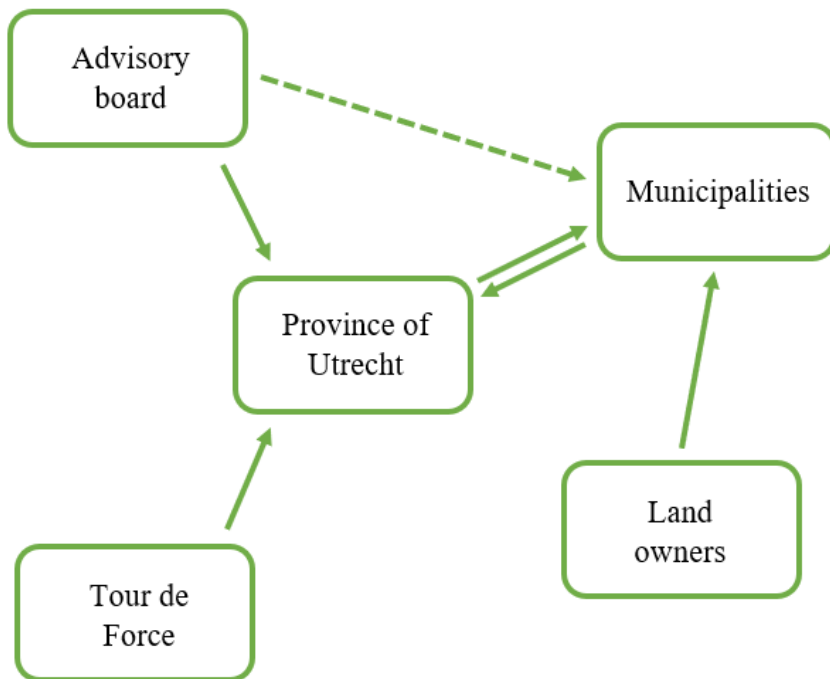


Figure 7 Actor network Utrecht

4.2.3. Comparison

In both Gelderland and Utrecht, the province plays the central role. The provincial policymakers and political administrators are in charge of the process of policymaking and decision making. This happens in close cooperation with the policymakers of involved municipalities, as these municipalities are able to limit the province in the process. This means that the province is the main actor, but the provinces cannot act fully independently from the municipalities. Furthermore, the province and the municipalities have close ties with the other involved actors. When it comes to important actors, the ties that both provinces have with the municipalities involved is very similar. Both provinces work closely together with the municipalities in order to develop and create the high-quality cycling routes. The municipalities provide the necessary funding and infrastructure for the routes, so they have a relatively large influence on high-quality cycling routes in comparison to other actors. If policymakers and/or political administrators from municipalities don't want to prioritize cycling or don't have enough funds to implement the routes, they will not cooperate, which leaves the province to search for other solutions. The Fietsersbond, for example, is in close contact with the provinces, but do not appear to have a significant influence on the overall cycling policies in Gelderland and Utrecht. The Fietsersbond takes a more advising role, as they are focussing on identifying shortcomings within their provinces' cycling networks. The influence of Tour de Force can

be seen in both provinces, however the interaction with Tour de Force and both provinces is slightly different. Gelderland mostly uses Tour de Force as a way to share knowledge with the other provinces, while Utrecht built their policies regarding high-quality cycling routes in line with the objectives of Tour de Force.

The role of the policymakers in the development of cycling policies should not be underestimated. In both provinces policymakers play an important role in the process, as they have been able to guide the development of cycling policy in alignment with their vision. Moreover, their role within the actor network should not be forgotten. Their capacity to facilitate cooperation and dialogue among various actors has proven highly important in developing the cycling policies of their respective provinces.

4.3. Evaluation practices

4.3.1. Gelderland

Evaluatie Gelders Fietsnetwerk (XTNT, 2014)

This evaluation of the Gelders Cycle Network (in dutch: Gelders Fietsnetwerk, in short: GFN) looks back at the cooperation in this project. For the evaluation the following statement was used as a guideline: *“Carry out an evaluation study of the Gelders Cycling Network, while looking back, ahead and around us with the aim of furthering cooperation in field of cycling.”*

This statement was further elaborated in four substantive themes. Three of these themes correspond to the objectives of the Gelders Cycling Network, the fourth focuses on the future.

These themes are the following:

1. The extent to which the substantive goals have been achieved. These goals are promoting cycling, improving the supra-local cycling network and strengthening promotion.
2. The extent to which the goals in the field of cooperation have been achieved. Specifically, it concerns the cooperation between recreation and traffic and the contribution of the cooperation to the substantive goals.
3. The extent to which financial goals have been achieved. Have the financial flows been made more transparent, is it more transparent how choices are made, is there less fragmentation, is there more coordination and harmonization and have new funding sources been found?
4. The cooperation in the future. What wishes do the parties involved have? Think of ambitions, roles, tasks, responsibilities, developments and goals. And which examples from the country are in line with this?

The evaluation study consisted of four parts, which were desk study, inventory, analysis and reporting. The following activities are performed to produce the evaluation:

- **Desk study of relevant documents**
Research through all relevant documents. This concerns, for example, the umbrella vision 'Gelderland in the lead', the established prioritization system and subsidy regulation and the Gelders Fietsnetwerk scenario.
- **Attending meetings with the members of the Cycling team and Core group members**
We attended two meetings of the Cycling Team and once in the Core Group. In the first meeting of the Cycling Team, we explained how we wanted to conduct this evaluation study. In the second meeting we explained the draft results and discussed the future. We also presented the draft results to the Core Group and discussed the future of the GFN.
- **Interviews with the members of the Cycling team and Core group members**
There has been an individual interview with all those involved. For each interview, a predetermined interview pattern was used as a guideline.
- **Telephone interviews with agenda members**
The agenda members of the Cycling Team have been approached for a telephone interview. This interview took place with two/three of them, the others thought they were too far removed from the GFN.
- **Digital survey among all municipalities involved**
All Gelderland municipalities are represented in the GFN by their regional coordinator. However, the municipalities carry out the subsidized bicycle projects. That is why we wanted to know from them what they thought of the GFN. A digital survey was distributed among all municipalities involved.
- **Interviews with two other provinces**
Each province has a responsibility in the field of bicycle promotion. Each province interprets this responsibility and the cooperation with its municipalities differently. For future cooperation, we have been inspired by the provinces of North Brabant and South Holland. We chose the province of North-Brabant because there has been structured cooperation with many parties in the field of bicycles for several years now. The province of South-Holland was chosen because they deal with two city regions.
- **Read along of the draft report by the Cycling team**
The draft report was sent to the Cycling Team with the request to read along and to respond to factualities and inaccuracies.

The cycling team consisted of people from the Foodvalley region, the Arnhem-Nijmegen metropolitan area, the Achterhoek region, the North-Veluwe region, the Rivierenland region, the Stedendriehoek region, recreationship Achterhoek-Liemers, RBT KAN (nowadays: Tourism Veluwe

Arnhem Nijmegen) and the province of Gelderland.

The core group consisted of people from the province of Gelderland, the Vallei region, the Achterhoek region, the North-Veluwe region, the Rivierenland region, the Stedendriehoek region, the Arnhem-Nijmegen metropolitan area, Achterhoek tourism, Veluws bureau for tourism. The ANWB, Cycling platform and Fietsersbond were also involved.

The following conclusions emerged from the evaluation:

- The amount of cyclists in Gelderland has increased, however this cannot directly be linked to the Gelders Cycle Network as it failed to monitor the effects of the realization of the cycle network;
- The Gelders Cycle Network has ensured that the bicycle has a structural place on the political agenda;
- There is room to improve collaboration within the Gelders Cycle Network. Discussions about the division of funds blocks content-related cooperation, cooperation between traffic departments and recreation departments is not sufficient and there are not enough social organizations involved (they were only present in the cycling team or as agenda member).

Effectiviteit van snelle fietsroutes (Radboud University, 2021)

Radboud University has conducted several studies into the effects of the realisation of high-quality cycling routes. The purpose of these studies was to examine to what extent investments in these routes actually contribute to an increase in the bicycle use and thus achieve the goal of increasing bicycle use for short distances (up to 15 kilometres). This paragraph describes the used evaluation practices in these studies.

In order to measure the effects of high-quality cycling routes, two different types of data examined: 1) use of the new infrastructure and 2) change in travel behaviour as a result of the realisation. The first study looked at the use of the route, investigating whether the development of high-quality cycling routes has led to an increase in bicycle traffic. Counting data was used to analyse whether and to what extent the number of cyclists increases after completion of a high-quality cycling route. The second study investigated whether the realisation of high-quality cycling routes leads to a change in behaviour among people for whom the route offers a mobility choice. To gather this data, it was necessary to take a look at the choice of means of transport and, in particular, to what extent the realization of high-quality cycling routes increases the chance that people use the bicycle for a certain journey or decide to leave the car at home.

For both outcome measures, observed changes in bicycle use or travel behaviour cannot simply be attributed to the realization of high-quality cycling routes. The change can also be the result of organic growth. In the case of high-quality cycling routes, for example, the emergence of faster (electric) bicycles or increasing congestion on the road network can be considered as a factor for

organic growth. Or more locally: the construction of a new residential area in the vicinity of a high-quality cycling route. Even without the construction of the infrastructure, bicycle use will probably increase as a result of this. This evaluation builds on designs that mobility and health scientists have used to assess the effects of physical interventions – such as the construction of walking and cycling paths – on exercise behaviour. The difference-in-difference method is the most appropriate approach for establishing causal conclusions in evaluations.

In the context of the difference-in-difference method, the change in the use or travel behaviour of people before and after the realization of certain physical infrastructure is compared with the change in the use or travel behaviour of people who did not benefit from the infrastructure in question (control group). After all, there is no expectation that there will be any changes in travel behaviour in this control group. For the results in this evaluation document, regression analyses were used, as it allows for the possible influence of other factors to be corrected. By including extra variables, as many other explanations as possible are excluded.

