Master's Thesis – Master Sustainable Business and Innovation

An evaluation of the Dutch company bicycle policy measure 'fiets van de zaak'

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Abstract

To contribute to a sustainable mobility system, the Dutch Ministry of Finance has adjusted the Dutch company bike policy measure. Starting January 1st 2020, the Ministry introduced a new policy allowing employers to place a bike at the disposal of the employee for only 7% addition on the salary of the employee by means of a lease construction. The functioning of this measure is evaluated by means of the OECD (2019) policy evaluation framework, which was adjusted with additional factors relevant for Product Service Systems (PSSs). In Product Service Systems the user has access over the product for a longer period of time, while the service provider stays the owner of the product and provides services. Leasing is considered an example of this. This leads to the following evaluation criteria: relevance, coherence, efficiency, effectiveness, and impact. Impact has influence on: durable design, consumption and cooperation.

The results of the 20 conducted interviews with various stakeholders and a literature study present a variegated picture of the functioning of the policy measure. In general, the adjustment of the policy measure is seen as an improvement for both the government as well as the employers and employees. It has received a lot of positive media attention, which has spread awareness, but also caused misinterpretations. The functioning of the measure depends on the financial contribution of the employer to the bicycle. Generally, the employer accounts for a large share of the costs and introduces a high administrative burden to many of the employers and employees. Additionally, the measure is only beneficial to specific groups of people. Currently, the target number of adopters of 150,000 set by societal organisations is not accomplished by far. Nevertheless, higher-level effects on stakeholders seem positive and hold potential for the future; the end-users handle their bikes well and cycle more for both private and work objectives and the stakeholders in the supply chain are more intensively connected to each other, leading to a more mature market. In order to extensively promote the company bike, an improvement of the VAT deduction and a reduced administrative burden is of primary importance.

Finally, the adjusted OECD framework used in this thesis can enable researchers as well as practitioners to evaluate the functioning of other policy measures focussed on a Product Service System.

Keywords: Company bike, leasing, bike, e-bike, speed pedelec, policy evaluation, Product-Service System

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Glossary

This thesis contains specific vocabulary related to the company bike measure, which is important for understanding the measure better. Therefore, table 1 below provides an overview of the English translations used for the Dutch words together with their definitions. To note, in this research the terms 'bike' and 'bicycle' are used interchangeably, since these are synonyms.

Table 1: Definitions and translations of important words related to the company bike measure.

English	Dutch	Definition
Company bike measure	Fiets van de zaak-regeling	The employer places a bike at the disposal of the employee for commuter traffic, but may use it for private objectives as well
Travel cost compensation	Reiskostenvergoeding	Compensation an employer can pay to the employee for the travelled commuter kilometres
Work cost regulation	Werkkostenregeling	Tax-free remuneration from employers to employees
Cafeteria measure	Cafetariaregeling	Exchange of a taxed wage component of the employee with a tax-free wage component
Interest-free loan	Renteloze lening	The employer lends out a loan (the costs of a bike) without interest
Suggested list price	Adviesprijs	The suggested selling price for a bike by the manufacturer
Fixed addition	Forfaitaire bijtelling	Fixed amount as an addition on the salary of the employer
Deductible excess	Eigen risico	Part of the sum which is not remunerated by the insurance company in case of damage
Value added tax (VAT)	Belasting toegevoegde waarde (btw)	Sales tax that is charged at products and services and is paid to the tax authority

1. Introduction

The Dutch government aims to establish a sustainable mobility system which is safe, comfortable for all citizens and has a reduced impact on the environment (Rijkswaterstaat, 2020a). Additionally, in order to achieve the commitments of the Paris agreement of 2016, which have become part of the Dutch climate law, CO_2 emissions must be reduced by 49% in 2030 compared to 1990 (Rijksoverheid, 2020a). Besides, the Dutch government proposed a bill to reduce nitrogen emissions by 50% in 2030 (Rijksoverheid, 2020b). Road traffic is responsible for 18.7% of the total CO_2 emissions (CBS, 2020a) of which 62.4% is caused by cars in 2018 (CBS, 2020b). For the nitrogen emissions (N_2O and NO_x) in the same year, road traffic's contribution was approximately 6% of the Dutch total nitrogen emissions (Clo, 2019). Next to that, almost half of the Dutch citizens older than 20 have obesity. In the National Prevention Agreement, the Dutch government set the goal that only 38% of the adults will have obesity in 2040, which is around 50% at the moment (Rijksoverheid, 2021a). The government is undertaking various measures to stimulate sustainable transportation, such as shifting from fossil to sustainable energy (e.g., by electrification of mobility), use of more sustainable fuels, and the development of smart systems to change travel behaviour (Rijkswaterstaat, 2020a; Rijkswaterstaat, 2020b). As transportation by bike is considered as environmentally sustainable and healthy, the Dutch government takes several different measures to stimulate cycling (Rijksoverheid, 2020c).

One of the most notable initiatives to stimulate cycling is the regulation for leasing a bike for commuter traffic in the Netherlands. Since the 1st of January 2020, this regulation has changed (Rijksoverheid, 2020d), with the goal of making it easier and financially more attractive for end-users: employees, entrepreneurs, and self-employed workers to lease all sorts of bikes, including e-bikes and speed pedelecs (an electric bike which can reach a maximum speed of 45 km/h) (Meijer, 2019; ANWB, 2020; Rijksoverheid, 2020d). Similar to the company car measure, the company bike measure allows the employee to lease a bike via the employer, with possible involvement of a leasing company. The construction works by letting the end-user pay a 7% addition on its salary. In most cases, this results in only a couple of euros per month for the end-user. The bike can then be utilised for private use next to work objectives. This policy measure is part of the overarching program 'Kies de fiets' ('choose the bike'), which aims to achieve 10% more employees on a bike for commuter traffic (Rijksoverheid, 2020c). Overall, leasing a bike could stimulate sustainable transportation by attracting end-users to adopt a bike rather than another mode of transportation or by intensifying bike use.

Before the implementation of the measure, it enjoyed widespread societal support: employers and employees (Ipsos, 2019), as well as societal organisations, such as The Royal Dutch Touring Club (ANWB), Association of automobile traders and car dealing companies (BOVAG), and the Cyclist association (Fietsersbond) (Business Insider, 2018), were enthusiastic about this measure. In particular, it was expected that this new measure would reduce paperwork and administration, and more people would prefer a lease bike instead of a car for commuting (RTL Nieuws, 2019). The support of these actors is important for the measure, however, even with initial broad societal support, policy measures can still fail (McConnell, 2015; Hudson, Hunter & Peckham, 2019). After implementation of the policy measure, evaluation is worthwhile, because it provides potential to improve the measure and enables learning to prevent mistakes for future policy measures (Van der Vlist, Bunte, & van Galen, 2007). News articles already showed that the policy measure might not be as favourable for both employers and employees as initially thought (Carlak, 2020; Segenhout & Kakebeeke, 2020). Therefore, it remains to be seen how the policy measure is actually functioning. To note, the measure came into effect in the year of the COVID-19 pandemic, which might have influenced the implementation of the measure. All in all, the aim of this research is therefore to evaluate the Dutch company bike measure.

To evaluate this policy measure, the evaluation criteria of the OECD (2019) are used as a basis. These criteria are used for public policies in a variety of areas, but need to be adjusted to the specific context. Since the company bike concept is a product-service system (PSS), the evaluation of the policy measure will take into account key attributes of the PSS applicable to the company bike to make it fitting. A PSS refers to offering a complete solution containing both product(s) and service(s), whereby the provider remains the owner of the product (Hüer, Hagen, Thomas, & Pfisterer, 2018). This combination of tangible artifacts and intangible services is capable of fulfilling customer satisfaction (Manzini & Vezzoli, 2003). The adjustment of the evaluation criteria is necessary in order to fully capture the intended and unintended effects of the policy measure targeted at the PSS (Dige & Dilling, 2017). Hence, the research questions for this research are as follows:

"How is the Dutch policy measure for stimulating the company bicycle performing?"

Sub questions:

"How can a policy measure aimed at stimulating Product Service Systems be evaluated?"

and

"How is the policy measure performing in respect to the developed evaluation criteria for policies aiming at stimulating Product Service Systems?"

This research has scientific relevance, because there are various models for developing sustainability-oriented policies, including innovations such as PSS (Ceschin, 2013), but the development of evaluation frameworks of these policies is often still lacking. Existing literature on PSS mostly discusses the benefits and risks of PSS on sustainability, but rarely considers ways to improve sustainability (Hüer et al., 2018). Additionally, it does not address policies or policy evaluations related to PSS in detail. PSS is promising in addressing sustainability challenges, as it could reduce environmental pollution and excessive resource consumption (Mitake et al., 2020). Herewith, it also adds to policy research for transitions to sustainability. In this literature, there is both a focus on developing and evaluating policies for niche experiments and emerging technologies (Van Waes, Farla, Frenken, De Jong, & Raven, 2018; Luederitz et al., 2017), as well as more quantitative research methodologies (Li & Mathiyazhagan, 2018; Lynch, Donnellan, Finn, Dillon & Ryan, 2019). Additionally, they focus less on tailored evaluation frameworks of existing measures (Nykamp, 2020).

The evaluation of the company bike measure done in this research could eventually lead to an improvement of the policy measure and with that contribute to the stimulation of cycling. As cycling is considered a sustainable mode of transportation, the improvements to the policy measure in response to this evaluation could enhance sustainability. Since the concept of PSS is broader than cycling alone, recommendations can also be developed for other policies stimulating PSSs, for example leasing solar panels (Stokkingreef, 2019). Policy measures focussed on PSS are favourable in promoting and contributing to a more sustainable and circular economy instead of staying in a linear state (Schoonover, Mont & Lehner, 2021). This research therefore could be used for supporting PSS concepts that may result in lower environmental impacts (Borg, Mont, & Schoonover, 2020).

In order to execute this evaluation and to answer the research question and its sub questions, firstly, background information about the measure and cycling will be provided. Then, information about the importance of evaluation and the PSS concept are given to, in turn, provide the applied evaluation

framework with its evaluation criteria for the policy measure. In the methodology, the steps to accomplish the data collection, containing the interviews and literature review are elaborated upon. After, information about the internship and the data analysis is described. The results present the information derived from the twenty interviews and the literature review. Thereafter, the results are discussed, encompassing the relevance and limitations of the research. Finally, the conclusion is provided and recommendations in order to reduce the barriers concerning the policy measure are given.

2. Background on the policy measure

Before turning to the evaluation framework, it is important to elaborate more on the company bike measure and to provide some background information, relevant to the policy measure, in order to understand the context better.

2.1 Cycling in the Netherlands

The Netherlands is a bicycle country with more bicycles than people, namely around 17.2 million inhabitants and 22.9 million bicycles in 2019 (CBS, 2020c; RAI Vereniging, 2020). Especially the number of e-bikes and speed pedelecs has increased, but the number of city bikes has significantly decreased (Figure 1) (RAI Vereniging, 2020; De Haas, & Hamersma, 2020; BOVAG, 2020). In 2020 was the first year that more electric bikes were sold than bikes without electrical assistance (RAI, BOVAG & GfK, 2021).

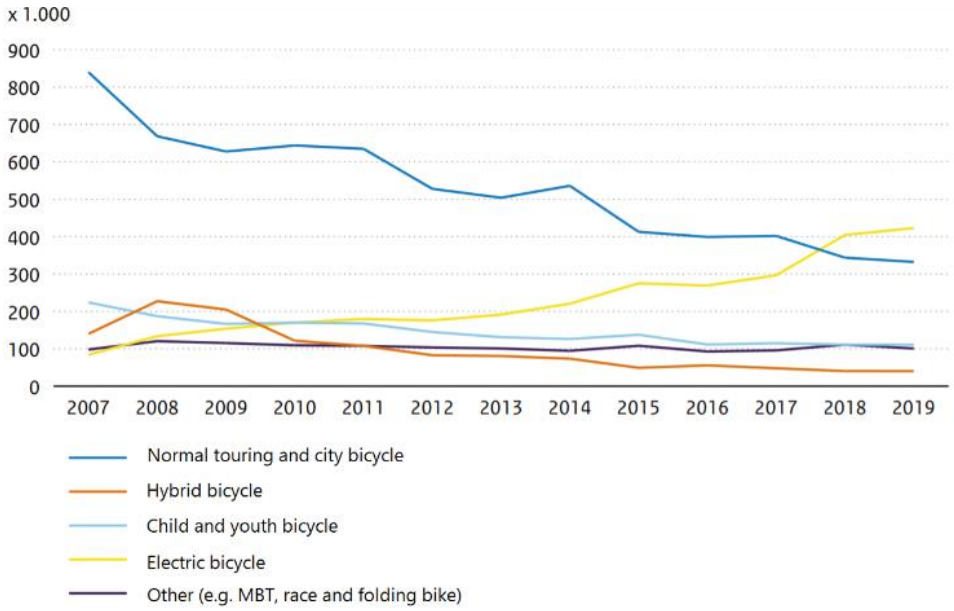

Figure 1: Sold bicycles per type from 2007 till 2019 (De Haas, & Hamersma, 2020, p. 25).

Even though bike sales are flourishing, according to the Dutch national government, too many people are commuting by car every day, which results in pollution and traffic jams. Half of the car trips are less than 7.5 kilometres and more than half of the employees live within fifteen kilometres from work (Rijksoverheid, 2018). These distances could reasonably be done by (electric) bike or speed pedelec.