The developed model to analyse the counts can also be used in the future to evaluate counting data for other routes and to update results based on new counts. Counting data for high-quality cycling routes, but also for other new bicycle infrastructure projects, can use this model to analyse the data in a more standardized way. This causes results to become more comparable. As bicycle use continues to increase in the early years after the realisation of new infrastructure, it is recommended to carry out the follow-up measurements over several years. Finally, the developed model can be used to fairly accurately determine which part of the cyclists are utilitarian and which part of the cyclists is recreational. Furthermore, the model that has been developed to measure the effect of high-quality cycling routes on the travel behaviour can also be used for additional analyses. For example, by adding movement data of the most recent years and information on newly completed routes, results can be actualised. This can confirm whether the effect on travel behaviour continues to increase as well.

The main conclusion of this evaluation is as follows: realizing high-quality cycling routes lead to an increase in the use of these bicycle paths, and this rise is partly due to new cyclists who previously used cars.

4.3.2. Utrecht

Evaluatie nieuwe wegmarkering op snelfietsroutes (KeuzeWeg & Loendersloot Groep, 2018)

This evaluation looks at the effects of road marking and if it contributes to safer behaviour and more comfort. So the evaluation looked into the perception and behaviour of road users related to the road markings.

The evaluation included behavioural research/observations and surveys that researched the experience and what factors influenced this experience. The research included four test sections and one control section with a pre- and post-measurement on these test sections. The pre-measurement took place in March 2018. In April 2018, the new road markings were installed in the test sections, with the exception of the control section. The post-measurement was then carried out in May-June 2018.

The first main question in this research was: What are the effects of the distinctive (new) aspects of road markings on the behaviour of cyclists and potential other road users? In order to answer this question behavioural research was conducted.

This was done with the use of camera footage, in combination with a program that's called Kinovea, that registered the position of the cyclists tyres and the side of the cars. This camera footage was used to compare the pre-measurement and post-measurement. In the four test sections, one hour of observations (during the morning rush hour from 07:30 to 8:30) was analysed for both the pre-measurement and post-measurement. Unfortunately, it turned out that the camera position during the post-measurement was slightly different from that during the pre-test. Furthermore, the post-measurement was conducted in black and white. As a result, it was difficult to research from the exact same position as the pre-measurement. The second main question in this research was: How do road users perceive the distinctive (new) aspects of road markings? In order to answer this question a survey was conducted.

For the five test sections in the pre-measurements and post-measurements, a total of ten surveys were created. The surveys were available online for completion from March 5th to March 31st 2018 (pre-measurements) and from May 7th to June 4th 2018 (post-measurements). The ten surveys had the same structure and questions in general, but were tailored to the specific conditions of the respective test section (such as the presence of an intersection). The surveys were published on www.mijnfietspad.nl. In both the pre-measurement and post-measurement, the five surveys were combined into three online surveys, where respondents only answered questions about the test sections they were familiar with. The target audience of this research consists of the users of the test sections. The recruitment of respondents was actively supported by the involved municipalities of Utrecht, De Bilt, Zeist, Soest, and the province of Utrecht. This involved announcements in local newspapers, sending targeted letters and neighbourhood messages to residents of areas where it was believed they might use one of the test sections, posting calls for participation on social media and websites, and reaching out to businesses and schools. Finally, large yellow signs were placed at the test sections inviting people to share their opinions on www.mijnfietspad.nl. The vast majority of questions in the survey were structured with a 5-point Likert scale, which is associated with scores ranging from -2 to +2. The statistical analysis was done using one-way ANOVA.

In addition to the survey research, a focus group was conducted with 9 participants. This took place on June 19, 2018. During the focus group, experiences and perceptions of the participants were assessed through a group discussion. The focus group was conducted to provide further insights into the survey results.

The evaluation proves that subjective traffic safety improves on various routes due to the new road markings. Visibility of the cycling route layout has significantly improved during both daylight and darkness. Furthermore, behavioural observations show that due to the new markings, cars reduce their speed before crossing the cycling route. While individual elements of the new road markings are positively evaluated, many consider the new markings to be somewhat excessive. Opinions are particularly divided regarding the double centre marking and the blue centre colour near intersections. It's possible that cyclists may still need time to adjust. Cyclists especially appreciate the reflective and tactile side markings, long centre marking, and block markings on the outer edge of the cycling route.

Results first baseline assessment high-quality cycling routes (Provincie Utrecht, 2023)

The province of Utrecht has the ambition to build new high-quality cycling routes in the Utrecht region together with the municipalities. It does this by improving and connecting existing cycle routes so that cyclists can continue cycling safely, smoothly and comfortably. This makes it more attractive to take the bicycle for longer distances. In the coming years, the province will construct high-quality cycling routes on nine routes in Utrecht.

The route has already been determined for four routes and the corresponding cooperation agreements have been signed. This concerns the following routes:

- Utrecht - Woerden
- Utrecht - Amersfoort
- Utrecht – IJsselstein
- Amersfoort – Bunschoten

In order to determine whether the realisation of high-quality cycling routes will actually lead to an increase in bicycle traffic and cyclist satisfaction, a baseline assessment has been carried out. The baseline assessment provides insight into the current use and user-satisfaction of the cycle route. This includes various aspects such as directness, road safety and the attractiveness of the cycle routes. Because not all cyclists use the entire route, the routes have been divided into different parts so that statements could also be made about the different parts of the cycle routes. The results of the baseline assessment can be compared later, after the construction of the cycle routes, with the results of a follow-up assessment, so that the effects of the realisation can be visualized.

The baseline assessment is used to retrieve information from a representative group of users of the routes, including a logical distribution of age, gender and travel motive. The questionnaire used for this has been developed by Tour de Force. Tour de Force is a collaboration between governments, market parties, civil society organisations, knowledge institutes and platforms that are committed to a stronger bicycle policy in the Netherlands.

The baseline measurement was carried out in the period from the beginning of June to the end of October 2022. Flyers were distributed on all routes to cyclists who use the relevant cycle route during three dayparts (between 7 a.m. to 11 a.m.; 12 p.m. to 4 p.m. and 4 p.m. to 8 p.m.). The flyers invited the cyclists to participate in an online questionnaire. It was also possible to complete the questionnaire on site together with an interviewer. In addition, the municipalities through which the various bicycle routes pass and the province of Utrecht have placed a call on social media (Facebook, Twitter, LinkedIn). A call has also been placed in municipal door-to-door/online weekly newspapers, newsletters from the cyclists' union and social media of the 'ik-fiets' app.

The baseline assessment describes the general characteristics of the users and the use of the routes. It also provides insight into the experience (how cyclists felt at the time of the bicycle ride) and the assessment (appreciation of various aspects of the cycle routes). The results of the baseline assessment were analysed per route and per section of the route.

The baseline assessment resulted in the following conclusions:

- Just over a third of the users rate the cycling-through routes with an 8 or higher (35%), and another third with a 7 (34%). On average, the high-quality cycling routes in the province of Utrecht received a grade of 6,8. The routes between Utrecht and Woerden and between Utrecht and Amersfoort receive the highest scores.
- The directness of the route scores a 7,1 which is higher than the width of the route, which users rate with an average grade of 6,4.
- Aspects related to technical and the management aspects are rated between 6,4 and 7,0 on average.
- The extent to which users of the high-quality cycling routes experience inconvenience on the route is measured by the grades they give for cycling over intersections with and without traffic lights, continued cycling despite other cyclists and continued cycling despite motorized traffic. Overall, these different aspects score between a 6,1 for cycling over intersections with traffic lights and a 6,5 for continued cycling despite other cyclists.
- The overall assessment for various aspects regarding the safety of the high-quality cycling routes ranges between a 6,2 for right of way on the route and a 6,5 for the lighting of the route.

- For the attractiveness of the route, its appeal within city limits, outside city limits and its allure during twilight/darkness is considered. The attractiveness of the route outside city limits is rated the highest at 7,1. The attractiveness of the route during twilight/darkness scores a 5,8.
- The facilities on or along the route refer to amenities such as benches or rest areas, shelters, trash bins and art along the way. Only the results of the presence of benches or rest areas along the way just passes, while the other aspects related to facilities generally receive an insufficient grade.
- Cyclists heading towards a recreational activity, such as a sports club or a day out, rate the various aspects of the route better than average. Apart from that, there is virtually no difference regarding the assessment of the different aspects based on the target audience.

4.3.3. Comparison

Paragraph 4.1. looked at Gelderland's and Utrecht's current policies concerning high-quality cycling routes. In short, Gelderland's policy focused on ensuring health and accessibility by encouraging people to cycle more, while also having a strong focus on the safety of cyclists. The province is aiming to enhance the quality and safety of Gelderland's main cycling network. Utrecht's policy focused on the realisation of a quick, safe and comfortable regional cycling network, while also realizing sufficient and high-quality cycling facilities.

As mentioned in chapter two, evaluations assess the relevance, effectiveness and/or efficiency of a policy over a specific period of time. In this paragraph the indicators that have been used in the evaluations are identified. Other than identifying these indicators, this paragraph also aims to determine to what extent the evaluations are in line with the policies of both Gelderland and Utrecht.

Both of Gelderland's evaluations are ex-post evaluations. These type of evaluations the realized effectiveness and efficiency of the policy or legislative proposal. The first evaluation looked into the extent to which the Gelders Cycle Network's goals were met. These goals were, in line with the policy, promoting cycling and improving the supra-local cycling network and strengthening promotion of it. Furthermore, the evaluation looked at the cooperation and its effects on the goals that were set. The following conclusions emerged from the evaluation:

- The amount of cyclists in Gelderland has increased, however this cannot directly be linked to the Gelders Cycle Network as it failed to monitor the effects of the realization of the cycle network;
- The Gelders Cycle Network has ensured that the bicycle has a structural place on the political agenda;
- There is room to improve collaboration within the Gelders Cycle Network.

Gelderland's second evaluation looked into the extent to which investments in high-quality cycling routes actually contribute to an increase in the bicycle use and thus achieve the goal of increasing

bicycle use for short distances (up to 15 kilometres). The evaluation proved that the realization of high-quality cycling routes led to an increase of the use of these bicycle paths and a part of this increase was caused by people who previously used the car instead of the bike.

These conclusions show that the policy is achieving its intents and that is why it makes sense that Gelderland's policy keeps focussing on improving and investing in their high-quality cycling routes.

Utrecht's first evaluation looked at the effects of road marking and if it contributes to safer behaviour and more comfort. The goal of this ex-post evaluation is very much in line with Utrecht's policy of realising a quick, safe and comfortable cycling network. The evaluation shows that subjective traffic safety improves on various routes due to the new road markings but many consider the new markings to be somewhat excessive. This conclusion can be used in the realization of new high-quality cycling routes.

Utrecht's second evaluation is a baseline assessment for the future high-quality cycling routes in Utrecht. The baseline assessment is an ex-ante evaluation that aimed to determine if the realisation of high-quality cycling routes will actually lead to an increase in bicycle traffic and cyclist satisfaction. The baseline assessment looked at the technical and management aspects and the bikeability indicators directness, comfort (obstruction), safety and attractiveness. These bikeability aspects, apart from attractiveness, can be found in Utrecht's policy on high-quality cycling routes. As this is a baseline assessment, this document will be used to compare future scores with the scores in this assessment to prove if the realization and improvement of the high-quality cycling routes lead to better scores.

Gelderland's evaluations show that the policy is achieving its goals to which it makes sense that the province is continuing with their line of policy. Utrecht's evaluations are not about the degree in which the province is achieving its goals but can be used as useful information when developing or improving high-quality cycling routes.

4.4. Evidence-based policies: the policy cycles

After looking at the policies regarding high-quality cycling routes, the involved actors and the evaluation practices, a policy cycle can be made for both Gelderland and Utrecht.

4.4.1. Gelderland's cycling policy cycle

In order to provide a clear and full image of the development of Gelderland's policies regarding high-quality cycling routes, this paragraph will clarify the development of these policies using the policy cycle (as introduced in paragraph 2.1.3). It is important to note that the policy cycle shows a simpler version of reality. Presented below is the policy cycle regarding the cycle policy in Gelderland, with emphasis on high-quality cycling routes.

Agenda setting phase

Gelderland has already realised seven high-quality cycling routes and is currently working on five more. Furthermore, the province is also researching the ideas for five other high-quality cycling routes. This shows that Gelderland is relatively far in the subject of high-quality cycling routes. The province of Gelderland has, according to Wietse Bruggink, multiple reasons for why it is important to them to develop high-quality cycling routes. First, there is a big task when it comes to urbanization. There is a need to build many new houses and there is actually not enough space to make all of this accessible by cars, as cars use much more space than bicycles. High-quality cycling routes can help to keep cities accessible without the need of a car. Second, there is a lot of traffic congestion on the road network. Using high-quality cycling routes for distances under 15 kilometres can ease the pressure on the roads. Another important reason is the health aspect of cycling. On one side, cycling is healthy as it is a form of movement. On the other side, cycling is much more silent and does not produce emissions, so it causes a much healthier living environment in comparison to motorized transport modes. As mentioned in the health argument, while cycling one does not produce emissions, which is better for the environment. A last reason is one that is often overlooked. Cycling to work leads to less sick days and more creativity.

High-quality cycling routes can provide a combined solution for all of these issues, which is why Gelderland sees high-quality cycling routes as a priority. The province already has some experience in the whole process of realising high-quality cycling routes, so it can draw on previous policies and choices when creating new policies. However it is important to stay in contact with other actors to decide if the province has a complete overview of the current issues and does not overlook important developments.

Policy formulation phase and decision making phase

The issues that come out of the agenda setting phase are translated into policies. During this stage the policymakers formulate the goals of certain policies, this is done by the policymakers of the province as main actor. The different interests of the other involved actors are weighed against each other and against the costs and effects of the possible policies.

As the main actor in the policy making process, the final decisions and the elaboration on the details of the policy are tasks for the policymakers of Gelderland in cooperation with the political administrators. The province relies on traffic models to determine the optimal routes and maintains close communication with the municipalities in the creation of high-quality cycling routes. The municipalities are crucial in this phase as they are financing the parts of the high-quality cycling routes in their own municipality. So, they have to agree with the goals of the policies, the ideas of how to implement them and the effect it has on them. Therefore, even if the province has the final decision in this phase, the municipalities are crucial to this process.

Implementation phase

The municipalities involved are responsible for the funding of the project and the division of tasks. Municipalities often combine the implementation of infrastructural interventions with other civil engineering interventions e.g., other infrastructural interventions or maintenance of the sewage system in order to use the available resources as efficient as possible.

The implementation of the promotion of cycling is done by the municipalities with help of the province.

Evaluation phase

To properly evaluate the policy and the implementation of the policy the province gathers two types of data.

First and most importantly, quantitative data. The province gathers data from bicycle counts. This data is used to determine if the number of cyclists on a route and to identify if this number has increased when the route is transformed into a high-quality cycling route. These counts are outsourced and done by a company called Telwerk by order of the police. Count data is an easy form of evaluation, as it shows how much the high-quality cycling routes are used, which can be compared to the data that is gathered before the realisation of a certain route. This directly shows an effect of the realisation of a route. These counts are done twice a year (in spring and autumn) for a period of two or three weeks. Some points are fixed, which mean there are continuous counts throughout the year. The province of Gelderland uses quantitative data as the main form of measurement for the effectiveness of high-quality cycling routes.

In certain situations, the province wants to gather more data in order to research other aspects of the high-quality cycling routes. When a high-quality cycling route is new, the province gathers qualitative data in the form of questionnaires in which the cyclists are e.g. asked where the cyclists come from and where they are headed. The province also uses qualitative data through questionnaires when they have more specific questions on e.g. road safety or speed pedelecs. When needed, camera observations are also an option to gather specific data.

All the data gathered from these evaluation practices is used as a basis for new policy and can show if and to which degree the previous policies have had their intended effect. However, this is complicated because according to Wietse Bruggink *“Those who evaluate and monitor are not the same people that are working on the implementation. And that means that there is a lot of collected data which is quite complicated to put back into practice.”*

It is also important as a substantiation for why certain grants have been allocated to certain municipalities. And sometimes these evaluations help explain certain choices for the high-quality cycling routes to local residents or others that take interest in the matter.

Gelderland's cycling policy cycle in summary

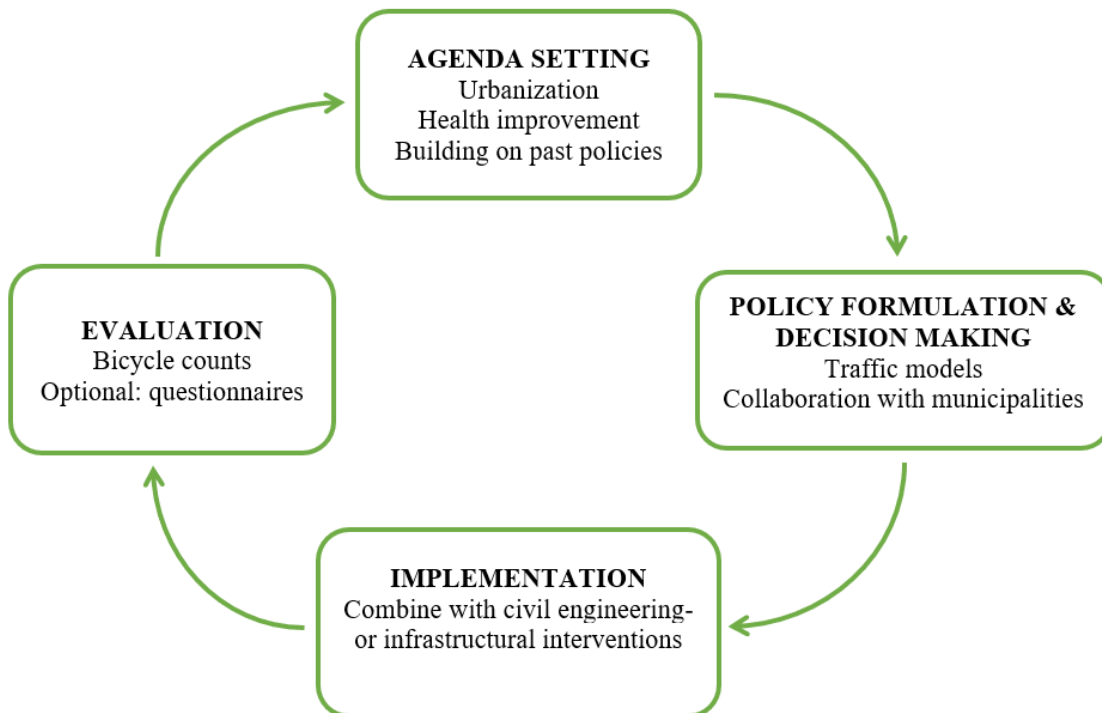


Figure 8 Gelderland's cycling policy cycle

4.4.2. Utrecht's cycling policy cycle

In order to provide a clear and full image of the development of Utrecht's policies regarding high-quality cycling routes, this paragraph will clarify the development of these policies using the policy cycle (as introduced in paragraph 2.1.3). It is important to note that the policy cycle shows a simpler version of reality. Presented below is the policy cycle regarding the cycle policy in Utrecht, with emphasis on high-quality cycling routes.

Agenda setting phase

Utrecht has only recently felt the need to develop a specific cycling policy. This need was an outcome of the 2015 coalition agreement of the provincial council of Utrecht. The coalition agreement gave the bicycle a lot of attention, mostly as a sustainable and healthy transport option. The province of Utrecht sees sustainability and climate as very important topics. Health is also seen as an important topic. The bicycle provides a solution to the combination of these issues. There were a lot of policies regarding mobility but not a specific policy document on cycling. Therefore *"The program manager 'bicycle' stepped up and decided that if these were seen as such important issues by the coalition, the bicycle must be seen as an equal modality to other transport options."* This shows the power of the program manager, other than the politicians in charge, in this phase. In this early stage of policymaking the provincial policymakers, as the institution in charge of this development, had to assemble all the needed information from relevant partners in order to develop the most desirable cycling policy in line with the coalition agreement.