The average bicycle distance of a non-electric bike is 3.6 km and for electric bike 5.9 km per ride. The share of travel distance for commuting to work is increasing the past years, compared to other objectives, such as shopping, leisure and other remaining objectives (Figure 2) (De Haas, & Hamersma, 2020). The company bike measure especially focuses on electric bikes (RTL Nieuws, 2020); in these cases, the end-user has to pay relatively a little amount per month instead of a few thousand euros at once (ANWB, 2020). Taking the bicycle instead of the car, would save on average 138 g CO_2, 0.13 g NO_x and 4 mg of particulate matter per km. Replacing all car trips less than 7.5 kilometres by bike, would save 1.8 Mtonnes CO_2, 1.8 ktonnes NO_x and 0.05 ktonnes particulate matter per year. Additionally, a moving bike takes 28 times less space than a riding car; parked cars take ten times more space than parked bikes. In other words, cycling improves the accessibility as compared to cars (De Haas, & Hamersma, 2020). Moreover, cycling is healthy, improves the productivity of employees and helps preventing diseases (Fietsersbond, 2021).

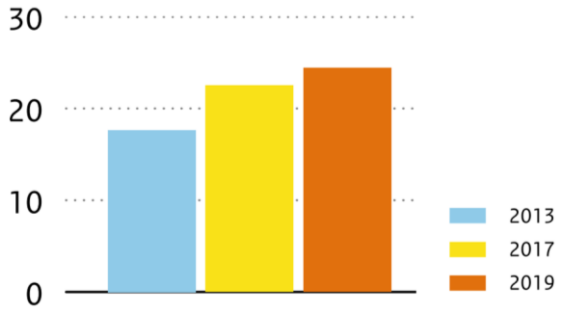

Figure 2: Percentage of travel distance per bike for work purposes in respect to the total trips for all other purposes (De Haas, & Hamersma, 2020, p. 25).

To give an illustration of the potential of e-bikes and speed pedelecs, Figure 3 beneath visualises the area in which the city centre of Groningen can be accessed within half an hour by the city bike, e-bike and speed pedelec (Segenhout & Kakebeeke, 2020). With an e-bike, the city centre of Amsterdam becomes accessible within half an hour for 1.5 times as many people compared to a city bike and in Rotterdam two times as many people. For the speed pedelec, the city centre of ‘s Gravenhage becomes accessible for three times as many people compared to the city bike and in ‘s Hertogenbosch for even 4.5 times as much people. The e-bikes and speed pedelecs are innovating. For example, the bike manufacturing company Stella launched the start-up Muto to design e-bikes that fit better for city traffic (Financieel Dagblad, 2020). Also, the image of the e-bike has changed over the last few years. Initially, the e-bike had a stigma that was associated with elderly people and people who are lazy, but nowadays the e-bike is sold to each group of age and is just as usual as selling a city bike (Verdouw, 2020).

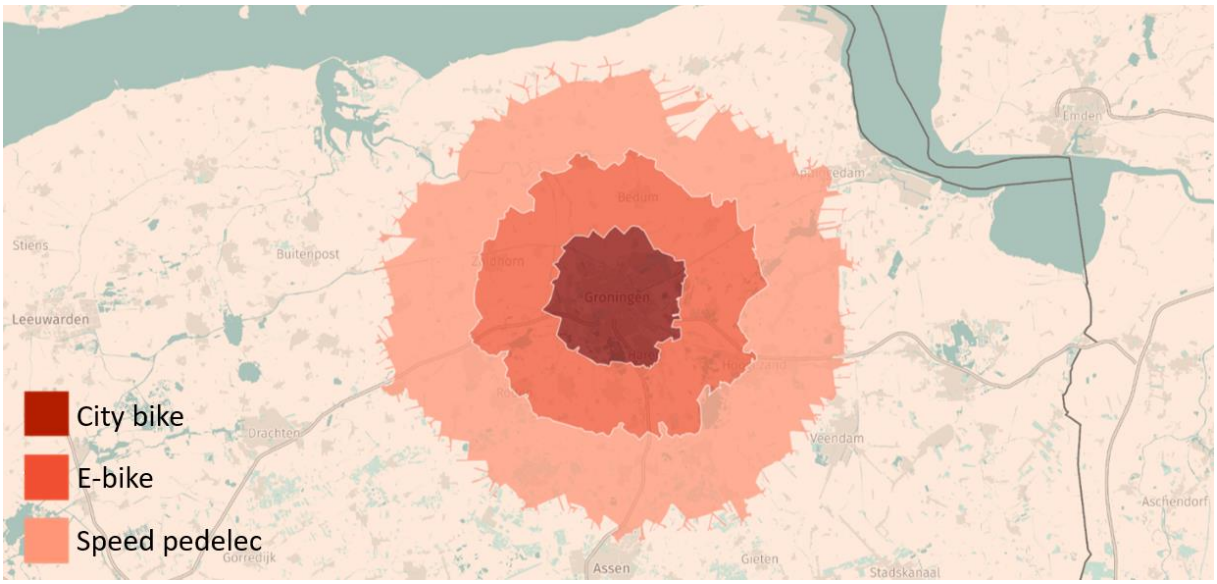

Figure 3: The accessibility of the city centre of Groningen (Grote Markt) in the Netherlands by city bike, e-bike and speed pedelec (Goudappel Coffeng: in Segenhout & Kakebeeke, 2020).

2.2 Establishment of the company bike measure

Before 2020, it was already possible to lease a company bike, but leasing a car was simpler than leasing a bike (Rijksoverheid, 2018); the end-user had to note down all the trips they travelled by bike and calculate the private kilometres driven, which implied a high administrative burden. In order to change this measure, ANWB, BOVAG, Fietsersbond, Natuur&Milieu, RAI Vereniging, and VNA Lease (2017) plead together in a position paper for an adjustment of the policy measure for commuter traffic, which would make it administratively easier. This motivation eventually led to the Dutch national policy for the company bike measure, managed by the Ministry of Finance. The Ministry aimed the policy measure to be budget neutral, which means it would not cost nor bring money in for the Ministry net (Tweede Kamer der Staten Generaal, 2018). RAI Vereniging (2017) calculated the societal benefits of the company bike based on 176,320 company bikes around €10 million tax income, €7 million environmental benefits and €37 million health benefits each year.

2.3 How the company bike measure works

When an employer places a bike, that is utilised for business as well as private objectives, at the disposal of their employees, they have to charge the employee for these private benefits. Since it is a form of wage in-kind, this is done in the form of a fixed addition: a fixed addition on the salary of the employee (Tweede Kamer der Staten Generaal, 2018). This is applicable to the company bike as well. Research together with the bike sector determined the private use of the bike to be around 25%. This eventually led to a 7% addition on their salary based on the suggested list price for the company bike from the 1st of 2020 on. Mostly the costs for maintenance and insurance are (partly) included. If the suggested list price is lacking, the suggested list price of the most comparable bike should be used. RAI Vereniging developed a website to collect the (historical) list price of bikes (RAI Vereniging, 2021).

This measure is applicable to any type of bike including speed pedelecs. A speed pedelec is legally seen as a moped, but according to this measure it is handled as a bike as it has an electric motor and is driven by human power (Tweede Kamer der Staten Generaal, 2018). The speed pedelec normally has two wheels, but also can have three or four wheels. Accessories of the bike that are part of the

suggested list price are part of the 7% addition. For accessories that are not part of the suggested list price apply the regular rules (Tweede Kamer der Staten Generaal, 2018). When another mode of transportation is used next to the bike, the end-user can still declare the travel costs, for instance using the car or public transport, as long as the end-user can verify it. For example, when an end-user travels by bike to a train station and then takes the train or takes a car on a rainy day (Rijksoverheid, 2020e).

The costs for leasing a bike are different from both the perspective of the employee, the end-user, and the employer. The costs for the end-user depend on their annual salary and the value of the bike. When the end-user chooses a bike of €2000, they have to add €140 per year, as they have to pay a 7% addition on their salary. If the end-user's annual salary has a maximum of €68,507, the end-user's tariff of income tax is 37.10%. This means the end-user has to pay an annual fee of €51.94, since 37.10% of €140 is €51.94. The monthly fee for the end-user is then only €4.33 (Rijksoverheid, 2020d). Concerning the employer, in the case of a bike of €2000, a service and maintenance package of €400 and a lease term of 36 months, the employer has to pay €63,10 per month. The employer can get a deduction of VAT (sales tax of 21%) to a maximum of €749 for the bike. This means if the price is above €749, the part above €749 cannot be deducted (Tweede Kamer der Staten Generaal, 2018). If the employee has a bike of €2000, the employer gets a tax benefit of €130. The remaining sum of €1870 plus the service package of €400 has to be paid over 36 months, which results in €63,10 per month for the employer. The employer could do the end-user a favour by paying the 7% fixed addition of the end-user. This will be part of the work cost regulation (Tweede Kamer der Staten Generaal, 2018). The employer could also ask the end-user for a contribution. The amount depends on the agreement between them (Rijksoverheid, 2020d).

2.4 Different forms of contracts

There are different ways to get a company bike from the employer or to lease a bike for an employee. Leasing is known as hiring something for a longer period of time. Firstly, there is private lease. Here, the bike is leased by the end-user for a determined period and includes, besides the bike, costs for service and maintenance as well (ANWB, 2021a). As this could privately be done without interference of the employer, this form of leasing is outside the scope of the research. Secondly, the employer can buy the bike or can redeem the bike via financial lease, which means the employer is the owner of the bike and they are therefore responsible for the maintenance, repairing and insurance among other things. Thirdly, there is operational lease, which means the bike is leased with the interference of a leasing company and this leasing company stays the owner of the bike. In other words, just like company cars, company bikes have two kinds: (full) operational lease and financial lease (Business Insider, 2020a). Table 2 below gives a short overview:

Table 2: Overview of the differences between (full) operational lease and financial lease (Business Insider, 2020a).

(Full) Operational lease	Financial lease
Leasing company is owner of the bike	Employer is owner of the bike
Bike is not part of balance sheet	Bike forecloses on the degree of liquidity of the business
Interest, reduction of the value, maintenance, repairing, insurance and roadside assistance are included	Employer is responsible for maintenance, repairing and insurance
No possibility for investment deduction	Possibility for investment deduction
After the lease contract the leasing company remains the owner of the bike, but there is a possibility to buy the bike	The employer remains the owner of the bike after the lease contract

In case of financial lease, there are some subsidies the employer, also self-employed workers, can make use of (RVO, 2021a; RVO, 2021b; Belastingdienst, 2021a). Firstly, Kia implies the employer will get 28% of the investment back if the sum of the (e-)bike or speed pedelec is higher than €2.401. Secondly, half of the invested amount of the speed pedelec or cargo bike can be deducted for 13.5% according to Mia. At last, there is Vamil, which implies an accelerated decrease in value can be applied for speed pedelecs and cargo bikes with 75% value reduction in the first year and 25%, the remaining value, in the second year. In case of a speed pedelec or cargo bike, it would be possible to apply all three subsidies simultaneously.

2.5 Supply chain

As there are two forms of placing a company bike at the employee's disposal, i.e., operational and financial lease, there are two forms of the supply chain as well. Figure 5 below visualises the supply chains for the company bike in both scenarios. In both situations, the bicycle is produced in the factory first, whereafter it is delivered to the bike shop. Then, an end-user chooses a bike at the bike shop with the budget they received from their employer. In case, the company bike is placed at the employee's disposal without interference from the leasing company, the employer makes arrangements with the bike shop and the end-user what is incorporated in the contract of the company bike. If there is interference of the leasing company, the leasing company signs contracts with the bike shops, end-users and employers and provides information to them. In some cases, some brands do not have dealers and deliver the bikes directly to the relevant client(s). There could be more stakeholders involved in the supply chain, for instance, tax specialists and mobility agents, but these could optionally be consulted by one of the stakeholders in the supply chain as visualised in Figure 1, but are not always incorporated in the supply chain. The Figure visualised the supply chain in its most common and simple form.

There is a continuous interaction between the stakeholders in the supply chain, as visualised by the doubled arrows in Figure 5. The factory and the bike shop discuss when the quantity and type of bikes and components need to be delivered. The end-user and employer form a contract and can jointly discuss the conditions of the contract of the company bike, for instance the budget the employer wants to contribute to the bike. The bike shop sells the bike to and prepares the bike for the end-user. The end-user goes to the bike shop for maintenance. In case of financial lease, the bike shop and the employer set up the contract, which is relevant for the end-user. In case of operational lease, the leasing company set up the contract with the bike shop, end-user and employer. In these contracts,

the specific terms and conditions about the company bike are formulated. Next to that, information about the company bike or the contract, for instance, is provided by the bike shop and/or leasing company, e.g., by answering the stakeholders' questions.