Policy formulation phase and decision making phase

The issues that come out of the agenda setting phase are translated into policies. During this stage the policymakers formulate the goals of certain policies, this is done by the province as main actor. The different interests of the other involved actors are weighed against each other and against the costs and effects of the possible policies.

As the main actor in the policy making process, the final decisions and the elaboration on the details of the policy are tasks for the policymakers of the province of Utrecht in close cooperation with the political administrators. The province uses traffic models to decide the best possible routes and stays in close contact with the advisory board for advice and expertise regarding high-quality cycling routes. Furthermore, the routes of the high-quality cycling routes also have to be planned carefully together with the municipalities involved. The municipalities are crucial in this phase as they are financing the parts of the high-quality cycling routes in their own municipality. As Malou Friedhoff stated: *"...part of the financing comes from the municipalities, so we are simply dependent [from them]"*. So, they have to agree with the goals of the policies, the ideas of how to implement them and the effect it has on them. The municipalities are also in close contact with actors and citizens, such as landowners and the Fietsersbond, that might have opinions on the topic and the planned

routes. So, even if the province has the final decision in this phase. The municipalities are crucial to this process.

Implementation phase

The municipalities involved are responsible for the funding of the project and the division of tasks. Municipalities often combine the implementation of infrastructural interventions with other civil engineering interventions e.g., other infrastructural interventions or maintenance of the sewage system in order to use the available resources as efficient as possible.

The implementation of the promotion of cycling is done by the province in collaboration with the municipalities.

Evaluation phase

To properly evaluate the policy and the implementation of the policy the province gathers two types of data according to the interview with Malou Friedhoff.

First, quantitative data. The province gathers data from bicycle counts. This data is used to determine if the number of cyclists on a route has increased when the route is transformed into a high-quality cycling route. These counts are conducted by the province itself. Count data is an easy form of evaluation, although it does not provide sufficient data. The province wants cyclists to use the routes because these are safe, quick and comfortable options, instead of necessity. And if they enjoy cycling on these routes, what causes them to? In order to figure that out, more data is needed.

This data, which is also the second form of data used, is qualitative data. In close cooperation with Tour de Force, Goudappel has developed questionnaires for the province in which cyclists are asked about their experience on the routes. The questionnaires are distributed for a period of six months to a year. The questionnaire can be found in appendix 5. After the route is finished, the same questionnaire is presented to cyclists in order to see how and if the experiences of cyclists have changed. These surveys are carried out by external parties that report the results to the province.

The combination of the quantitative and qualitative data is chosen in order to get the most answers on the questions the province has regarding high-quality cycling routes. When presented to Tour de Force, the province of Utrecht appeared to be on the same page regarding the way of evaluating these routes.

All the data gathered from these evaluation practices is used as a justification for the use of government funding. Furthermore these evaluations are used as a basis for new policy and to show if and to which degree the previous policies have had their intended effect, which is secondary to the justification towards the provincial executive and the provincial council. *“Millions of euros are spent on these high-quality cycling routes, which is money from the government. So it is basically*

money from the people. We want to properly justify why we created these cycling routes, how much it costs and what the effects of these routes are. [...] In addition, it is simply used for the new accessibility program and to improve our own policy. But that is secondary to accountability at this point.”

Utrecht’s cycling policy cycle in summary

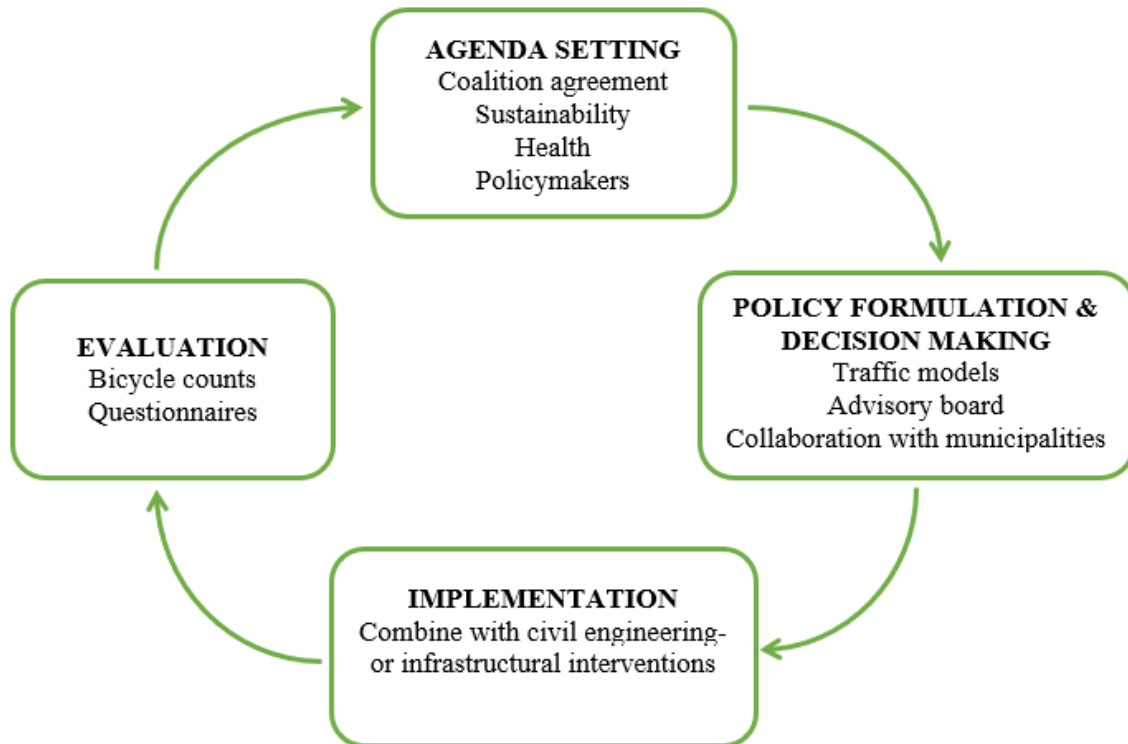


Figure 9 Utrecht's cycling policy cycle

4.4.3. Comparison

Presented above are the policy cycles of Gelderland and Utrecht. This paragraph will contain a comparison to state the similarities and differences between the policy cycles.

First, the parallels between the two cases will be provided. In both Gelderland and Utrecht, the province plays the central role. The provincial political administrators and the provincial policymakers are in charge of the process of policymaking and decision making. This happens in close cooperation with the involved municipalities, as these municipalities are able to limit the province in the process. This means that the province is the main actor, but the provinces cannot act fully independently from the municipalities. Furthermore, the province and the municipalities have close ties with the other involved actors.

It is noteworthy to look at the contrasting roles of policy makers and political administrators. On one hand the political administrators determine the trajectory of policies, on the other hand the results show that most of the decisions are made by policymakers. A clear example could be seen in Utrecht, as Malou Friedhoff stated that the program manager decided that the bicycle should be seen as an equal modality in order to reach the coalition's goals.

In Gelderland the development of high-quality cycling routes is already far in comparison to other provinces. Cycling is already institutionalized which leads to a broad agreement among politicians regarding the benefits of cycling for the province, leading to the swift approval of most proposals presented by the province's policymakers, typically with minimal questioning.

In Utrecht, where the development of high-quality cycling routes is still relatively new, this broad agreement among politicians is not yet achieved. The policymakers have taken the lead in the development of the routes, while using knowledge from Tour de Force. Because cycling is still relatively new on the political agenda in Utrecht, the emphasis of the importance of cycling in the provincial politics is still unsure. The provincial policymakers need to justify the importance of cycling to reach the coalition's goals in order to try to keep cycling high on the political agenda. However, for the policymakers in both provinces, the primary goal is unmistakable: they aim to increase urban accessibility, health and liveability through cycling.

5. Conclusion and discussion

This paragraph will revisit and provide answers to the research questions initially presented in the first chapter of this research. Furthermore, this chapter will contain a discussion, critical reflection, a paragraph with recommendations for further research and a paragraph with recommendations for practice.

5.1 The role of evaluations in policy regarding high-quality cycling routes

The aim of this research was the following:

Gaining insight into the extent in which policies regarding high-quality cycling routes are evidence-based through a critical analysis of evaluation practices.

In order to reach the aim of this research, the following questions have been answered:

Question 1: How are high-quality cycling routes defined? To what extent are high-quality cycling routes conceptualized consistently?

Generally, high-quality cycling routes are defined as part of a bigger network that consists of both the existing cycling infrastructure as well as other modes of transport like public transport. Within the hierarchy of the existing cycling infrastructure the high-quality cycling routes are on top as they form a connection between residential areas and important services in the area in a direct or indirect way. There are six characteristics that high-quality cycling routes should meet, which relate to the length, width, safety, comfort of these routes. Besides these characteristics there are five main requirements formulated by planners and policymakers. These are coherence, directness, attractiveness, safety and comfort.

Gelderland defines high-quality cycling routes as routes connecting residential and work locations by cleverly connecting existing routes, especially near congestion points. This creates shorter cycling distances as well as faster, safer and more attractive cycling routes. With the creation of these routes people are more likely to choose the bike over the car.

Utrecht defines high-quality cycling routes as routes that connect villages and cities making facilities such as workspaces, shopping locations, schools, and (public transportation) hubs more accessible to cyclists from within and outside the city. The network consists of scenic and safe bike routes with enough space for all types of cyclists. Cyclists on these routes encounter as few obstacles as possible and often have priority over other traffic. Clear and recognizable markings, signposts, and, where necessary, lighting are also installed on these routes.

While Utrecht uses more detail to describe high-quality cycling routes, both provinces define high-quality cycling routes in the same way. These definitions are also in line with the general definition of high-quality cycling routes.

Question 2: What actors are involved in the policymaking process related to high-quality cycling routes?

In both Gelderland and Utrecht, the most important actors are the provincial policymakers and political administrators as well as the policymakers and political administrators of the municipalities. In both provinces, the policymakers and political administrators play the central role. The province is in charge of the process of policymaking and decision making in regard to the high-quality cycling routes.

The municipalities are the only actors other than the province that can have a large influence on the policymaking process. The municipalities are able to limit the province in the process as they are crucial in deciding if they want to cooperate and provide funds for the realization of the high-quality cycling routes. These decisions are made by the policymakers of the municipalities in close cooperation with the political administrators. This means that the province can be seen as the main actor, but the provinces cannot act fully independently from the municipalities involved.