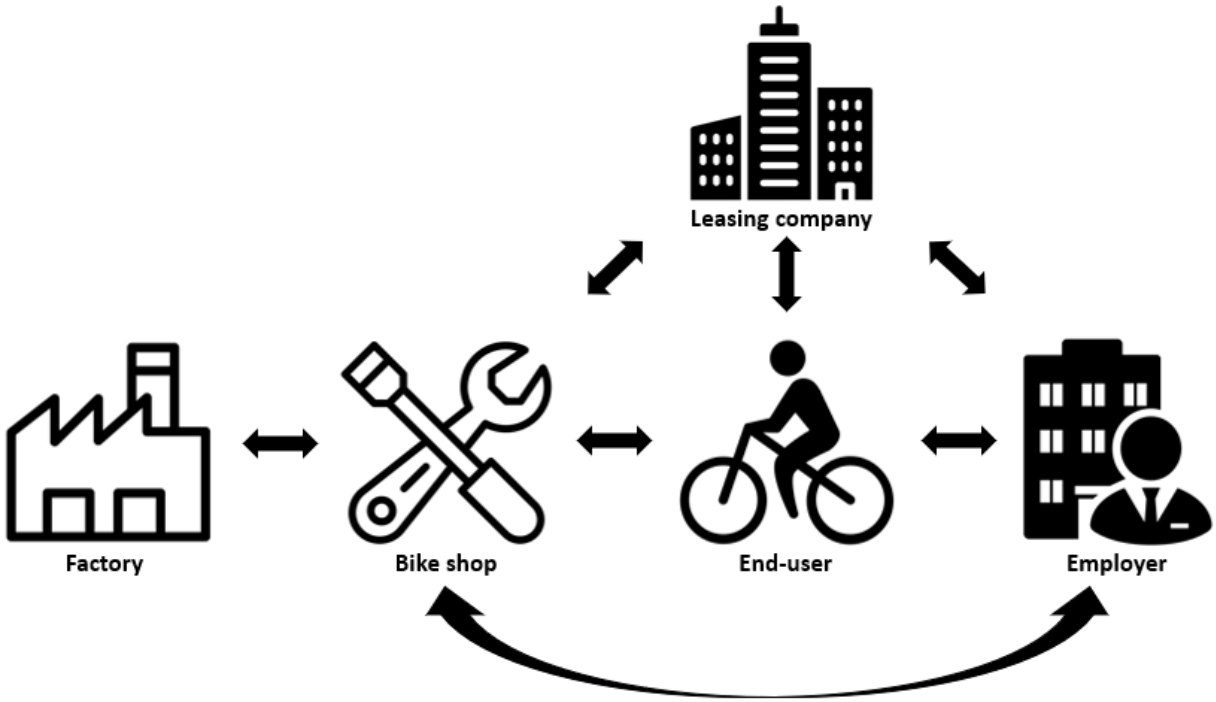

Figure 5: Supply chain of the company bike measure.

3. Theoretical background

3.1 Policy evaluations

Already since the eighties of the previous century, it was acknowledged that evaluation could contribute to the well-functioning of policies (Pattyn & Verweij, 2014). Also, the evidence-based society, we know today, demands for accountability. Since the last millennium change, evaluation for policies was generally utilised in the Netherlands (Pattyn & Verweij, 2014). Evaluation is often a complex and extensive assessment of completed or ongoing activities that considers the intended and unintended effects, and is therefore usually done by independent external experts (Menon, Karl, & Wignaraja, 2009; Austrian Development Agency, 2009). 'Evaluation' can be described as *"The process of determining the merit, worth, or value of something, or the product of that process."* (Scriven, 1991, p.139).

Policy evaluation serves four functions (Austrian Development Agency, 2009): firstly, there is learning from experience; the successes and failures are interpreted, from which future projects or programmes can be improved. Secondly, it increases the transparency. The justification of resources and results and their effects is important to, for example, the contractor or taxpayers. Thirdly, it helps

deepen understanding. More knowledge is gathered about assumptions, options and limitations for instance. Fourthly, it serves as an improved communication within and between stakeholder groups.

Before the evaluation of the policy can start, it is necessary to know the place in the policy cycle the policy is in. The policy cycle, also known as program cycle, can be broken down into different ways (Dige & Dilling, 2017, p.11; Wegrich & Jann, 2007; DPME, 2019, p.28), but comes generally down to five steps: 1) problem analyses, 2) setting goals, 3) ex-ante evaluation, 4) ex-durante evaluation and 5) ex-post evaluation (Van der Vlist, Bunte, & van Galen, 2007). During the problem analyses, a problem is identified, which asks for intervention. In the second step, the desired goals the policy maker is aiming for are formulated and the current situation is described. Step 3, 4, and 5 contain the three (general) types of evaluation: ex-ante, ex-durante, and ex-post, respectively (Van der Vlist, Bunte, & van Galen, 2007). Ex-ante evaluation helps prepare the policy and takes place before the policy introduction. This evaluation entails for example possible societal effects and the consideration with other policy options. Ex-durante evaluation takes place during the policy term. The first experiences and measures can be considered to adjust the policy where needed. Ex-post evaluation occurs after the policy term and identifies the net effects. Since this study evaluates an ongoing policy measure, an ex-durante policy evaluation will be undertaken. In the remainder of the theory, only step 4 will be elaborated, as this relates to an ongoing policy measure.

3.2 OECD (2019) evaluation criteria

Important in fulfilling the ex-durante policy evaluation are the evaluation criteria. In this thesis, the criteria of the OECD are used. These criteria were initially developed to evaluate international development and humanitarian projects, programmes and policies and are nowadays applied to evaluate public policy in any area (OECD, 2019). The universal acceptance and usefulness of the criteria is widely recognised. In 2019, the OECD revised these evaluation criteria and added 'coherence' to it. The OECD thus concentrates on six criteria for policy evaluation: relevance, coherence, efficiency, effectiveness, impact and sustainability (OECD, 2019). Each criterion seeks to identify social, environmental and economic effects, the three pillars of sustainable development of the United Nations (UN General Assembly, 2015). The use of the criteria depends on the purpose of the evaluation. They should cover the needs of the relevant stakeholders and the context of the evaluation, which means criteria could be excluded or new criteria be included to the framework (OECD, 2019). Beneath, each criterion is described as stated by the OECD (2019):

- *Relevance*: "The extent to which the intervention objectives and design respond to beneficiaries', global, country, and partner/institution needs, policies, and priorities, and continue to do so if circumstances change".
- *Coherence*: "The extent to which the intervention is compatible with other interventions in a country, sector or institution".
- *Efficiency*: "The extent to which the intervention delivers, or is likely to deliver, results in an economic and timely way".
- *Effectiveness*: "The extent to which the intervention achieved, or is expected to achieve, its objectives, and its results, including any differential results across groups".
- *Impact*: "The extent to which the intervention has generated or is expected to generate significant positive or negative, intended or unintended, higher-level effects".
- *Sustainability*: "The extent to which the net benefits of the intervention continue, or are likely to continue".

The criterion coherence can be subdivided by means of internal and external coherence (OECD, 2019): "*Internal coherence* addresses the synergies and interlinkages between the intervention and other interventions carried out by the same institution/government, as well as the consistency of the intervention with the relevant international norms and standards to which that institution/government adheres. *External coherence* considers the consistency of the intervention with other actors' interventions in the same context".

This thesis intends to contribute to the literature on policy evaluation aimed at stimulating environmental sustainability by developing a framework to evaluate policies aiming to stimulate PSS. The PSS concept is becoming more present in a variety of industry practices (Li, Kumar, Claes & Found, 2020), mostly because of potential benefits the PSS has, e.g., better environmental performance and cost savings (Hüer et al., 2018). Because of the wide applicability of the PSS concept, it is applied to for example the clothing, eyewear and furniture industry (Borg, Mont, & Schoonover, 2020), as well as the automobile industry (Williams, 2007). The current literature on sustainability transitions focuses more on its design instead of its evaluation. Moreover, the present evaluations are mostly focused on niche experiments and new emerging technologies (Van Waes, Farla, Frenken, De Jong, & Raven, 2018; Luederitz et al., 2017) or policy mixes (Magro & Wilson, 2019). Furthermore, policy evaluation is becoming more important because of budgetary constraints (Dige & Dilling, 2017) and as transitions to sustainability are considered complex, uncertain and coevolving a suitable (tailored) evaluation framework is necessary (Kern, Rogge & Howlett, 2019). Therefore, the adjustment of the OECD framework was necessary in order to encounter the situation of the company bike measure and its evaluation.

3.3 Product-service systems

To evaluate the company bike measure, it is important to know the characteristics of the company bike. Leasing a company bike can be called business-to-consumer solutions based on PSS (Frenken, 2017; Mont, 2002); the end-user leases the bike from a company via a contract. Thus, the end-user gets access over the bike and has the sense of ownership, e.g., psychological ownership (Peck & Shu, 2018), even though the company remains the legal owner of the bicycle (Guyader & Piscicelli, 2019). Lease services are an example of a product-service system (PSS) (Frenken, 2017), as they provide access to the product that are owned by the company (Matzler, Veider, & Kathan, 2015; Bocken et al., 2014; Piscicelli, Cooper & Fisher, 2015). Mont (2002, p. 239) defines a PSS as *"a system of products, services, supporting networks and infrastructure that is designed to be: competitive, satisfy customer needs and have a lower environmental impact than traditional business models"*.

In PSSs, firms do not sell products through 'one off' transactions, but rather provide the use of the product and sell units of services during the period the customer has access over the product (Cook, Bhamra & Lemon, 2006). More specifically, leasing is an example of a user-oriented PSS (u-PSS) (Cook et al., 2006), because the service provider remains the owner of the material artefacts and the end-user purchases the service for a certain period of time. These u-PSS's have largely been adopted in business-to-business (B2B) markets but are less present in the business-to-consumer (B2C) market. Especially durable slow-moving products such as cars and bicycles are suitable for u-PSSs, since the service provider can set up systems for take-back and reuse (Borg, Mont, & Schoonover, 2020; Stahel, 2010). An increasing number of manufacturing companies are transforming towards the so-called 'servitisation': services like maintenance and warranty are included in the service contract and thus belong to the service provider. It is also increasingly addressed in research (Yang & Evans, 2019; Tukker, 2015).

As there is a global need to incorporate sustainability into companies' business models, the PSS business model is promising (Hüer et al., 2018). Research mostly focussed on the sustainability potentials of the PSS business models. Although, these potentials can vary per PSS archetype and from company to company and thus the environmental, economic and social impacts can be different (Yang & Evans, 2019; Tukker, 2004). PSSs have in general six characteristics which could influence ecological benefits (Hüer et al., 2018). These characteristics are:

1. *Substitution*: PSSs implies the substitution of products by services. In other words, the function of the product is sold rather than the product itself. This might reduce the manufacturing of new products as less products are needed to own.
2. *Ownership*: The products are more likely to have a durable design as the provider of the products remains the owner of the products. Additionally, the maintenance of the product is done by the producer, which could extend the duration of the product as well. Nevertheless, this could lead to careless treatment of the product by the consumer (Chierici & Copani, 2016).
3. *Sharing*: This characteristic considers the period of time the product is not utilised; it can be utilised by another user and could therefore mean less products are needed.
4. *Product-life*: The PSS-providers design their products more durable and with prolonged life cycles.
5. *Consumption*: Usage patterns of PSS-users may change by the introduction of a PSS. Often, the introduction of a PSS will increase consciousness about sustainability-issues on stakeholders.
6. *Cooperation*: Working together by sharing information and knowledge along the whole supply chain could provide more sustainable products.

3.4 PSS policy evaluation framework

To be applicable for this research, the OECD framework is adjusted by adding characteristics of the PSS to it, as the company bike is considered a PSS. To investigate the impacts of the policy measure regarding PSS in more detail, this study draws on the PSS characteristics of Hüer et al. (2018). In this way, as the original criterion 'impact' captures the higher-level effects of the policy measure, the characteristics 'consumption' and 'cooperation' are added to the framework as sub criterion of the criterion 'impact'. The sub criterion 'consumption' is defined as "*the extent to which consumers are affected by indirect effects and higher-level changes, i.e., the changes in behaviour".* In contrast, the direct effects of the policy measure are captured under 'effectiveness'. 'Cooperation' entails the collaboration with other stakeholders along the supply chain. These stakeholders could exchange useful information and knowledge to each other in order to make more sustainable products and is therefore important in addressing during this research. 'Cooperation' is formulated as *"the extent to which stakeholders collaborate with each other along the supply chain".* The characteristics 'ownership' and 'product-life' are closely related (Hüer et al., 2018). Both describe its likeness for a durable design and the ownership of the product by the service provider. Therefore, these are merged into the newly formed characteristic 'durable design' and added as sub criterion to the criterion 'impact' as well. This criterion is described as *"the extent to which the products have a more durable design and aim for prolonged life cycles, as the service-provider remains the owner of the products"*.

Further developing the framework, the criterion 'sustainability' is excluded from the OECD framework during the evaluation. Sustainability is described as the possibility the benefits of the intervention will last. Since it is an ongoing policy measure, which is recently introduced, the long-term benefits of the policy measure cannot be measured yet. Some characteristics of Hüer et al. (2018) are also not taken into account, e.g., 'sharing' is excluded from the framework, since the lease construction does not

allow it to other end-users to utilise the bicycle. The characteristic 'substitution' is rather a general characteristic. In addition, the substituted tangible products by intangible services provided for u-PSSs, such as repairing and end-of-life handling, are not novel, as these are available to owned products as well, but the bundling of these services is novel (Borg et al., 2020). However, the characteristic 'durable design' already covers the services that contribute to the extension of the product's life cycle. Therefore, the characteristic 'substitution' is excluded from the evaluation.

Each (sub) criterion has one or several categories it is examining. The categories are formulated based on the definitions of the (sub) criteria, as given in 3.2 and 3.3, and the descriptions of the OECD (2019). Also example questions formulated by Dige & Dilling (2017) are used as an example for these categories. Thus, for the criterion relevance the categories 'Intervention is relevant for its objectives' and 'Fit with the needs it tries to fulfil' are applied, since these together cover why the company bike measure is necessary and if this measure is the right tool to realise the desired outcome. The criterion coherence measures the consistency with other interventions related to the company bike measure or executed by the relevant institution and therefore has the category 'Consistent with other international/national/local interventions'. The criterion efficiency has the categories 'Economical use of resources (inputs: funds, expertise, natural resources, time, etc.)', 'Alternatives for policy measure', and 'Management of the policy measure'. These address if the resources needed for the policy measure are used in an efficient way and if its management is adequate, also in relation to other interventions with somewhat the same objectives as the company bike measure. The criterion effectiveness has the categories 'Direct or primary effects regarding achievement of objectives', 'Extent to which target group is reached', and 'Unintended effects regarding objectives and interactions with the pandemic'. These categories cover the effects, both intended and unintended, on the target group caused by the intervention in relation to the objectives set. At last, the criterion impact, and with that its sub criteria, has the categories 'Stimulate durable design', 'Bringing about behavioural change', and 'Stimulate interactions along supply chain'. These categories address the higher-level effects of the company bike measure on the durability of the design of the bike, the behavioural change of the stakeholders, and the interaction among the stakeholders in the supply chain of the company bike measure. This results in the framework below (Table 3).