Other actors, such as the representatives of the Fietzersbond and Tour de Force, take a more advisory role. However, Tour de Force does play an important role in the evaluation part of the policymaking process.

Question 3: What policy evaluation practices are used for high-quality cycling routes?

Gelderland uses quantitative data as the main form of measurement for the effectiveness of high-quality cycling routes. The province gathers data from bicycle counts. This data is used to determine the number of cyclists on a route and to identify if this number has increased when the route is transformed into a high-quality cycling route. These counts are done twice a year (in spring and autumn) for a period of two or three weeks. Some points are fixed, which mean there are continuous counts throughout the year.

The province only uses qualitative data through questionnaires when they have more specific questions or when a high-quality cycling route is newly developed. When needed camera observations are also an option to gather specific data. In the case of newly developed routes, cyclists are asked where they come from and where they are headed. Both of Gelderland's evaluations that were used in this study are ex-post evaluations, which evaluates the realized effectiveness and efficiency of the policy or legislative proposal. These evaluations are mostly used in a conceptual way or political way.

Utrecht uses both quantitative and qualitative data as the main forms of measurement for the effectiveness of high-quality cycling routes. The province gathers data from bicycle counts. This data is used to determine if the number of cyclists on a route has increased when the route is transformed into a high-quality cycling route. The province wants cyclists to use the routes because these are safe, quick and comfortable options, instead of necessity. And if they enjoy cycling on these routes, what causes them to? In order to figure that out, qualitative data is used. This data is gathered through questionnaires which are distributed for a period of six months to a year. After a route is developed and finished, the same questionnaire is presented to cyclists in order to see how and if the experiences of cyclists have changed. Utrecht's evaluation documents that were used in this study are an ex-post evaluation and an ex-ante evaluation. The ex-ante evaluation document, which was the baseline assessment will be used to compare future scores with the scores in the baseline assessment to prove if the realization and improvement of the high-quality cycling routes lead to better scores. These evaluations are mostly used in a conceptual way or political way.

Question 4: To what extent are currently used evaluation practices consistent?

Both provinces use bicycle counts as (one of the) main form(s) of data gathering. This data is used to determine if the number of cyclists on a route and to identify if this number has increased when the route is transformed into a high-quality cycling route.

Both provinces also use questionnaires. However, these questionnaires are used for slightly different purposes. Gelderland uses them to determine where cyclists come from and where they are headed, while Utrecht uses them to determine why people are using the routes. Gelderland also uses questionnaires in certain other cases when they need more information on certain topics such as road safety or speed pedelecs, but this is not standard.

Tour de Force is aiming to develop build a standardization for evaluations regarding high-quality cycling routes. The province of Utrecht is currently evaluating their high-quality cycling routes in the way Tour de Force envisions it. The questionnaires used by Utrecht are developed by Goudappel in cooperation with Tour de Force.

Question 5: How are newly formed cycling policies influenced by the evaluation practices of high-quality cycling routes?

Newly formed cycling policies are influenced by evaluations in several ways.

First, evaluations can serve as a foundation or inspiration for new policies, as certain policy choices can be explained by outcomes of evaluations. An example of this is that the evaluation of Gelderland's Cycling Network showed that collaboration needed to be increased. Specifically between different fields. This was further developed within the cycling policy in the following years.

Furthermore, evaluations serve as a justification for the Provincial Executive and the Provincial Council. Policymakers need to justify their choices and the effects of it as policymakers have a large budget at their disposal for the development of the high-quality cycling routes. This justification has effect on future policies as the provincial political administrators can use these evaluations to decide if they want to continue with the set line of cycling policy or shift their focus regarding the way the routes are implemented and what aspects of these routes are prioritized. The justification is also important in deciding what budget will be available to future cycling related projects. The size of this budget has its effects on future policy choices and the possibilities in regard to implementation of these policies.

Main question: To what extent are high-quality cycling routes evaluated consistently and how has this evaluation practice informed cycling policies?

High-quality cycling routes are evaluated relatively consistently in the case of Gelderland and Utrecht. The little difference there is between the evaluation practices is probably caused by the period in which the provinces are actively engaged in high-quality cycling routes. As Gelderland is the furthest in developing high-quality cycling routes in comparison to the rest of the country, they have likely developed their own evaluation practices before a joint way of evaluation was developed by Tour de Force. Utrecht has not been very engaged in high-quality cycling routes until recently, which is why they have adopted Tour de Force's evaluation practices. Evaluations and the knowledge derived from them are not always used as a direct foundation for new policy. The use is relatively conceptual, as these are used more indirect. They provide knowledge and understanding of high-quality cycling routes and can influence the way in which different actors think about a policy, without necessarily meaning direct action. This makes it hard to say if the little variation between the evaluation practices from Gelderland and Utrecht prove to impact cycling policies differently.

5.2 Discussion: contributions to theory

As mentioned in the first chapter, this study aims to contribute to the literature focussing on a perspective that has not been studied extensively yet and add to the existing theory on policy evaluation in the field of Spatial Planning. This paragraph will contain an explanation of how this research contributes to the current body of literature regarding the impacts of cycling policies and the use of evaluations in these policy cycles.

The first implication concerns the position of evaluations in the policymaking process regarding cycling policy. This study revealed that policymakers aim for a rational instrumental approach to policy evaluation, which is also found in prior research on other types of policy (Hertin et al., 2009; Owens et al., 2004). However, they often lean towards adopting a more interpretive approach due to

a range of factors detailed in the preceding paragraph. Significant factors that contribute to that are lack of available data and a lack of expertise on the best way to use the data in an effective manner. Bressers (2008) also identified these factors as explanations for the limited instrumental use of evaluations. Hertin et al. (2009) and Weiss (1999) refer to conceptual learning, which refers to the context in which the results of evaluations serve as guiding principles for the development of future policies instead of a one-on-one basis for future policies. This is more in line with the way evaluations are being used by the provinces.

The next theoretical implication pertains to the role of institutions in cycling policy. The case studies reveal several insights regarding institutional change. Consistent with the findings of Alexander (2006) and similar research, we have observed that institutions related to cycling policy can evolve organically over time and also through interventions by policymakers. An example of this is the way policymakers give substance to the goals formulated by politicians. So even though politicians decide that there should be a focus on cycling, the policymakers eventually decide to what degree cycling is emphasised on in policy documents and what cycling related projects are being implemented.

The last theoretical implications pertains to governance. The network of policymaking regarding cycling consists of various actors, each with unique needs and desires. Meadowcroft (2007) describes a need to reach consensus between these involved actors, but it appears that there is a limited need to reach consensus in policymaking regarding cycling. This need is limited as the provinces can act without too much interference from the other involved actors, apart from municipalities.

5.3 Critical reflection

The aim of this study was to contribute to the optimisation of future policies regarding high-quality cycling routes and the stimulation of bicycle use through an analysis of evaluation practices. So as to evaluate the quality of the findings, analysis and conclusions, it is imperative to address considerations relating to validity (internal and external), reliability, and objectivity. Additionally, it is useful to try to retrospectively identify any other limitations in the study.

Internal validity indicates the "*truth value*" of the findings, as highlighted by Miles and Huberman (1994, p. 278). So, internal validity ultimately revolves around the inquiry of credibility and authenticity: do the findings portray a faithful representation of the subject under investigation?

To enhance the internal validity of their outcomes, researchers have a diverse range of strategies available (Creswell, 2013; Miles & Huberman, 1994). In the context of this study, two of these strategies were implemented.

Firstly, the method of data triangulation was used through the combination and comparison of

document and literature analysis with data obtained from interviews. This was done in order to provide reinforcement as well as nuance to the statements made.

Second, the outcomes were structured utilizing frameworks derived from an extensive review of the existing literature.

External validity refers to the degree in which the findings of the study are applicable to situations or contexts beyond those specifically under study. So, it also addresses the degree of generalizability. Qualitative research, in this instance a case study, generally does not have a strong external validity (Verschuren & Doorewaard, 2015; Bryman & Bell, 2015), which makes the external validity results of this study interesting. Furthermore, the decision to opt for purposeful sampling when selecting cases has implications for the external validity of the outcomes. Consequently, to offer some insight into the generalizability of the findings, several measures were taken. This was done by, as mentioned before, triangulation of data sources. In this context, the influence of triangulation becomes evident in its role in providing further clarity regarding the research's context. This helps readers in considering whether the results might be applicable to their own circumstances or not (Miles & Huberman, 1994).

In order to determine the reliability of the study, one examines whether the researcher's influence has shaped the study's outcomes, and consequently, whether another researcher would find similar conclusions (Miles & Huberman, 1994). The topic of reliability is complicated in regard to qualitative research, because the aim of qualitative research is to minimize the researcher's influence. However, given the inherent interaction between the researcher and the subject in qualitative research, such minimization is unattainable (Yanow, 2007). Thus, documentation of all steps of the research is essential to reveal potential biases and issues related to objectivity. For this reason, all interviews and policy documents were transcribed. The considerations made throughout the study are detailed in the introduction chapter and/or the methodology chapter. The interview guide was not tested before the first interview, which is a limitation of this study. Therefore, the interview guide was somewhat changed during the data collection phase, which resulted in the interviewees not being asked the exact same questions. This could have been avoided by conducting trial interviews before starting the actual data collection process.

5.4 Recommendations for further research

To conclude this research, the following paragraph presents several recommendations for future research, drawing from the process and results of this study.

Recommendation 1: Testing generalizability

To strengthen the generalizability of the research's findings and conclusions, similar research should be conducted in diverse geographical contexts and on varying scales. Investigating cycling

policies in cities, as well as on national levels or in other provinces would help validate the research's outcomes. It will show what aspects are similar or different in the multiple layers of government, which will result in a better overall picture of the influence of evaluations on theories regarding high-quality cycling routes. Expanding the body of research on this subject, irrespective of case size or type, would already contribute to its broader applicability.