Table 3: Topics to examine per criterion.

Criterion	Sub criterion	Category
Relevance		• Intervention is relevant for its objectives*
		• Fit with the needs it tries to fulfil*
Coherence		• Consistent with other international/national/local interventions*
Efficiency		• Economical use of resources (inputs: funds, expertise, natural resources, time, etc.)*
		• Alternatives for policy measure*
		• Management of the policy measure*
Effectiveness		• Direct or primary effects regarding achievement of objectives*
		• Extent to which target group is reached*
		• Unintended effects regarding objectives and interactions with the pandemic*
Impact	*Durable design*	• Stimulate durable design**
	Consumption	• Bringing about behavioural change**
	Cooperation	• Stimulate interactions along supply chain**

*= based on OECD (2019)
**= based on PSS concept

4. Methodology

To answer the research question, a qualitative research approach was chosen, as it is suitable for this ex-durante evaluation. In this research, interviews form the basis to ground the fulfilment of the OECD criteria, supplemented with literature, and to eventually give recommendations in order to potentially improve the policy measure. This in-depth research is useful for the policy measure of the company bike, since it provides extensive insights from different kinds of stakeholders, which could be helpful for this relatively new and ongoing measure. To do so, both desk and field research were undertaken.

4.1 Data collection

The first step of the data collection was a literature review of both grey and academic literature. The grey literature was primarily consulted in order to obtain information about the policy measure of the company bike. Mainly, internet sites of the Dutch national government and societal organisations were consulted. Next to that, research executed by MuConsult has been utilised. Additionally, academic literature provides information about the PSS approach, specifically in relation to the concept of leasing, and information about the evaluation framework. Both grey and academic literature have been applied in order to provide context to the policy measure and to develop the evaluation framework and interview questions.

The second step was conducting semi-structured interviews with several stakeholders. The interviews were recorded and conducted online via Microsoft Teams in order to take the COVID-19 restrictions into account. Via these interviews, the evaluation criteria, as listed in the theory section (see 3.4), were examined. Table 6, at the end of section 4.2, provides a full overview of interview questions assigned to the (sub) criteria and stakeholders interviewed. The interviewees were found via the network of MuConsult, desktop search of the internet, Lexisnexis, LinkedIn, Twitter, Facebook and Instagram. Through snow-balling, more interviewees were found. Through this, it was tried to get responses from different types of stakeholders, e.g., both public and private organisations, varying from small to large. Table 4 below gives an overview of the people interviewed.

Table 4: List of interviewees with their characteristics.

Interviewee	Description	Level of operation
Policy maker 1	Man, working for the Ministry of Finance for several years	National
Policy maker 2	Man, working for the Ministry of Infrastructure and Water Management for several years	National
Employee societal organisation 1	Man, working for this organisation for several years	National
Employee societal organisation 2	Man, working for this organisation for several years	National
Employee leasing company 1	Man, working for this organisation for several years	International
Employee leasing company 2	Man, working for this organisation for several years	International
Employee leasing company 3	Man, working for this organisation about a year and the bike sector for years	National
Employee leasing company 4	Woman, working for several years for this organisation in Belgium	National
Bike shop owner 1	Man, owner of the bike shop with repairment in middle of the Netherlands for several years	Regional
Mobility agent 1	Man, giving advice about mobility (to employers), working together with public and private organisations in the south of the Netherlands for several years	Regional
Mobility agent 2	Woman, giving advice about mobility (to employers), working together with public and private organisations in the middle of the Netherlands for several years	Regional
Tax specialist 1	Women, working as self-employed worker for several years, specialised in company bike and company car	National
Researcher 1	Man, researching mainly cycling and policies for cycling for several years	National
Employer 1	Man, working for social care company of ±3300 workers	n/a
Employer 2	Woman, working for social care company of ±1000 workers	n/a
Employer 3	Woman, working for technical service provider of ±170 workers	n/a
Employer/End-user 1	Woman, working for social care organisation of ±150 workers	n/a
End-user 1	Man, working for IT organisation of ±50 workers, made use of company bike before adjustment in 2020 as well	n/a
End-user 2	Woman, working for trust organisation of ±10 workers	n/a
End-user 3	Woman, working for housing cooperative of ±150 workers	n/a
Employee insurance company 1 (interview done via email conversation)	Handling the insurance for the company bikes	National

4.2 Data analysis

The data analysis is done by a thematic analysis on the transcribed interviews with the help of software program Nvivo. Hereby, connections within and between the transcripts of the interviews are made (Bryman, 2016). To do this, groups of words or sentences with content related to the questions asked are labelled, which is called coding. Then similar labels were grouped under categories they have in common. For this, categories from Table 3 were used. Other additional categories were used as well and subsequently subdivided as sub categories under the categories in Table 3. These additional categories were 'Influence COVID-19' as sub category of 'Achievement of objectives'. 'Assistance and stimulation measure', 'Influence policy makers and politics', and 'measure in other countries' are a sub category of 'Management of the policy measure'. Moreover, during the interviews, memos were made with short notes in order to place the interview or certain questions better into perspective. These notes contain information that could be important to the information given by the interviewee. A note could encompass that the interviewee puts emphasis on certain words for example. Eventually, the results show how the policy measure performs according to the categories, which, in turn, could provide possible policy recommendations. Table 5 below represents how certain text parts are assigned to codes.

Table 5: Text referring to the code it is given in Nvivo.

Text	Code
I am fairly flexible in my working hours. And I don't know if you know this area, but the area is very beautiful. My head is empty, it doesn't take up too much energy, if I cycle a bit faster, I turn the setting on my electric bike a bit higher, so I'm completely convinced. I have had it over a year now and have cycled 7000 kilometres. So just count what I saved on petrol, among others. So, finances were nice and my travel distance is doable (Employer/end-user 1).	*Relevance* – The needs it tries to fulfil
"They had to adjust their own expectations. They thought to sell a lot of bicycles in the market, but that has not happened at all of course (Mobility agent 1).	*Effectiveness* – Achievement of objectives (Influence COVID-19)
"Many employers want to do something with it, but they are struggling with the fact it is not beneficial to everyone" (Employee leasing company 1).	*Effectiveness* – Target group is reached
"You notice that bicycle manufacturers are starting with all kinds of mobility concepts. These are either startups or subsidiaries they establish" (Employee societal organisation 2).	*Impact* – Cooperation – Stimulate interactions along supply chain

Additionally, by recording the interviews, it was possible to correctly capture the words the interviewee said, which increased the reliability of this research. The single source bias is reduced by applying data triangulation; comparisons could be made, since different stakeholders were interviewed with the same (kind of) questions (Mathison, 1988). Also, discussing and interpreting the results of this research with experts of MuConsult has increased the validity. By eventually having made this research, and thus the interview questions, public, the reproducibility is increased. This enables other people to execute this research (Bryman, 2016).

Table 6: Operationalisation table; categories and examining questions assigned to different stakeholders and (sub) criterion.

Criterion	Sub criterion	Category	Question	Stakeholder
Relevance		Intervention is relevant for its objectives	What is the role of [relevant stakeholder] concerning this policy measure?	Policy maker, Employee societal organisation, Employee leasing company, Bike shop owner, Mobility agent, Tax specialist, Researcher
			Why is this policy measure adjusted, do you think? Does this have changed over time? What problem is it aiming at?	Policy maker, Employee societal organisation, Employee leasing company, Mobility agent, Tax specialist
			What did [relevant stakeholder] do before the adjustment of the company bike measure?	Employee leasing company
			Why did you choose to cooperate/facilitate/make use of in the company bike measure?	Bike shop owner, Employer, End-user
			How did you go to work before you had the company bike?	End-user
		Fit with the needs it tries to fulfil	Is the policy measure relevant do you think? Does it fulfil a certain desire?	Policy maker, Employee societal organisation, Employee leasing company, Bike shop owner, Mobility agent, Tax specialist, Employer, End-user
			Are there objectives set concerning this policy measure (internally in the organisation)? Did these objectives have changed over time?	Policy maker, Employee societal organisation, Employee leasing company, Bike shop owner, Mobility agent, Tax specialist, Employer
Coherence		Consistent with other international/national/local interventions	Does the policy measure fit to international/national/local/internal interventions?	Policy maker, Employee societal organisation, Employee leasing company, Bike shop owner, Mobility agent, Tax specialist, Researcher, Employer
Efficiency		Economical use of resources (inputs: funds, expertise, natural resources, time, etc.)	Does the policy measure require any inputs (funds, expertise, natural resources, time, etc.) regarding the policy measure? Are these inputs in proportion to the benefits?	Policy measure, Employee societal organisation, Employee leasing company, Bicycle

				repairer, Mobility agent, Tax specialist, Employer, End-user
		Alternatives for policy measure	Are there besides the company bike measure more bike stimulating measures employees can make use of? What result do they show and why is that caused?	Policy measure, Employee societal organisation, Mobility agent, Tax specialist, Researcher, Employer, End-user
			Are there similar lease products the end-user can make use of regarding the bike?	Employee leasing company, Bike shop owner
		Management of the policy measure	Do you know other countries with a similar policy measure? What do the results show in these countries?	Policy maker, Employee societal organisation, Employee leasing company, Mobility agent, Tax specialist
			Is there any help stakeholders (end-users/employers/etc.) can get provided by other stakeholders/[relevant stakeholder]?	Policy maker, Employee societal organisation, Employee leasing company, Bike shop owner, Mobility agent, Tax specialist, Employer, End-user
			Is the policy measure monitored or will the measure be evaluated?	Policy maker, Employee societal organisation, Mobility agent, Researcher
			How is the company bike measure internally organised?	Employer
			How did you get to know the company bike measure? What do you think about the communication?	Employer, End-user
Effectiveness		Direct or primary effects regarding achievement of objectives	What are the most important direct effects (both positive and negative) caused by the policy measure?	Policy maker, Employee societal organisation, Employee leasing company, Bike shop owner, Mobility agent, Tax specialist, Employer, End-user
			Do you think the company bike measure is effective to let (car) commuters switch to the company bike? What are the main barriers?	Researcher
			Do you think the measure will achieve its objectives (/the companies' objectives)? What are the main barriers?	Policy maker, Employee societal organisation, Employee leasing company, Bike shop owner, Mobility agent, Tax specialist, Employer

			Does the measure help unexpectedly achieve other objectives?	Policy maker, Employee societal organisation, Employee leasing company, Bike shop owner, Mobility agent, Tax specialist, Employer
		Extent to which target group is reached	Is there aimed at a certain target group? To what extent is this group reached? Has this changed over time?	Policy maker, Employee societal organisation, Employee leasing company, Bike shop owner, Mobility agent, Tax specialist, Employer
		Unintended effects regarding objectives and interactions with the pandemic	Does there have occurred unintended effects regarding the policy measure?	Policy maker, Employee societal organisation, Employee leasing company, Bike shop owner, Mobility agent, Tax specialist, Employer, End-user
			Does COVID-19 have (had) any influence on the policy measure? What do you think is the influence?	Policy maker, Employee societal organisation, Employee leasing company, Bike shop owner, Mobility agent, Tax specialist, Researcher, Employer, End-user
Impact	*Durable design*	Stimulate durable design	Can an end-user choose each bike they want? Do they choose a certain type of bike more often?	Policy maker, Employee societal organisation, Employee leasing company, Bike shop owner, Mobility agent, Tax specialist, Employer
			Could you choose each bike you wanted? Which bike did you choose?	End-user
			Does the change in ownership has any consequences, do you think? Does this have any influence on the handling of the bike by the end-user?	Employee societal organisation, Employee leasing company, Bike shop owner, Mobility agent, Researcher, Employer, End-user
			What happens with the bikes after their contract period?	Employee leasing company, Bike shop

				owner, Tax specialist, Employer
	Consumption	Bringing about behavioural change	Do you get the impression end-users changed their travel patterns since making use of the company bike?	Policy maker, Employee societal organisation, Employee leasing company, Bike shop owner, Mobility agent, Employer, End-user
			What is the influence on the adoption of e-bikes or speed pedelecs on the travel patterns of end-users?	Researcher
			How do end-users handle their bike? Do you think the company bike changes the way end-users handle their bike? Do end-users handle the company bike differently than their own bike? What influence does COVID-19 has on this?	Policy maker, Employee societal organisation, Employee leasing company, Bike shop owner, Mobility agent, Employer, End-user
			How do end-users handle their e-bike or speed pedelec compared to a normal bike?	Researcher
			Is it clear for you where to go to if there is something with your company bike?	End-user
	Cooperation	Interactions along supply chain	What does the supply chain of the company bike look like? Which stakeholders are involved?	Policy maker, Employee societal organisation, Employee leasing company, Bike shop owner, Mobility agent
			Do you think the supply chain has changed since the adjustment of the policy measure?	Policy maker, Employee societal organisation, Employee leasing company, Bike shop owner, Mobility agent, Tax specialist
			Are there effects on the cooperation since the adjustment of the policy measure?	Policy maker, Employee societal organisation, Employee leasing company, Bike shop owner, Mobility agent, Tax specialist
			What is your opinion about the leasing company, bike shop or other stakeholders regarding the company bike measure?	Employer, End-user

4.3 Internship company

This research included an internship at MuConsult for the period mid-February till the end of June. MuConsult is located in Amersfoort, the Netherlands, and is an independent research and consultancy company focussed on mobility (MuConsult, 2020a; MuConsult, 2020b). During the establishment of the company, the founder, Prof. dr. Henk Meurs, wanted to make the combination between academic

research and task-directed policy research. Therefore, this company was a good location for doing the internship.