Recommendation 2: In-depth analysis of actors

Given the exploratory nature of this study due to limited prior research on cycling policy, there remains a large degree of generality in the findings and conclusions. Future research could delve deeper into the perspectives and requirements of one of the actors involved in the cycling policymaking process. Particularly, examining the motivations and methods of policymakers, planners, and practitioners who play central roles in municipal cycling policy could provide valuable insights for policy enhancement.

Recommendation 3: Institutional analysis

Future research could shift its focus towards a comprehensive examination of the whole institutional environment surrounding cycling policymaking. While this study primarily concentrates on evaluation, a more total institutional analysis of cycling policymaking is still missing. A total institutional analysis could explore the various influences shaping policymaking and their relative significance.

Additionally, investigating the overall evaluation culture within the studied organization might also be interesting as it would shed light on how cycling policy may be influenced by a possible broader policy evaluation culture.

Recommendation 4: Longitudinal data collection

The data for this study was collected during a single period of time, reflecting retrospectively on the policymaking process. To enhance the depth and dynamism of the research, adopting a longitudinal approach with multiple data collection phases is advisable (Vennix, 2011). This type of approach would enable researchers to closely track the policymaking process over an extended period, allowing for real-time analysis of decisions and an in-depth examination of the role of discourses.

Recommendation 5: Societal cost-benefit analysis

Lastly, future research should strive to develop a precise framework to assess society's costs and benefits related to cycling. Achieving an accurate understanding of the economic implications of cycling is, in the end, essential for informed decision-making. The creation of a reliable social cost-benefit analysis tool would provide policymakers with the means to objectively evaluate policy

options. While numerous attempts have been made in this direction, consensus among practitioners regarding their utility remains elusive and warrants further investigation.

5.5 Recommendations for praxis

After the recommendations for further research in the last paragraph, this paragraph will focus on the recommendations for practice. It will present four general recommendations for practice. In the first chapter the societal relevance of this research was explained. That paragraph highlighted some issues associated with the evaluation of cycling policy, as well as cycling policy in a broader context. During the data collection for this research, these issues were not only confirmed, but several additional challenges were found. Fortunately, the interviews also gave potential solutions to these issues. The recommendations for practice discussed in this paragraph are intended to assist policymakers, consultants, or anyone interested in the process of evaluating cycling policy or addressing cycling and cycling policy in a broader context.

The recommendations are the following:

Recommendation 1: Give evaluation a fixed place in the cycling policy process

Decent evaluation is not easy. Evaluations are sometimes neglected or overlooked as they do not provide immediate benefits. This can lead to poor evaluations, or even to subjective evaluations that are modelled to align with the intended policy outcomes. And even when policymakers or other involved actors see the value in a proper and objective evaluation, the role of the evaluation in the whole process depends on multiple factors. However, decent evaluations can help to effectively use the funds that are available to cycling, so there is a clear imperative to formally ingrain evaluations in the policy process regarding cycling. The development of one, joint and standard evaluation practice that is being developed by Tour de Force can help to make evaluating easier and more useful as all twelve Dutch provinces will eventually evaluate high-quality cycling routes in the same manner.

Recommendation 2: There is a need for sufficient data (analysis)

The available cycling data is growing bigger every day, but it still falls behind in comparison to, for example, the data regarding cars. So, even if there is enough data available, there is room for much more. Furthermore, data can be incomplete, or it can be uncertain if the data is representative for the broader population. Besides, accurate analysis of the available data is not always guaranteed and there can be concerns related to privacy when the data accumulation gets disproportionate.

Recommendation 3: Develop a method to determine the social cost-benefit

The societal benefits that can result from cycling are widely acknowledged. However, quantifying these benefits, and similarly, the associated costs of implementing cycling policy interventions, remains less clear. While methods are available to help quantify the benefits, they are still rather uncommon which makes it hard to conduct comprehensive social cost-benefit analyses.

Recommendation 4: Be aware that the way high-quality cycle routes are framed is crucial

Cycling involves a diverse range of societal benefits or advantages, however there are people who do not want to see or value all these benefits. Consequently, it is very important to know the target audience and what societal benefits are most appealing to them. The right type of framing can, for instance, help to get cycling on the political agenda, reduce resistance for the development of high-quality cycling routes and/or help to create strategies to promote cycling.

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Appendices

Appendix 1: Interview protocol

- Introductie
- Master Planologie, Radboud Universiteit Nijmegen, specialisatie in Stedelijke en Regionale Mobiliteit
- Master scriptie over beleid omtrent doorfietsroutes en het gebruik van evaluaties daarin
- Doel: een bijdrage leveren aan de optimalisatie van toekomstig beleid omtrent doorfietsroutes door middel van een analyse van het gebruik van evaluaties
- Hoofdvraag: In hoeverre worden doorfietsroutes regelmatig geëvalueerd en heeft deze mogelijke variatie in regelmaat impact op beleid omtrent doorfietsroutes?

Interview protocol provincies en de Fietsersbond

De interviewer en de organisatie

- Wat doet uw organisatie met fietsen/fietsbeleid?
- Wat is uw functie binnen de organisatie?

Fietsbeleid algemeen

- Wanneer en waarom is de provincie/Fietsersbond begonnen met fietsbeleid?
- Wat is het doel van het beleid omtrent doorfietsroutes?
 - Waar zijn deze doelen op gebaseerd?
- Waarop zijn de keuzes of iets wel of niet wordt gedaan gebaseerd?
- Hoe speelt samenwerking met andere partijen of actoren een rol in de ontwikkeling van het beleid?
 - Op welke vlakken en op welke wijze wordt er samengewerkt?
 - Is er een grote invloed van afzonderlijke actoren?

Monitoring en evaluatie

- Wat is uw visie op monitoring en evaluatie?
- Wordt er tijdens het formuleren van de beleidsdoelen al gekeken naar evaluatiemogelijkheden?
- Hoe verloopt het evaluatieproces?
 - Hoe bepaalt u de effectiviteit van het beleid?
- Wat voor data wordt er gebruikt bij de evaluatie?
- Wordt er gemonitord?
 - Zo ja, wat wordt er gemonitord en hoe wordt dat gedaan?
 - Wanneer gebeurt dit?

- Voeren jullie dit zelf uit? Welke partij of welk bedrijf voert dit uit?
- Waarom is er gekozen voor deze methode van monitoring?
- Kijken jullie vooral naar de cijfers of ook naar oorzaken bij evaluaties?
- Ziet u tekortkomingen in de manier waarop er wordt geëvalueerd?
- Zijn jullie bezig met innovatie of nieuwe manieren van evaluatie of dataverzameling?
- Wordt er kennis gedeeld over het evaluatieproces?
 - Met wie wordt deze kennis gedeeld?

Rapportage en gebruik van evaluaties

- Er wordt een rapportage gemaakt van de evaluaties neem ik aan? Hoe zien deze rapportages er uit?
- Door wie worden deze rapportages gemaakt?
- Waar worden de beleidsevaluaties voor gebruikt?
 - Welke partijen gebruiken deze evaluaties?
- Is er een verschil over hoe de resultaten worden gepresenteerd in de rapportage? Als het negatief resultaat heeft of positieve resultaat? Of is het gewoon eenzelfde soort rapport?
- Wordt er kennis gedeeld over de uitkomsten van de evaluaties?
 - Worden deze uitkomsten actief gedeeld? Met wie?

Tot slot

- Waar liggen de verbetermogelijkheden in het evaluatie proces betreffende doorfietsroutes?
- Wat zijn volgens u nog interessante partijen of mensen waar ik mee kan praten voor dit onderzoek?
- Heeft u zelf nog op- of aanmerkingen?

Dank u voor dit interview.

Interview protocol overige interviews

De interviewer en de organisatie algemeen

- Wat doet uw organisatie met fietsen/fietsbeleid?
- Wat is uw functie daarin?

Daarna kies uit:

- **Alina Prey, Goudappel**

(Heeft meegeholpen aan het ontwikkelen van de vragenlijst die in samenwerking met Tour de Force is opgesteld)

- Er is een vragenlijst door jullie opgesteld, hoe bepaald je welke vragen er gesteld gaan worden?
- Zijn er al veel provincies bezig met jullie ontwikkelde methodes?
- Zijn jullie al bezig met het verbeteren van de methodes die jullie ontwikkeld hebben? Of nog niet?
- Hoe gaat het gebruik van de methode nu? Wordt het als fijn ervaren door provincies? Of weet je daar iets van?
- Op welke punten vind je zelf dat er nog verbetering mogelijk is op het gebied van evalueren en monitoring?

- **Rick Lindeman, Rijkswaterstaat en Tour de Force**

- Wat is uw functie binnen Rijkswaterstaat?
- Wat is uw functie binnen Tour de Force?
- Heeft Rijkswaterstaat ook echt beleid omtrent doorfietsroutes? Of is het puur uitvoering?
- Wat is jullie visie op evaluatie en monitoring als het gaat om doorfietsroutes?
 - Hoe verlopen de evaluaties? Je hebt bij Tour de Force dus geholpen met het opstellen van een standaard manier om te evalueren. Op welke manier gaat dat dan?
- Zie je het tekortkomingen in de manier van evalueren die momenteel wordt gebruikt?
- Wordt er gezocht naar vernieuwing of innovatieve manieren in de dataverzameling en in de evaluaties?
- Van de evaluaties worden rapportages gemaakt. Wat doet de Tour de Force met deze rapportages?
 - En wanneer vindt de Tour de Force een doorfietsroute succesvol

- **Joost de Kruijff, Technische Universiteit Delft, expert als het gaat om fietsdata**

- Waarom bent u zo geïnteresseerd geraakt in fietsen?

- En wat is uw visie op monitoring en evaluatie van doorfietsroutes? Een hele open vraag.
 - Wordt die tool al veel gebruikt of nog niet echt?
 - Je hebt dan iets ontwikkeld. Ben je nog bezig met het vernieuwen van die tool? Dus innoveren of andere dingen die erop lijken?
 - Je hebt dus iets ontwikkeld. Ben je dan nog bezig met het vernieuwen van die tool? Dus innoveren of iets dergelijks?
- Zijn er volgens u nog concreet verbeteringen mogelijk in het evaluatieproces?