MuConsult has mostly helped provide information and knowledge in fulfilling the data collection. More specifically it provided in-depth information for the literature review and stakeholder contacts for the interviews. As a result, the research provides MuConsult a policy measure evaluation of the company bike. This will be useful for MuConsult, as new insights could be given concerning the company bike. Besides, as the company bike is an example of a PSS, MuConsult could use the framework for other PSS-related policy measures and develop knowledge about this topic.

4.4 Reflection on ethical issues

In conducting research, the main ethical issues are: 1) informed consent, 2) beneficence (do not harm), 3) respect for anonymity and confidentiality, and 4) respect for privacy (Fouka & Mantzorou, 2011). For this research, the ethical issues related to the data collection, handling and storage were addressed in the following ways: Regarding the informed consent, for the conducted interviews, the interviewees signed an informed consent form before conducting the interview. This has protected the interviewee from autonomy. Beneficence includes the mandate to do effective and significant research, which does not harm. This research has strived to do not collect sensitive information or be harmful. The third ethical issue is guaranteed by giving participants the option to join the study anonymously if they wanted to. The privacy of the interviewees is guaranteed by processing the data according to the General Data Protection Regulation (GDPR) guidelines. Merely necessary contact and personal information were stored. The contact and personal information of the interviewees were stored only as long as the duration of the research. Afterwards, these data were deleted.

5. Results

In this section the relevant comments and remarks are presented as conducted by the stakeholder interviews and literature research. It will be discussed on the basis of the criteria used, shown in Table 3. Each section will start with the definition of the criterion, as cited in the theory section, whereafter the results of the relevant criterion are presented.

5.1 Relevance

The extent to which the intervention objectives and design respond to beneficiaries', global, country, and partner/institution needs, policies, and priorities, and continue to do so if circumstances change.

5.1.1 Intervention is relevant for its objectives

The relevance of the company bike measure is broadly acknowledged by the interviewees. The interviewees realised the need for a healthier and environmental friendlier transportation mix. Cycling is seen as a mode of transportation which is important for a sustainable future for mobility for commuter traffic. The employers see the company bike as a tool to let employees come to work sustainably. Before 2020, it was possible to lease a bike, but barely any employee did it and it was not clear, according to Policy maker 1, 2, Employee leasing company 2 and Tax specialist 1, because

employees had to note their business as well as private driven kilometres with the bike and caused therefore a burden. Even though this is what the end-users had to do, almost no one did it (Tax specialist 1; End-user 3).

There are several reasons why companies choose to facilitate the company bike measure; Employee leasing company 1 says the three main reasons for companies to offer the company bike is sustainability, vitality and loyalty to their employees. Also, letting their employees switch from cars to bikes can save them a lot of money. Research from Automobiel Management et al. (2021) shows costs are the most important for companies regarding commuter traffic, followed by employee satisfaction, productivity and vitality of the employees respectively. Especially in cities, land could be very costly. If fewer parking spots are needed, as more employees go by bike to work, the parking places could be redesigned or sold, which saves money (Policy maker 2; Employee leasing company 2). Employer 1 did this and in exchange for that they paid the company bikes for their employees. With this switch, it enlarges the employees' accessibility by reducing travel time, as the accessibility of bikes is higher as for cars in the urban area they are in. Besides, they conformed to a Green Deal and tried to reduce parking costs of cars (Employer 1). Another motivation was to attract new employees by offering a company bike, as the company is located remotely (Employer/end-user 1). According to Business Insider (2020b), an electric company bike is symbol for a sustainable image of companies and above all, it can contribute to an appealing appearance of the employer's brand. Sustainable companies are highly valued by young employees. Moreover, Tax specialist 1 thinks that company bikes are part of Corporate Social Responsibility.

The government is increasing the pressure to make the change towards a more sustainable transportation mix. The Dutch cabinet proposed a concept measure to reduce CO_2 emissions for commuting and business traffic for companies with more than hundred employees. Presumably, this legislation will start on the 1st of January of 2022. For the companies count a maximum emission of the determined Dutch average emission for commuting and business traffic. The companies which need to take action get four years to accomplish this (Ministerie van Infrastructuur & Waterstaat). Consequently, this fits well with the company bike measure. In contrast, small and medium sized enterprises feel less pressure to offer such a company bike measure, as they do not have strict demand of the government and, besides, do not have to make annual (sustainability) reports and critical shareholders to satisfy (Mobility agent 2).

5.1.2 Fit with the needs it tries to fulfil

The adjustment of the policy measure originates from different groundings. For the Ministry of Finance, the primary reason for the adjustment of the company bike measure was to simplify the calculation for the private use of the bike. This means there is not a specific target group (Policy maker 1). To stimulate bike use and contribute to a more sustainable and healthy way transportation was hoped to be an immediate cause of the adjustment of the measure and therefore to make it more attractive for employees to travel by bike to work (Policy maker 1). In contrast, for ANWB et al. (2017) this was their primary reason to plead for the adjustment of the company bike measure. Nevertheless, it gave companies a full-fledged option to stimulate cycling to work and is therefore an extension to the tools an employer has to stimulate cycling to work.

All the interviewees see the adjustment of the company bike measure as positive, since it gives them more options to let their employees travel by bike to work. Although, Mobility agent 2 also finds it a downside, since it makes it more complex to keep the overview of all the measures, especially for the employers and employees. Nevertheless, the measure is not relevant to everyone. For example, for

employees who live close to work, as is mentioned in the employer's survey of the Ministry of Infrastructure and Water Management (2020). Moreover, Employer/end-user 1 thinks the measure is not applicable to anyone, but many people are triggered by the measure; they are curious about it. Also, Employer/end-user 1 says the possibilities for bonuses or other tokens of appreciation in the health care sector are limited; giving a company bike is one of the small things you can do for your employees.

Employee leasing company 1 thinks this measure is relevant to three groups of people: the people with a company car, the people with a public transport card and the third group is the people who live close to work. These groups are about 70% of the employees. The first two groups already do not receive travel cost compensation. Normally, when taking a company bike, you lose the right to get travel cost compensation on the days you are travelling with the company bike, but if these groups take a company bike, they still do not get any travel cost compensation. The third group does not get travel cost compensation at all sometimes or this amount is relatively low (Employee leasing company 1).

5.1.3 Summary relevance

The relevance of the policy measure is determined by the extent it responds to certain needs. The policy measure can be seen as relevant, since the need for a more sustainable and healthier transportation mix is broadly acknowledged and the interviewees think the company bike measure can help make that transition possible. It gives employers more options to facilitate cycling to work and renews the old company bike measure. With this adjusted measure, the Ministry of Finance wanted to make it easier to make use of the company bike measure, since it was not functioning well.

Companies each have their own reasons to choose for the company bike measure, but most of them choose for it, since it improves sustainability, the vitality of the end-users, the loyalty to the end-user, and it reduces costs. It could also help improve the image of the company. In order to make the switch to transportation by bike, companies are sometimes forced by critical shareholders, annual (sustainability) reports they need to make and the potentially new policy, even though this pressure is often lacking for small and medium sized companies.

However, the measure is not attractive for every employee. In general, the measure is relevant to three groups of people: the people with a company car, the people with a public transport card and the group of people that do not receive travel cost compensation. These groups contain about 70% of the employees.

5.2 Coherence

The extent to which the intervention is compatible with other interventions in a country, sector or institution.

5.2.1 Bike stimulation

As the bike is acknowledged as a healthy and sustainable mode of transportation, governments on all levels are trying to stimulate bike transportation in several ways. Consequently, in line with the Choose the bike campaign, there is a specific focus on the employer to stimulate commuter traffic by bike. As a result, fifteen bike ambassadors are acting as an example of how to stimulate cycling to work for the sector they are in (Rijksoverheid, 2020). Besides, (infrastructural) measures are undertaken to improve

bike transportation, for instance by improving the safety on the bike lanes, extending and improving bicycle sheds at train stations, building fast lanes for bikes, as well as by using data and innovations and holding campaigns (Gezonde Leefomgeving, 2021; Dutch Cycling Embassy, 2021).

The employer also has some tools at its disposal to stimulate commuter traffic, besides the company bike measure. In general, there are three interventions an employer can take to stimulate cycling to work (MuConsult, 2019):

- compensations: cash benefit for usage of mode of transportation, such as travel cost compensations or a monthly fee.
- measures: (fiscal) measures to purchase a bike or for shared mobility, such as the company bike, bike sharing, and to purchase a bike via the work cost regulation, etc.
- facilities: provide bike sheds, facilities for charging, showers, etc.

An employer could make use of all three interventions combined (MuConsult, 2019). In practice 47% of the organisations offer their employees measures for cycling, which means 57% of the employees can make use of it, as bigger companies offer more often measures for cycling. In contrast, one third of the companies are not offering any of the measures for cycling to their employees. Only a quarter of the employees who get offered measures for cycling make use of it, of which half of them are living within 7.5 kilometres from work. In addition, 75% of the companies are offering measures of cars. There is thus still a large potential extent of the employees who can make use of the measures for cycling (MuConsult, 2019). Table 7 beneath gives a short overview of the fiscal incentives the employers have in their toolbox. They are not obliged to facilitate these, but they have the possibility to do it.

Table 7: Overview of all fiscal incentives related to cycling an employer could provide to their employees (Zuid-Limburg Bereikbaar, 2021).

Fiscal incentive	Explanation	Part of work cost regulation
Travel cost compensation	The employer may compensate a maximum of €0.19 per kilometre tax-free, but may also compensate less.	No
Company bike measure	-	No
Bike is bought for employee or contribution is given by employer	The contributed amount of the employer is accused of the work cost regulation.	Yes
Interest-free loan	The employer lends out the costs of the bike to the employee without interest.	No
Cafeteria measure	The employee's share can be bought with gross salary parts as vacation days, bonuses, vacation money or the regular periodic wage. Also possible in combination with the company bike measure.	No

5.2.2 Consistent with other international/national/local interventions

Regarding the internal coherence, the consistency of the policy measure between other interventions carried out by the Ministry of Finance, according to Policy maker 1, the measure is coherent. It is one of the options an employer has to stimulate cycling for commuting traffic and these options, including the company bike measure complement each other. *"The goal was to simplify the calculation of the private advantage you experience, that's it"* (Policy maker 1).

Nevertheless, there are many interviewees struggling with the rivalry between the company bike measure and the tax-free travel cost compensation of a maximum of €0.19 per kilometre. Some interviewees did not expect this beforehand. The company bike measure could be less financially beneficial to certain groups of employees, also since the employers determine themselves what their contribution is to the company bike of their employees. To many end-users, the company bike measure is less favourable than they thought it would be, which can partly be caused by the way it is marketed as said earlier in this chapter. The Cyclist association developed a tool to calculate which scheme, the travel cost compensation or the company bike, is more favourable to the employer's situation (Fietsersbond, 2019). Policy maker 1 was surprised that people raised the question why they lose their travel cost compensation, as people with a company bike do not have travel costs.

Here, an example will be given of the comparison between the company bike and the travel cost compensation. If the employee has a salary of €35,000 a year and wants a bike of €2000. The annual addition with 7% is €140, in case of the company bike. The costs for the employee are then €58 net per year and €174 over three years. If the employer only wants to contribute a little share to the bicycle, the employee has to contribute the remaining amount. Pretend the employee has to contribute €40 a month, after a period of three years, the employee contributes €1440. The total sum is then their contribution plus the addition, which is €1614 in this case. If the employee lives 14 kilometres from work, works five days a week, and receives €0.19 tax-free travel cost compensation, the employee could receive an amount of (28 (14 km back and forth) x 5 (weekdays) x 52 (weeks a year)) – 28 (kilometres) x 25 (free days) x 3 (years) x €0.19 =) €3,750.60 over three years. With this travel cost compensation over three years, the bike could be paid. When comparing this to the contribution done to the company bike, the travel cost compensation is more favourable. However, the company bike measure has an incorporated service and maintenance contract, which could save the company bike owner some costs and strain, even though the end-user sometimes has to pay a deductible excess. Additionally, when making use of the travel cost compensation, the bike is owned by the end-user and thus the bike has a decrease in value over time (Fietsersbond, 2019).

Furthermore, Policy maker 2, Employee societal organisation 1 and 2, Mobility agent 1 commented they would prefer another addition of around 0% or 4%. In preparation for the adjustment of the company bike, the electric car had an addition of 0% and later 4%. These interviewees said it would be understandable to set all zero emission modes of transportation on the same level of addition. The interviewees think the addition for the company bike should be as low as possible since bikes are a very environmental and healthy friendly mode of transportation, even though they think the current 7% addition is fair.

Moreover, many interviewees note that the measure is not coherent in the way that the VAT can be subtracted only over a maximum amount of €749, which is around €130. The VAT over the remaining amount cannot be subtracted as opposed to other business-related costs like laptops and calculators for example. Tax specialist 1 adds to this *"Over the income tax the bike can be subtracted and over the corporation tax too, but for the turnover tax you need to make another calculation which is partly subtractable"* (Tax specialist 1). As a consequence, employers which lease a bike need to track each month whether the amount of €130 is exceeded. This forms a new problem according to Tax specialist 1. Moreover, when an employee has to pay a contribution to the bike, also if this contribution is provided via the cafeteria measure, 21% tax should be paid over the contribution of the employee by the employer (Belastingdienst, 2021b; Tax specialist 1). This is both the case for financial and operational lease Mobility agent 1 formulates it as *"Anyway, the whole VAT-story and addition, they should discard these. (…) Who wants to have €70 tax a year? Lots of administration, discard it! (…) On the other hand we are spending billions on coal."* (Mobility agent 1). Thus, this maximised subtractable

VAT amount negatively influences the coherence of the company bike measure, especially compared to the car and the different taxes the employer has to take into account.