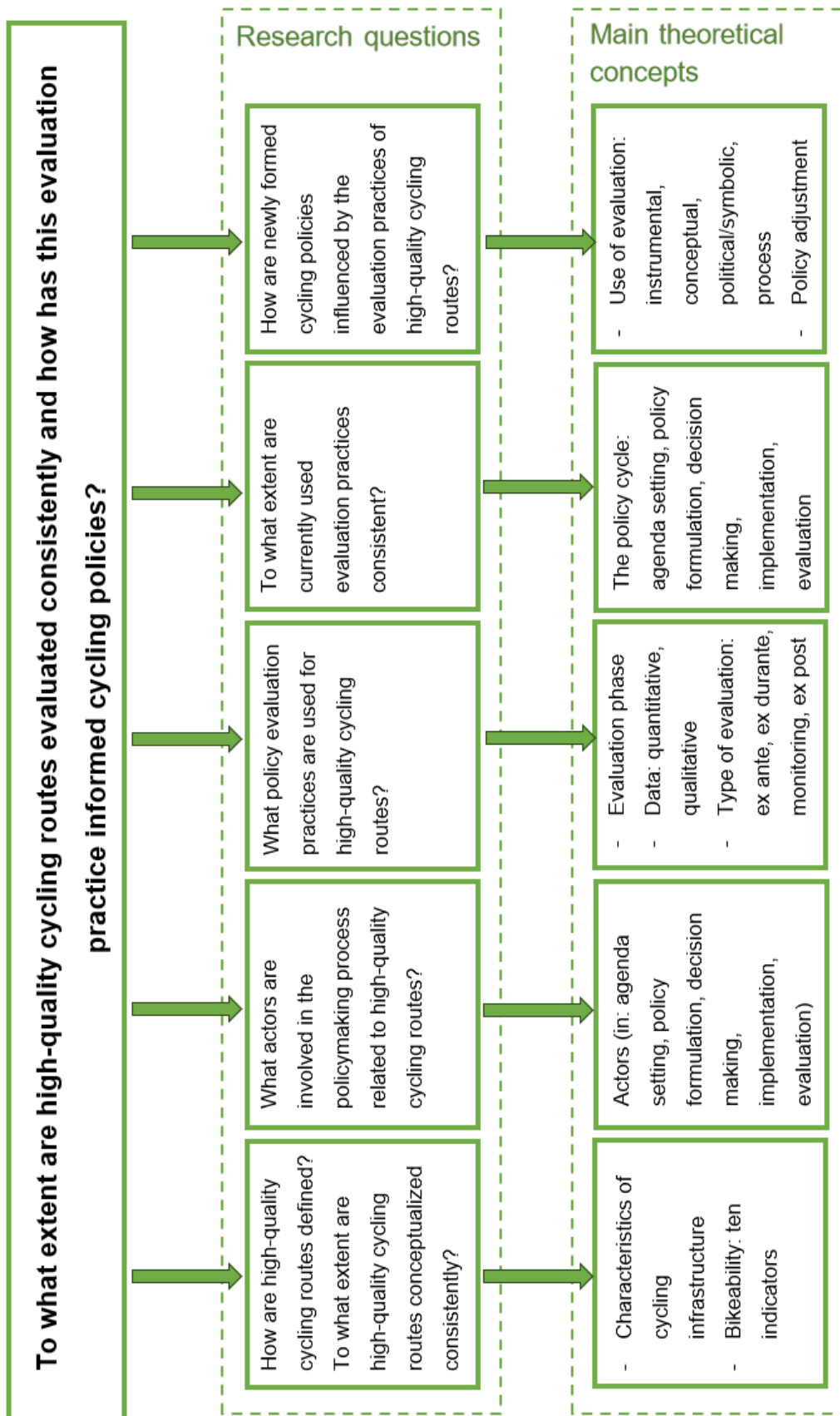
Eindigen met:

- Zijn er nog interessante partijen of mensen waarmee ik kan praten?
- Heeft u zelf nog opmerkingen?

Dank u voor dit interview.

- = *Deze vragen zijn vervolgvragen die tijdens het interview bedacht zijn, maar voor de volledigheid belangrijk genoeg zijn om mee te nemen in dit interview protocol*

Appendix 2: Operationalization



Appendix 3: Initial code book

Code	Sub question	Theoretical concept
Interviewee's job/function	-	-
General information on job and organization	-	-
General information on cycling policy	-	Actors, Bikeability
Aims of the cycling policy	-	Actors, Bikeability, Policy formulation
Strategy	2	Actors, Policy formulation, Implementation
Input for policy	2, 5	Actors, Agenda setting, Policy formulation
Factors that influence policy making	1, 4	Actors, Decision making
- Politics	5	Actors, Decision making
- Finances	5	Actors, Decision making
Collaboration	2	Actors
Data collection	3, 4	Policy cycle, evaluation
- Quantitative data	3, 4	Evaluation
- Qualitative data	3, 4	Evaluation, bikeability
- Period of data collection	3, 4	Evaluation
- Problems with data collection	3, 4	Policy cycle
Reasons for evaluation	3, 4	Policy cycle, Evaluation
Importance of evaluation	3, 4	Policy cycle, Evaluation
What to improve in evaluation process	3, 4	Policy cycle, Evaluation
Use of evaluation	3, 4, 5	Evaluation, instrumental use, conceptual use, political/symbolic use, process use
- Political use	5	Evaluation, political use
- Input for new policies	5	Evaluation, instrumental use, conceptual use, political/symbolic use, process use, policy adjustment
Sharing of knowledge	2, 5	Evaluation
Suggestions of interviewee	-	-

Appendix 4: Final code book

Code	Sub question	Theoretical concept
Interviewee's job/function	-	-
General information on job and organization	-	-
General information on cycling policy	-	Actors, Bikeability
Aims of the cycling policy	-	Actors, Bikeability, Policy formulation
Strategy	2	Actors, Policy formulation, Implementation
Input for policy	2, 5	Actors, Agenda setting, Policy formulation
Factors that influence policy making	1, 4	Actors, Decision making
- Politics	5	Actors, Decision making
- Finances	5	Actors, Decision making
Collaboration	2	Actors
Actors	2	Actors
Involvement in policymaking process	2	Actors, Policy cycle
Reasons to cycle	-	Bikeability
Bikeability indicators	-	Bikeability
Indication of effectiveness of an intervention	3	Evaluation
Spatial context	-	-
Development of methods of data collection	3	Policy cycle, Evaluation
Data collection	3, 4	Policy cycle, evaluation
Quantitative data	3, 4	Evaluation
Qualitative data	3, 4	Evaluation, bikeability
- Period of data collection	3, 4	Evaluation
- Problems with data collection	3, 4	Policy cycle
- Reasons for evaluation	3, 4	Policy cycle, Evaluation
- Importance of evaluation	3, 4	Policy cycle, Evaluation
What to improve in evaluation process	3, 4	Policy cycle, Evaluation
Importance of standardization	4	Evaluation, Use of evaluation
Evaluation process	3, 4, 5	Evaluation, Type of evaluation, Use of evaluation

Use of evaluation	3, 4, 5	Evaluation, instrumental use, conceptual use, political/symbolic use, process use
- Political use	5	Evaluation, political use
- Input for new policies	5	Evaluation, instrumental use, conceptual use, political/symbolic use, process use, policy adjustment
Sharing of knowledge	2, 5	Evaluation
Innovation	-	-
Suggestions of interviewee	-	-
Related to other policy documents	1	-
Specific focus points	-	Policy cycle
Challenges	-	Policy cycle, Agenda setting, Policy formulation
Possible solutions	-	Policy cycle, Policy formulation
Important factors	-	-
Type of cyclist	-	Bikeability
Type of cyclist: needs	-	Bikeability

Appendix 5: Questionnaire by Goudappel and Tour de Force

Enquête hoogwaardige fietsroute

Nulmeting

Doel van de enquête

In het kader van de aanleg van vier nieuwe doorfietsroutes rondom Utrecht willen we je een aantal vragen stellen over je fietsgebruik.

Met de aanleg van vier nieuwe doorfietsroutes wil de provincie Utrecht reizigers een duurzaamalternatief bieden om op een comfortabele, veilige en snellere manier met de fiets op hun bestemming te komen.

Het onderzoek wordt uitgevoerd door onderzoeksbureau Dimensus en is een eerste meting van de huidige situatie: de nulmeting. Als de doorfietsroutes klaar zijn, vindt er een vervolgonderzoek plaats naar de effecten van de veranderingen.

Toelichting bij het invullen

Je kunt de enquête starten door op de knop 'volgende' te klikken. Bij sommige vragen is het mogelijk meerdere antwoorden te geven. Dit staat dan duidelijk bij de vraag aangegeven. Bij het invullen van deze vragenlijst gaat het om de laatst gemaakte fietsrit op deze route. Het invullen van de enquête is volledig anoniem en duurt ongeveer 10 minuten. Als je vragen hebt over het invullen van de enquête, dan kun je contact opnemen met Dimensus beleidsonderzoek via info@dimensus.nl of 0800-0202055.

Kans op mooie prijzen met je deelname

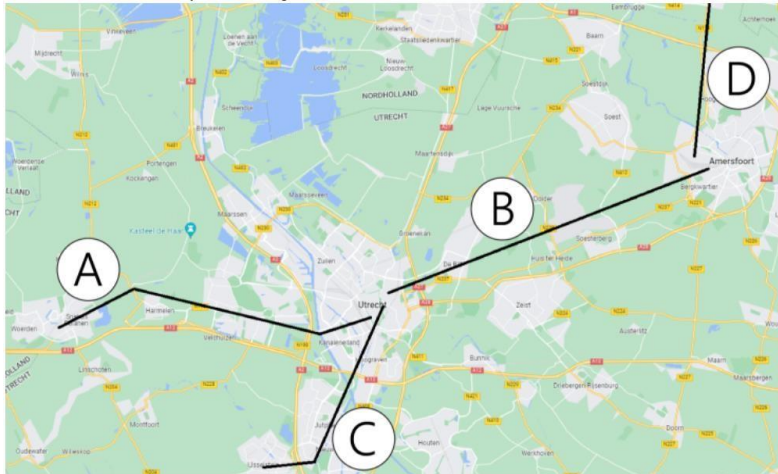
Met deelname aan deze enquête maak je kans op 1 van de 20 bol.com cadeaubonnen ten waarde van 25 euro. Als je kans wil maken op de prijzen, kun je aan het einde van de enquête je gegevens invullen. Na ontvangst van je enquête worden deze persoonlijke gegevens gescheiden van je antwoorden op de vragen, waarmee je deelname aan de enquête volledig anoniem blijft.