This determination of the deductibility of the VAT of a bike comes from the 'Besluit uitsluiting aftrek voorbelasting 1968 (BUA)'. Section 1, paragraph 1, subpart c states that an employer has no right to deduct tax on goods and services which are used by the employee for private objectives. The car is an exception to this. Article 1, paragraph 3, subpart c 1° describes the VAT deduction for the bicycle is maximised on €749 and 21% tax should be paid over the contribution of the employee by the employer (Belastingdienst, 2021b).

To clarify this, an example as given by Belastingdienst (2021b) will be given: if the employer leases a bicycle for the employee with a lease value of €1500, including VAT of €260. The employer can deduct up to a maximum of €130 VAT on the invoiced lease instalments. The employer cannot deduct the other VAT on the lease instalments. If you request a personal contribution from the employee, you must pay VAT on this.

Regarding the external coherence, the consistency with other actors' interventions, the company bike measure fits well with the interventions taken in the Netherlands (Employee societal organisation 1, Mobility agent 2, Researcher 1). The Netherlands is the classic example when it comes to cycling. Especially the infrastructure gives a good basis to support cycling. An example is the cycling highways which provide good infrastructure for interurban bike transportation. E-bikes mainly can take advantage of these cycling highways as their advantage in city centres is nihil, but at interurban trajectories is reasonable if there is good infrastructure (Researcher 1).

5.2.3 Summary coherence

The coherence of the policy measure is determined by the compatibility of the measure with other interventions. On the one hand, regarding the internal coherence, there is friction about the disappearance of the travel cost compensation on the days the end-user is coming by company bike to work. Some think this is logical, as the end-user does not have any travel costs any more, others think it is important that the end-user still can get the travel cost compensation in order to stimulate the company bike. Besides, many interviewees do not understand the height of the addition, the maximisation of the VAT, and the tax that should be paid over the contribution of the employee. These need to be more favourable for the employers and end-users in order to stimulate the company bike. This friction with the VAT and travel cost compensation affects the coherence of the company bike measure negatively, especially when compared to the car and the different taxes the employer has to pay. On the other hand, the company bike measure gives the employer more (fiscal) instruments to stimulate cycling for its employees next to the measure it already can take. The employer is not obliged to offer all of those, but at least has the possibility to do so.

Furthermore, regarding the external coherence of the company bike measure, the measure fits with the other interventions taken in the Netherlands. The government tries to stimulate bike use by undertaking several things, for instance, by improving the safety on the bike lanes, extending and improving bicycle sheds at train stations, and using bicycle ambassadors to promote cycling.

5.3 Efficiency

The extent to which the intervention delivers, or is likely to deliver, results in an economic and timely way.

5.3.1 Economical use of resources (inputs: funds, expertise, natural resources, time, etc.)

Even though the adjustment of the company bike measure was initiated by the societal organisations, the adjustment has made it administratively easier for the relevant Ministry to verify the correctness of the administration of the company bikes by the employers and employees (Policy maker 1). At the moment, the fixed addition is calculated in the same way as for the company car. Therefore, it is recognisable for both the employees of the Ministry of Finance and the employers, which they have to do on the tax on employment income. The company bike measure is structurally aimed to be budget neutral by the Ministry of Finance (Tweede Kamer der Staten Generaal, 2018). This means this adjustment of the measure would not cost nor yield money net. The Dutch tax authority's expected execution costs of the measure were approximated around €720,000 in 2020 and decreases each year to €320,000 in 2023 (Tweede Kamer der Staten Generaal, 2018). However, these costs are expected to be earned back, as the policy measure is aimed to be budget neutral.

The realisation of the adjustment of the company bike measure went relatively smoothly. It lasted only a few years (Policy maker 1, 2, and Employee societal organisation 1). The broadly supported position paper composed by the societal organisations convinced the Ministry of Infrastructure and Water Management and Ministry of Finance in this time period, as they both acknowledged the advantages of it as well. Policy maker 2 and Employee societal organisation 1 see the responsible Ministers of both departments, the Ministry of Finance and Infrastructure and Water Management respectively, both from the social liberal and progressive party D66, as a reason for the smooth process of the change in the measure, although Policy maker 1 disagrees this, and sees it as a coincidence.

Regarding companies, the resources needed for the company bike measure differ from employer to employer. Many interviewees argue that most of the effort and costs of the company bike are for the employer. Especially for small and medium sized enterprises the company bike costs much strain and relatively large costs. The bigger companies have an automated loan administration, enough money to hire an expert on tax and law, and have a separate HR department, which can focus on such topics (Mobility agent 2 and Tax specialist 1). However, at the larger companies it takes more to arrange such a measure, since there is much hierarchy and bureaucracy in these companies (Employee leasing company 2; Hofman, 2020). Additionally, companies are willing to implement the company bike measure, but it costs them too much effort to arrange it. *"You need to put a dedicated person at it, but many companies do not have that possibility or do not want to do that. They have no time or it yields too less"* (Employee leasing company 3), Employer 3 agrees on this.

The interviewees find the measure flexible, which is seen as a positive effect on the one hand; the employer has more possibilities to offer to the end-user to travel by bike to work and the days the end-user is not coming to work by bike, they could declare their travel costs (Policy maker 2, Employee leasing company 1, Mobility agent 2). On the other hand, it is seen as a negative effect since it causes a high administrative burden and paperwork (Policy maker 2, Employee leasing company 1, Employee leasing company 3, Mobility agent 1, 2, Employer 3). This paper work and administration is demonstrated in several ways. For example, for each day the employee is traveling to work, they have to prove that they are traveling with the mode of transportation they are travelling with. So far,

businesses are struggling with this and there is no best way to do this yet (Policy maker 1, Employee societal organisation 2, Employee leasing company 1, Tax specialist 1, Researcher 1).

There are different ways businesses try to arrange this administration. Some businesses write down on paper on which days they travelled with which mode of transportation, others use apps or just Excel documents. In Belgium, where this lease concept is longer there, did not find a best practice so far (Employee leasing company 4). The employers agree on this and presume their employees are honest in this. Some businesses are trying to develop software to overcome this struggle, according to Tax specialist 1. This software works like the black boxes in cars by registering automatically the driven kilometres by bike. Policy maker 1 says a standard ratio could be arranged between the employer and employee, which means a standard ratio the employee is coming by bike to work and car. Even though this is possible to arrange, it could be costly for the employer, as they have to pay the company bike to a (large) extent as well as the compensation for travel costs on the days the end-user travels by another mode of transportation than the company bike. Additionally, the employee still has to validate how they came to work. In order to ensure the end-user will come to work by company bike, companies may regulate this. Employer/end-user 1 does this by demanding the end-users to come to work by company bike for at least 50%.

Furthermore, there is a lot of flexibility concerning the payment of the company bike. In general, there are three constructions how the payment of the company bike could be done: the end-user pays only 7% addition and the rest is paid by the employer; the employer pays nothing and everything is paid by the end-user; or an intermediate option could be chosen. The employer is also able to buy off the 7% addition of the end-user, as Employer 1 did; this will be part of the work cost regulation. The 7% addition is measured over the suggested list price and not over the bill price, which is done incorrectly sometimes (Tax specialist 1). In case the employer pays nothing, all the costs are for the end-user (Employee leasing company 1 and Mobility agent 2). The height of contribution of both the relevant end-user as well as the employer to the bike is agreed on by them. Sometimes, the budget of the employer is not enough and therefore the employee has to contribute too much to the company bike, which makes it impossible to lease the bike they want and the company bike construction fails for them (Employee leasing company 3). What is possible for each employee should be unravelled. It depends on the employer and employee how they are experiencing the difficulty of this unraveling process. Even though this flexibility offers freedom in the way the employers and employees arrange it, it makes it hard to communicate to the employers and employees given that each employee and employer have a personal situation (Employee societal organisation 2).

Besides, the cafeteria measure, a popular way of paying the 7% addition of the company bike plus a potential contribution, might bring along some risks. In case of the cafeteria measure, the addition plus potential contribution of the end-user is exchanged with the gross salary (parts) of the end-user. In other words, the employee does not have to pay tax over the deducted part anymore, which means the end-user pays net less (Employee leasing company 1). The end-user should take into account and realise that this lowers their gross salary, if they need to make use of social facilities. This means, if they got fired, got disabled for work or got retired, these measures are all based on the gross salary. At the end, it might be less profitable to arrange it via this way (Tax specialist 1). If the employer does not inform the employee about these risks, it might cause difficulties in for example the three scenarios mentioned earlier in this paragraph. The employees, employers and leasing companies are often unknown about the risks of this phenomenon (Tax specialist 1).

5.3.2 Alternatives for policy measure

There are several other options an employer can make use of to stimulate cycling to work, as described in 5.2.1. The Ministry of Finance only enables these fiscal options for employers and sets their frames (Policy maker 1). Other non-fiscal interventions should be composed by for example other ministries, like the Ministry of Infrastructure and Water Management. For instance, this Ministry could do norm setting measures, whereby it is required to go by company bike to work 50% per month or once a week. The employer also is free to fill in the requirements they set (Policy maker 1 and 2). In practice, the possibilities to stimulate cycling to work differ from company to company. This is also dependent on the collective labour agreement (Employee societal organisation 1, Researcher 1, and Employer/end-user 1). It is hard to compare companies with each other as each company can choose via which ways they will give their employees the availability to offer a bike. Some companies simply do not offer their employees a company bike, the tax-free travel cost compensation or one of the other options. Not all companies are offering this to their employees, sometimes because they do not even know this possibility exists for the bike (Policy maker 2, Employee societal organisation 1).

The interviews sometimes preferred other interventions. Policy maker 2, Employee societal organisation 1 and Mobility agent 2 consider the travel compensation as the best alternative to the company bike measure, as it is simple to implement and understand and applicable to everyone. The travel cost compensation could also be applied together with the interest free loan. A disadvantage of this loan is that the costs for the cycling fleet cannot be spent on something else anymore (Mobility agent 2). Other employers provide a mobility budget. With this budget the employee can do whatever they want considering their commuter traffic (Researcher 1). Employer 2 prefers to have more budget in the work cost regulation. During the pandemic, this was raised from 1.7% to 3% over the total wage sum of the employees till €400,000. The remaining amount is 1.18%. When the amount is exceeded, 80% over the exceeded amount should be paid as a fine (Rijksoverheid, 2021b). Employee societal organisation 1, Mobility agent 2, Employer 3 also preferred the 'old company bike measure' as they mentioned it. This contained the option to provide a €750 tax-free reimbursement for bicycles once every three years. Mobility agent 2 adds, this amount should be raised to €1500/€2000, as more expensive bikes, such e-bikes and speed pedelecs, are on the market and are more suitable for commuter traffic. The interviewees preferred mostly these alternatives, as they are not committed to a contract, it is a one-off transaction and arrangement, and the tax-free travel cost could be retained.

Besides these fiscal measures, companies occasionally are also trying to stimulate cycling by facilities, like a bicycle sharing system (Employee leasing company 1 and Employer 1) and expanding the bike shed for instance (Employer 3). Also, Employer 2 makes use of an app to stimulate cycling. This app stimulates cycling by rewarding it, not only in cash. However, these facilities have fewer focus for the interviewed employers than the fiscal measures and compensations.

When comparing the company bike with the company car, leasing a car before 2020 was easier than leasing a bike, as said in 2.2. At the moment, this is not the case anymore, finds Policy maker 1 and Tax specialist 1, as opposed to Mobility agent 1 who still finds it is the case. Employee leasing company 2 says the lease car market is more professional and uniform than the lease bike market, for example in its administration systems, and therefore user-friendlier to the market in general. According to Employee leasing company 3 and End-user 1, the bike lease market can learn a lot from the car market. If the company bike is broken, a replacement bike is offered and there are more spare components on the market. *"Bike shops are in general small one-man businesses, although there are nowadays more chains which do have more locations, but you notice that it is a whole different market and the expectation is, I think, if you have a very expensive lease contract, that you expect more than an average bike shop can deliver."* (End-user 1).

5.3.3 Management of the policy measure

At the moment, the Ministry of Finance does not intend to adjust the policy measure in the near future (Policy maker 1). The Ministry also does not have any contact with one of the initiators of the position paper or the Ministry of Infrastructure and Water Management about this measure specifically anymore, only if an immediate cause will emerge. The same counts for the design of the measure; for now, the design is completed, according to Policy maker 1.

Belgium and Germany are the only countries which know a comparable company bike measure outside the Netherlands. In both countries the measure was already in force a couple of years before the measure in the Netherlands got changed. According to Employee leasing company 1, 2 and 4, the measures in Belgium and Germany are financially more attractive for employees and employers. However, policy maker 1 and Employee societal organisation 1 mention that it is hard to compare countries with each other, since the infrastructure and the tax systems are hard to compare for instance. Therefore, the policy makers in the Netherlands did not study the company bike measures in the other countries to learn lessons from or base the Dutch company bike measure on for example. They said, the functioning of the company bike measure is for example also depending on the other measures that are offered for the bike in a country. In contrast, Employee leasing company 1 and 2 did study the measures in Belgium and Germany and believe that the amount of company bike users will grow strongly in the coming years. Nevertheless, what we can learn from both countries is that it might take time for such a measure to succeed.