Alvast hartelijk dank voor je medewerking.

Blok A: Gebruik huidige fietsroutes tussen plaats A en plaats B

De volgende vragen gaan over uw fietsrit op de dag dat u de uitnodiging heeft ontvangen voor het invullen van deze vragenlijst.

- **Van welke doorfietsroute maakte je voor het laatst gebruik?**



- A: Tussen Utrecht en Woerden.
- B: Tussen Utrecht en Amersfoort
- C: Tussen Utrecht en IJsselstein
- D: Tussen Amersfoort en Bunschoten

1a. Van welk(e) del(en) van de route maakte je tijdens je laatste fietsrit gebruik?

- 1
- 2
- 3
- 4

Je beleving tijdens je fietsrit kan mogelijk verschillen (denk hierbij aan de ervaren drukte of de aantrekkelijkheid van de route). Omdat je hierboven hebt aangegeven van meer dan één deel van de fietsroute gebruik te maken willen we je vragen om aan te geven over welk deel van de fietsroute je de vragen beantwoordt.

1b. Als u van meer dan twee delen van de route gebruik maakt(e), over welk deel van de route vul je de volgende vragen in?

- 1
- 2
- 3
- 4

• **Op welke dag maakte je deze fietsrit?**

- Vandaag → Ga naar vraag 3
- Gisteren → Ga naar vraag 3
- Anders

2a. Op welke datum maakte je deze fietsrit?

____ - ____ - _____

• **Met welk type fiets reisde u deze dag?** (slechts 1 antwoord mogelijk)

- Gewone fiets
- E-bike / elektrische fiets
- Speed-pedelec (elektrische fiets die 45 km/uur kan)
- Racefiets / mountainbike / hybride fiets
- Bakfiets
- OV-fiets of andere deelfiets
- Snorfiets / scooter met blauw kenteken
- Bromfiets / scooter met geel kenteken
- Ander, namelijk: _____

Blok B: Huidig verplaatsingsgedrag

• **Met welk doel was u deze fietsrit voornamelijk onderweg?**

(slechts 1 antwoord mogelijk)

- Om van/naar het werk te gaan
- Om van/naar een zakelijke afspraak te gaan
- Om van/naar school te gaan
- Om van/naar de winkel of andere voorzieningen te gaan
- Om familie of vrienden te bezoeken
- Recreatief fietsen (rondrit)
- Recreatief overig (dagje uit, sportclub, etc.)
- Ander, namelijk: _____

• **Ging het hier om de heen- of terugrit?**

- Heenrit
- Terugrit

• **Tussen welke twee plaatsen fietste u deze dag?**

(indien u een recreatieve ronde fietst kunt u twee keer dezelfde plaatsnaam ingeven)

Plaatsnaam herkomst / vertrek _____

Plaatsnaam bestemming / aankomst _____

• **Wat was deze dag (ongeveer) uw fietstijd in minuten tussen uw zojuist aangegeven herkomst en bestemming?**

Reistijd in minuten _____

- **Hoeveel dagen per week maakt u gemiddeld gebruik van onderstaande vervoermiddelen als ureist tussen uw zojuist aangegeven herkomst en bestemming?**

	4 dagen per week of meer	2-3 dagen per week	1x per week	minder dan 1x per week	nooit
Gewone fiets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E-bike / elektrische fiets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Speed-pedelec (elektrische fiets die 45 km/uur kan)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Racefiets / mountainbike / hybride fiets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bakfiets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OV-fiets of andere deelfiets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Snorfiets / scooter met blauw kenteken	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bromfiets / scooter met geel kenteken	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Auto (bestuurder, privéauto)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Auto (bestuurder, leaseauto)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Auto (passagier)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Motor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trein	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tram	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Metro (indien van toepassing)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Blok C: Beleving Fietsrit

De volgende vragen gaan over uw beleving van de fietsrit. Neem hierbij uw gemiddelde fietsrit ingedachten tussen uw zojuist aangegeven herkomst en bestemming.

9. Tijdens mijn fietsrit...

	-3	-2	-1	0	1	2	3	
voel ik mij gestrest	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	voel ik mij ontspannen
verveel ik mij	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	vermaak ik mij
verloopt mijn rit moeizaam	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	verloopt mijn rit voorspoedig
ben ik moe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ben ik alert
is mijn rit erg oncomfortabel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	is mijn rit erg comfortabel
ben ik bang te laat te komen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	vertrouw ik erop op tijd te komen
ervaar ik mijn rit als slecht	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ervaar ik mijn rit als optimaal
sta ik onder tijdsdruk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	heb ik alle tijd
heb ik er genoeg van	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	heb ik er zin in

Blok D: Beleving fietsroute en directe omgeving

De volgende vragen gaan over uw beleving van de fietsroute en de directe omgeving. Neem hierbij de fietsroute in gedachten tussen uw zojuist aangegeven herkomst en bestemming.

10. Welk rapportcijfer geef je deze fietsroute in het algemeen?

1	2	3	4	5	6	7	8	9	10
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. Welk rapportcijfer (van 1= uiterst slecht tot 10 = uiterst goed) geeft u aan de volgende kenmerken van de fietsroute?

	1	2	3	4	5	6	7	8	9	10
Directheid en breedte										
Directe / rechtstreekse route	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Breedte fietsinfrastructuur	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Technisch & beheer										
Vlak / egaal wegdek	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Afwatering van het wegdek (vorming van plassen)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Onderhoud van de route (maaieren, berm, bladeren)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sneeuw, ijsvrij van de route	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Geen gevaarlijke wegganten (berm, trottoir)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Weinig / geen obstakels (paaltjes, middeneilandjes)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bewegwijzering van de route	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hinder op de route

Doorfietsen bij kruispunten met verkeerslichten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Doorfietsen bij kruispunten zonder verkeerslichten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Doorfietsen ondanks andere andere (snor/-brom)fietsers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Doorfietsen ondanks gemotoriseerd verkeer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Veiligheid

Verkeersveiligheid van de route	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vorrang op de route	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Verlichting van de route	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sociale veiligheid van de route	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Aantrekkelijkheid

Aantrekkelijkheid van route in bebouwde omgeving	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aantrekkelijkheid van route buiten bebouwde kom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aantrekkelijkheid van route bij schemer/ donker	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Voorzieningen

Aanwezigheid van bankjes/rustpunten onderweg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aanwezigheid van schuilplekken onderweg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aanwezigheid van prullenbakken onderweg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aanwezigheid van kunst onderweg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. Wat zijn volgens u de drie sterkste punten van de fietsroute op dit moment?

Probeer zo specifiek mogelijk te zijn over de locatie van het sterke punt (indien van toepassing).

Sterk punt 1 _____ (max. 20 woorden)

Sterk punt 2 _____ (max. 20 woorden)

Sterk punt 3 _____ (max. 20 woorden)

13. Wat zijn volgens u de drie belangrijkste verbeterpunten van de fietsroute op dit moment?

Probeer zo specifiek mogelijk te zijn over de locatie van het sterke punt

(indien van toepassing). Zwak punt 1 _____ (max. 20 woorden)

Zwak punt 2 _____ (max. 20 woorden)

Zwak punt 3 _____ (max. 20 woorden)

Blok E: Persoons- en huishoudenskenmerken

14. Wat is uw geslacht?

(slechts 1 antwoord mogelijk)

- Man
- Vrouw
- Anders
- Wil ik niet zeggen

15. Wat is uw leeftijd?

16. Wat is je 4-cijferige postcode?

— — — —

17. Heeft u een auto? (slechts 1 antwoord mogelijk)

- Ja, in mijn bezit
- Ja, tot mijn beschikking (niet in mijn bezit)
- Nee, ik heb wel een rijbewijs, maar geen auto
- Nee, ik heb geen rijbewijs

18. Wat is de hoogste opleiding die u hebt voltooid? (slechts 1 antwoord mogelijk)

- Basisonderwijs of lager onderwijs
- Lager beroepsonderwijs of vmbo
- Middelbaar beroepsonderwijs (mbo) of HAVO, Atheneum, Gymnasium
- Hoger beroepsonderwijs (hbo) of universiteit
- Anders

19. Wat is de samenstelling van uw huishouden? (slechts 1 antwoord mogelijk)

- Inwonend bij (groot)ouders of familie
- Alleenstaand zonder thuiswonend(e) kind(eren)
- Alleenstaand met thuiswonend(e) kind(eren)
- Studentenhuis / woongemeenschap
- Getrouwd / samenwonend, geen thuiswonend(e) kind(eren)
- Getrouwd / samenwonend, jongst thuiswonend(e) kind(eren) jonger dan 12 jaar
- Getrouwd / samenwonend, jongst thuiswonend(e) kind(eren) 12 jaar of ouder
- Anders

20. In het vervolg van dit project wordt er een nameting gehouden. Zou u ons willen helpen doaraan deze vervolgenquête deel te nemen?

- Nee, dat wil ik niet
- Ja, u kunt mij voor de vervolgenquête benaderen via het volgende e-mailadres
Emailadres _____

21. Onder de deelnemers van deze enquête worden 20 bol.com bonnen t.w.v. 25 euro verloot. Wiltu deelnemen aan deze verloting?

- Ja
- Nee

Om deel te kunnen nemen aan de verloting vragen we u om uw naam, telefoonnummer en e-mailadres in te vullen. Deze gegevens worden na ontvangst van uw ingevulde enquête gescheiden van uw antwoorden. Hiermee blijven uw antwoorden anoniem.

Naam _____

Tel.nr. _____

Emailadres _____

Wij willen u hartelijk bedanken voor de deelname aan deze enquête!