5.3.4 Summary efficiency

The efficiency of the company bike measure is determined by the extent to which the measure delivers, or is likely to deliver, results in an economic and timely way. As the policy measure is budget neutral and requires fewer administration compared to the policy measure before its adjustment, the policy measure can be seen as efficient. The Ministry of Finance did not learn lessons from comparable measures in other countries, such as in Belgium and Germany, as it is hard to compare such measures in different countries. Nevertheless, we can learn from these countries that it might take time to succeed.

The Ministry of Finance enables companies to offer a variety of fiscal interventions. Other alternatives, such non-fiscal interventions, come from other ministries. Not every sort of compensation, measure or facility to stimulate cycling is applied by each company, since this sometimes depends on the collective labour agreement or companies prefer other interventions as these are not committed to a contract, are one-off transactions and the tax-free travel costs could be retained.

The efficiency within companies sometimes depends on the other measures the company offers as well as the size of the company. Especially for the small and medium sized companies, it could cost the company a lot of effort and strain in order to arrange it, as they have less resources. However, at larger companies it takes more time before the measure is implemented, because of a stronger hierarchy and bureaucracy. Moreover, the company bike measure can cause a high administrative burden and paperwork for the employer as well as the employee, since the end-user has to prove how they came to work. So far, there is no best practice in how to prove this. In contrast, the company bike measure offers the end-user more flexibility. There is also flexibility in how much the employer contributes to the bike and how this is paid by the employee. Nevertheless, the employer has to inform the employee about all the risks some payment methods bring along, as with the exchange of the gross salary, the cafeteria measure. This is often not done yet.

Furthermore, when comparing the company car with the company bike, some think leasing a car is as easy as leasing a bike, but others not. At least there are some differences and the company bike measure could learn from the company car measure, for example in professionalisation and uniformity.

5.4 Effectiveness

The extent to which the intervention achieved, or is expected to achieve, its objectives, and its results, including any differential results across groups.

5.4.1 Direct or primary effects regarding achievement of objectives

The Ministry of Finance did not set strict goals and the measure will not be evaluated by the Ministry of Finance, since this measure is just a simplification of a measure and not a tax expense (Policy maker 1). Also, other governmental or societal organisations did not plan to solely evaluate the company bike measure, as far as the interviewees know so far. However, twice a year the Ministry of Infrastructure and Water Management conducts an employer's survey in which it examines aspects of mobility too, including the company bike measure (Policy maker 2). Additionally, the company bike measure is part of the overarching objectives for cycling in general, e.g., Choose the bike.

The company bike measure is not resulting in the number of bikes sold as the RAI Vereniging and BOVAG proposed (Policy maker 2; Employee societal organisation 2). They expected to sell 150,000 extra bicycles through the measure (Smit, 2019). There is no general register or a VNA (Association of Dutch Automobile companies) for bikes which tracks the number of company bikes (Kiekebelt, 2020; Employee leasing company 2), therefore it is unknown how many people exactly are making use of the measure. The outcomes of the biannually employers survey of the Ministry of Infrastructure and Water Management presented that in May 2020 10% of the employers above hundred employees offered the possibility to make use of the company bike measure (Policy maker 2; Ministry of Infrastructure and Water Management, 2021).

Furthermore, all the interviewees agree that the company bike measure makes it attractive to lease relatively expensive bikes and end-users do so as 90% leases an e-bike, tells Employee leasing company 1. Even a bike of a few thousand euros could only be less than €10 a month for the employee. As a consequence, most of the end-users of the company bike lease e-bikes or speed pedelecs, as its prices are in the higher segment, ranging around €1000 till €3500 for e-bikes and 3000 till €8000 for speed pedelecs (ANWB, 2021b). Some companies even prefer leasing those higher segment bikes, as these bikes become affordable for people who cannot afford themselves a new e-bike or speed pedelec, after the lease period if they enter the secondhand market (Employee leasing company1; Mobility agent 2).

Already before the change of the company bike measure, bike manufacturing companies got a boost of e-bike requests, state bike manufacturers. It is unknown how many e-bikes are sold more through the measure (Smit, 2019). The measure is mainly tempting people to take the bike for commuting. However, people do not often want to lease a bike of around €600 or lower, for example, with all the additional hassle (Employee leasing company 3). The first adopters of the e-bikes replaced normally city bikes with it, except for commuting traffic. For commuting traffic, it mostly replaces the car as a mode of transportation. It is questionable if this is still the case, which is important for the efficiency and effectiveness of the policy measure, as the people adopting an e-bike recently or in the near future

could have other intentions with the bike than people adopting an e-bike several years ago. Future research will need to clarify more about this (Researcher 1).

The interviewed end-users all make use of an e-bike or speed pedelec and indicated they are very content with their company bike; Employer 1 shares this opinion. They use their bikes often for work objectives, and use it for other objectives more as well (Employer/end-user 1, End-user 1, 2 and 3). They also note, they took more expensive bikes, since they could make use of the company bike measure. Employer/end-user 1 and end-user 2 used the car for commuting before they made use of the company bike. Employers 1 and 3 see a little shift from car use to bike use as well, but Employer 3 says most of the end-users already used a bike for commuting in their company. However, this picture is disturbed by the COVID-19 pandemic.

Besides, the end-users note that there are a few important determinants for them concerning considering a company bike. They save costs by not having a car with all its additional costs. End-user 1 said *"I compared it with the costs of the train. That would cost me €150/€160 per month as well and after three years I would neither have a piece of the train, so it was not important for me to have no ownership"* (End-user 1). End-user 3 likes the measure made it possible to lease a bike relatively cheap as well. Besides, they love to free their mind and to be physically active without being completely exhausted. They thus choose an e-bike, which makes their commuting travel more comfortable.

5.4.2 Extent to which target group is reached

The company bike market is still very small (Employee societal organisation 1, 2, Employee leasing company 3, Bike shop owner 1, Mobility agent 2). Additionally, the company bike measure is to a large audience still unknown (ALD Automotive, 2020; Ministry of Infrastructure and Water Management, 2020), agrees Employee leasing company 3. As employers are sometimes not familiar with the measure, the employees sometimes initiate to make use of the company bike measure themselves. Even though 71% of the employees are open to the company bike (ALD Automotive, 2020). More than half of the people see the company bike as a perfect extension to the (company) car or public transport. Employee leasing company 1 and 2 think the company bike market will make big steps in the coming years. Employee leasing company 2 adds, the company bike market will presumably learn much from the company car market and is within five years a mature market.

Furthermore, some interviewees point that the measure's publicity was too positive (Mobility agent 2 and Tax specialist 1). This is caused by the marketing of the company bike measure. It is marketed as *"for only €10 per month you could lease a bike"* (Mobility agent 2). It helped make the measure known for employees and employers, but it also set a wrong expectation throughout the stakeholders and therefore the actual numbers of the company bikes were disappointing (Mobility agent 1 and 2). It caused disappointment at the bike shops as well, as they expected a huge stream of company bikes (Employee leasing company 1). Employer 3 is not amused about the way the measure is promoted: *"I read yesterday "costs the employer nothing", that is nonsense of course. There are still costs for the employer, but it is counted in a different way" (…) "it is promoted as a very favourable measure for employees. That is totally dependent on the contribution of the employer. There are used some one-liners which are not applicable to everyone who makes use of the measure. So, nuancation could be better."* (Employer 3).

Besides, Mobility agent 1 finds that the naming of the measure hinders its success. Many people, even most of the interviewees, name the measure 'leasefietsregeling', but the correct name of the measure is 'fiets van de zaak-regeling' (company bike measure). Policy makers agree that the official name of

the measure is 'company bike measure', however, 'lease bike measure' is used vernacularly, but does not see it as a hindrance to its functioning (Policy maker 1).

Nonetheless, Employee leasing company 1 says it takes time to let the measure work well: *"At the beginning everyone thinks it is complex and it is not immediately good and people want to understand the measure first"* (Employee leasing company 1). The same was in Germany. They also lowered the addition from 12% to 6%, which could have caused a little stimulus as well. Regardless of the specificalities of the publicity of the measure, *"It has caused a lot of publicity that such a measure came and that means that one looks more seriously to cycling as a modality to transport themselves"* (Employee societal organisation 1).

5.4.3 Unintended effects regarding objectives and interactions with the pandemic

The interviewees did experience a few unintended effects. For instance, Employer 2 and 3 and end-user 1 were experiencing trouble concerning the lease contract if the end-user terminates employment they are stuck in the contract of the bike. Tax specialist 1 agrees on this. There are some possibilities to buy the bike or to terminate the contract early, but the possibilities in this depend on the contract and the leasing company (Employee leasing company 2). Furthermore, in Belgium, the success of the company bike measure has led to a substantial increase of e-bikes and speed pedelecs on the bike lanes which jeopardises the safety of the cyclists (Employee leasing company 4). In the Netherlands this could happen as well. An increase in the number of cyclists in the Netherlands will require adjustments to the current infrastructure: *"At the moment the cycle paths are already packed and the number of accidents involving bicycles is still increasing every year"* (Termaat, 2020), according to ANWB. Besides, According to BOVAG (2018) and Van den Steen, Herteleer, Cappelle & Vanhaverbeke (2019) the unclearness about the traffic rules for speed pedelec and with that the related safety hinders the success of the speed pedelec.

Besides, it seems like the measure is influenced by the COVID-19 pandemic. It is unknown how the company bike measure will be influenced after the pandemic, since the pandemic expectedly influences our mobility utilisation (De Haas, Hamersma & Faber, 2020). During the pandemic, people are hesitant to take public transport, but more people are cycling and even after the pandemic 20% of the Dutch citizens expect to cycle more than before the pandemic. Also, it is hard to extract the influence of the pandemic on the company bike measure. What can be said, is the bike utilisation in general. During the pandemic, people are cycling slightly more than before the pandemic, even people were forced to work from home if possible. People are driving more by bike in their free time and the bike is used as a replacement of public transport, which is tried to be avoided (De Haas & Hamersma, 2020). Employee leasing company 1, 2, and Mobility agent 2 indicate that vitality has become a more important topic for employers and employers. Employer 1, 2 and 3 mention this as a reason for choosing to facilitate the company bike measure and Mobility agent 2 says the pandemic has let people realise vitality and healthiness is important. This caused an extra stimulation in employee's healthiness and thus a bigger interest in cycling. Policy maker 2 expects to see next year what the real consequences of the COVID-19 pandemic are with respect to mobility.

An additional effect of the pandemic is a delay in the delivering of components of the bikes and thus the bikes itself (Employee leasing company 2, Employer 1 and 3). Especially overseas products are delayed. Besides that, *"A ship that is stuck in the Suez Canal is not helping either"* (Employee leasing company 2). Waiting half a year for your ordered bike is just normal during the pandemic, nevertheless the bike industry is flourishing through the high demand of bikes (Stooker, 2020; Ackermans, 2021). In case the waiting time is very long, a temporary bike could be delivered sometimes (Employer 1).

Additionally, a side effect of the pandemic is that people who already had a company bike before the pandemic and now work at home use their bike less and pay for the bike without using the bike (Mobility agent 2). Also, employers have been busy with other things than the company bike during the pandemic. The company bike had less priority (Employee societal organisation 1, Employee societal organisation 2, Employer 1; Hofman, 2020). Overall, it is expected the company bike has slightly benefited from the pandemic. Even though it is still unknown what will be the trend if the pandemic is over (Employee leasing company 1, 2, 3 and 4).

5.4.4 Summary effectiveness

The effectiveness of the company bike measure is determined by the extent to which it achieved, or is expected to achieve its objectives. There are no specific aims regarding the policy measure, but it did not result in the 150,000 extra bicycles the RAI Vereniging and BOVAG proposed. Research from the Ministry of Infrastructure and Water Management showed around 10% of the employers offered their employees the possibility to make use of the company bike around May 2020. The measure might only be examined by the employer's survey of the Ministry of Infrastructure and Water Management, which is conducted twice a year.

The company bike measure could make it attractive for the employee to take a relatively expensive bike, i.e., e-bikes and speed pedelecs, as the majority of the end-users do. As a consequence, the end-users are using their bikes a lot more for both business and private objectives. If there is a present shift from car use to bike use to bike use by the current generation e-bike adopters for commuter traffic, is unknown yet. Besides, the interviewed end-users appreciate the company bike because it frees their mind, it keeps them active without being exhausted and it enlarges their comfort in comparison with the city bike. However, there is some confusion about the measure concerning the presentation of the measure. It is promoted as a very beneficial measure for both the employer and the employee, but in reality, the costs of the company bike for both are dependent on the contribution the employer makes to the company bike. In any case, it caused a lot of publicity, but still the company bike measure is to a large share of the employers and employees unknown.

Furthermore, the interviewees experience some unintended effects. For example, some of the interviewees are experiencing troubles with the company bike if the employee terminates employment; this depends on the lease contract presumably. Besides, if the adoption of the company bike measure increases a lot in the coming years, it could result in (even more) packed bike lanes and possibly jeopardise the safety, as is going on in Belgium. Besides, it seems like the measure is influenced by the COVID-19 pandemic. Many employees are working from home to a large extent and the delivering of the components of the bicycles takes longer through which the delivering time of the bikes can take even half a year.

5.5 Impact

The extent to which the intervention has generated or is expected to generate significant positive or negative, intended or unintended, higher-level effects.

This criterion will be elaborated by means of discussing the three sub criteria 'durable design', 'consumption', and 'cooperation', as subtracted from the PSS concept, successively.

Durable design

The extent to which products have a more durable design and aim for prolonged life cycles, as the service-provider remains the owner of the products.

5.5.1 Stimulate durable design

There are not specific bikes manufactured especially for the company bike market (Employee leasing company 1, 2, 3, 4 and bike shop owner 1). All sorts of bikes can be leased according to the measure. Consequently, there is not focussed on a more durable design for company bikes, as the company bikes are at the moment just normal bikes. Employee societal organisation 2 and Employee leasing company 3 mention that the company bike market is too small to make specific company bikes at the moment. In general, the company bikes are a sustainable mode of transportation and the bikes are becoming more and more sustainable, but that has nothing to do with the company bikes (Employee leasing company 1, 3 and 4). The components of the bike are manufactured in South East Asia to a large extent and their sustainability standards are not as strict as in the Netherlands, which means there is a lot to gain on that part (Employee leasing company 3). In order to partly overcome that, Employee leasing company 1 tells they set up a list with most sustainable bicycle brands and bikes and offers this list to their clients if they ask for it.

Besides, the end-user can choose each bike they want, but in practice it is not always the case. Despite that, all the interviewees think it is good to give the end-user options to choose from. These options should not be limited as a bike is a very personal utensil (Mobility agent 2). Employee leasing company 2 listed a number of brands from which the employees can choose. The list contains brands which have a certain quality where they can rely on as a leasing company. Brands which are not on the list are of too low quality or lack to have enough spare parts for the bikes. Also, Bike shop owner 1 prefers to lease certain brands of bikes. This bike shop owner is a dealer of a limited number of brands; they prefer to lease these brands. If the end-user prefers another brand, they can arrange it, but that is not what the interviewee prefers. They formulate it as *"I have a good collaboration with them. So, I have once in a while a Koga I need from him, it is fine, but he wants to protect his dealership and I do that too"* (Bike shop owner 1). Employee leasing company 3 tells that a tender is done for a big number of bikes. Then, a limited number of bikes or specific type of bike is chosen, which means the end-user has no or little choice. The company of Employer 1 did this. This was mainly because other bikes had a very long delivery period because of the COVID-19 pandemic.

The service and maintenance contract is beneficial for the condition of the bike (Employee leasing company 1, 3, Bike shop owner 1, Employer 1). It makes sure the bikes are better maintained and the lease construction therefore improves the circularity of the bikes, according to Employee leasing company 1. There are different ways how the company bikes are repaired. Most of the time, the bike is repaired at the bike shop where the end-user wants. There are also leasing companies which do it a bit differently; a bicycle repairer comes along periodically to the employer's company. Then all the bikes are checked and the risk at shortfalls is tried to be prevented in this way (Employer 1). This all ensures the bikes are after the lease contract are proper bikes in general (Employee leasing company 1 and 2).

After the lease contract the end-user can buy the bike. If the end-user declines this, the bike shop has the possibility to take over the bike. If the bike shop declines this, the bike goes back to the leasing company, which will sell it via an auction to for example other bike shops or tradesmen (Employee leasing company 2), or will give the bikes to a charity (Employee leasing company 1). In Belgium, they set up a so-called release programme with second hand bikes considering sustainability and to create

a new market for employers with smaller budgets (Employee leasing company 4). Bike shop owner 1 and Employee leasing company 2 say the demand for second hand e-bikes is large and *"when I can buy a bike from which I know I maintained it well and there is a demand for it (…) I decide to buy it. But when people drive 150,000, after three years the bicycle is gone and then I will not buy it"* (Bike shop owner 1).

Despite this, there is much potential to increase the circularity of the bikes *"you can return each bike every seven years (…) the frames are often still very good, they only need the newest technology and I think that is a challenge for the bicycle industry"* (Employee leasing company 1). The sustainability of e-bikes is still a topic of debate. Especially regarding the first-generation e-bikes; the batteries are working poorly and components are no longer available (Voermans, 2021). The Fietsersbond therefore pleads that components should be available for at least ten years. E-bikes last for about seven till ten years, which is a huge difference with the old school city bikes which lasted for at least 25 years. However, the batteries have improved a lot over the years. Additionally, more sustainable materials are processed in the bicycles, especially the more expensive ones, and these are chosen more often with the company bike measure (Employee leasing company 4).

Consumption

The extent to which consumers are affected by indirect effects and higher-level changes, i.e., the changes in behaviour.

5.5.2 Bringing about behavioural change

The changes in travel behaviour are already taken into account by the criterion effectiveness, as getting more cyclists for commuting is considered as an important objective by the company bike measure. This sub section focuses more on the higher-level effects, such as the handling of the bike, as might be caused by the ownership structure of the bike.

Almost all the interviewees tell the end-users handle their bike carefully, which could be compared with people's own bikes. The end-users have to sign a contract which tells them to handle the bike carefully. If they do not, they have to pay. Also, after the contract, the end-user can buy the bike and so they benefit if the bike is undamaged. Some leasing companies also make use of a deductible excess (Employee leasing company 2, 3, 4 and Personal contact Insurance company). This is a sum of around €25, which is calculated by the insurance company for each case of damage. Additionally, if the bike is not working well, the end-user directly notices the consequences themselves (Employee leasing company 2). Consequently, careless behaviour of the end-user is tried to take away. Bike shop owner 1 thinks 70 to 75% of his clients are handling their bike fine, the remaining could handle their bike better and is pointed to this in a friendly way.

The deductible excess Employee leasing company 2, 3 and 4 are applying is a determined amount by the insurance company (Personal contact Insurance company; Employee leasing company 2). This amount is based on experience and restricts that end-users present careless behaviour (Personal contact Insurance company). Also, the process of the repairment brings handling costs, even if as much of the handlings are automated; it prevents end-users from going for every little damage to the bicycle repairer. When the bike is stolen or total loss the deductible excess is not applicable. Employee leasing company 1 does not apply a deductible excess.

Cooperation

The extent to which stakeholders collaborate with each other along the supply chain.

5.5.3 Stimulate interactions along supply chain

Partly because of the company bike measure, new providers of bike lease products arised, mostly coming from large bike brands and car leasing companies (Leeflang, 2020). Companies in general as well as the car leasing companies, realise to make a transition towards a more sustainable and circular business (Kirkman Company, n.d.). Since the last few years, companies are seriously taking steps in this direction, which is also fuelled by the corona crisis, climate goals, disruptive technologies, and changing consumer desires. Car leasing companies are increasingly focussing on offering a broader mobility assortment (Employee societal organisation 2). They for example are offering sharing cars and (lease) bikes. This broader focus has also fostered the accompanying with other stakeholders. The car company Amega bought a bike shop for instance (Koster, 2020), car leasing company Leaseplan that now leases bikes (NOS, 2019), car importer Louwman allies with fietsvoordeelshop.nl (Navis, 2019) and car (leasing) company Pon allies with partners and has the subsidiary 'Lease a bike' that focuses on bike leasing (Kirkman Company, n.d.). With an increasing amount of traffic jams and change in consumer desire, people are searching for more sustainable modes of transportation, other than cars, car leasing companies are forced to look for more sustainable alternatives.

The company bike has caused an intensification of interaction within the supply chain of the bike industry. Also, more actors are active in the lease market and more bicycle brands got interested in the lease construction (Employee leasing company 2). *"Back in the days, a bicycle manufacturer delivered a bike and that's it, but now such a bicycle manufacturer is directly involved in for example a bike lease of mobility provider"* (Employee societal organisation 2). This can be seen as a positive development, as the bicycle is marketed as a better full-fledged alternative, especially in the case of the higher segment bikes (Employee societal organisation 2). Apart from this development, the supply chain of the company bike is not changed (Employee leasing company 3, Bike shop owner 1, Mobility agent 1 and 2). If the intensification of the interaction within the supply chain has led to more sustainable products is not clear yet. It seems it did not lead to more sustainable bicycles at the moment.

Employee leasing company 1 finds that the bike shops benefit from the company bikes as well, since the end-user can go to every bike shop that is connected to the leasing company. The bikes are bought via the bike shops and the warranty, service and maintenance contracts are included; the same trend is going on in Belgium. This concept is also easily expandable to foreign countries (Employee leasing company 4). There are also some bicycle brands that cut off the (local) bike shops and sell directly to the end-users. On the one hand, it saves them the margin of the bike shops. On the other hand, bike shops are significant in providing information to the cyclists and to a larger extent considering e-bikes and speed pedelecs. The (local) bike shops can provide the service the bikes need and people do not want to travel too far for a bike shop (Employee leasing company 1).

If an employer does offer the company bike to their employees, stakeholders offer assistance in different ways. The bike shop owner as well as the employees and employers see the leasing company as best assistance provider. The bike shop is also important in providing assistance according to the latter two. According to Employee leasing company 1, 4, and Bike shop owner 1, bikes shops are fundamental for end-users. Especially for e-bikes and speed pedelecs people prefer personal advice, mostly at the shop in their neighbourhood.

All the employers agreed that the leasing companies are fulfilling an important role in the lease construction. Especially the first period when companies start to provide the company bike measure, the employers noted the leasing companies provided very helpful assistance, for example in providing information and setting up the contracts (Employer 1, 2, 3 and Employer/end-user 1). Employer 3 added, they choose a bigger leasing company rather than a small start-up, as they had the feeling, they can rely more on these. A downside of the interference of the leasing companies is that these companies take their margin (Employee leasing company 3 and Tax specialist 1). It causes indirectly for higher prices and that is a reason why some employers try to avoid the lease construction (Employer 2 and 3). Besides, when the end-user is not able to drive to work by bike, for example through the pandemic or an injury, the employer and end-user still pay for the bike. Policy maker 2, Employer 2 and 3 mention it would be an improvement if the bike could be handled to another employer without high costs or a lot of strain. They also mention that employees therefore often prefer to buy the bike immediately instead of being stuck in a contract and paying a monthly sum for three years.

According to the interviewed bike shop owner, the relationship with the leasing companies is perfect (Bike shop owner 1). The advantage of this bike shop is that it is part of a franchise, which means the headquarter arranges the contracts and contact with the leasing companies. In the Netherlands only 16% of the bike shops are part of a franchise (RAI Vereniging, 2018). Such a smaller bike shop has also a disadvantage: *"If I had time, I would have loved it (…) but you need to be actively advertising, and you need to have enough personnel in the shop (…) and you need to be representative" (…) "I am sure it would have an additional value to our shop, but I have chosen not to do it"* (Bike shop owner 1). Nevertheless, Bike shop owner 1 prefers to sell a bike themselves as this is financially the most favourable. Next to that, it can cost a lot of strain for the bike repairer to get their money for the repairing or maintenance: *"It should be according to a certain procedure and as a bike repairer you should get your money. You need to hand in the bill to the leasing company eventually"* (Employee leasing company 3). According to Leasing company 2, this depends on the leasing company there is in charge. They all have their own terms and conditions. There are leasing companies, mostly the bigger ones, which have a better automation system and are therefore user-friendlier than others.

5.5.4 Summary impact

The impact of the company bike measure is determined by the extent to which it has generated or is expected to generate higher-level effects. These effects are determined by means of three sub criteria based on the characteristics of a PSS. Regarding the durability of the design, the extent there is aimed for prolonged life cycles, of the company bikes there is much potential. There is not specifically focused on a more durable design for company bikes. The bikes are just normal bikes and the end-user has in principle the possibility to choose the bike they want, which is good, find the interviewees, since bikes are personal utensils. Besides, the bikes are produced in South East Asia, where the sustainability standards are not as strict as in the Netherlands. Further, e-bikes and speed pedelecs last shorter, as more and more technology is incorporated and the batteries are getting bad. After a revision, the bikes could be brought back on the market. Despite this, the lease construction also endures the durability of the company bike. The incorporated service and maintenance contract ensures the bikes are maintained well. Also, after the lease period, the bike is bought by the end-user, the bike shop or another destination is found.

The consumption is determined by the extent consumers are encountered by higher-level changes. Even though the end-user is officially not the owner of the bike, they still handle their bike with care, in general. Via several ways it is tried to let the end-user handle the bike with care by, for example, the

option to buy the bike after the lease period, a deductible excess, and let the end-users pay if there is careless behaviour. In this way the lease construction contributes to more sustainable utilisation of the bike.

Regarding the cooperation, the extent the stakeholders along the supply chain collaborate, the interaction among different stakeholders has strengthened since the adjustment of the company bike measure, but did not lead to more sustainable bicycles at the moment. More actors are active on the lease market and more bicycle brands are interested in the lease construction. Especially, car leasing companies are working together or took-over other companies in order to provide lease constructions as well. This is partly caused by the larger realisation of the need for sustainability.

6. Discussion

In this chapter the findings are discussed in the light of other research, the scientific relevance of this research is indicated, and the limitations of the research are highlighted and some topics for future research are suggested.

6.1 Reflection and relevance in relation to policy evaluation research

The OECD framework applied in this research is universally applied and its usefulness is widely recognised. Even though the criteria are mostly used to evaluate international development and humanitarian projects, programmes and policies, the criteria are applicable to evaluate all areas of public policies, such as the company bike measure. Depending on the type of research, the criteria are adjusted to the context it is used in. The concept of the company bike measure, also known as a leasing concept, is seen as a form of PSS. To be suitable for evaluating the company bike measure, the applied OECD framework has been adjusted to the PSS concept by adding characteristics of a product service system, as formulated by Hüer et al. (2018), to the framework.

More specifically, the adjustment of the framework also led to the elimination of the criterion ‘sustainability’; it is hard to determine the long-term effects at this time already, since the policy measure has been introduced recently. The PSS characteristics ‘consumption’, ‘cooperation’, and ‘durable design’ are added to the framework, whereby the latter characteristic is a newly compiled sub criterion merged by the characteristics ‘ownership’ and ‘product life’ of Hüer et al. (2018), as these are closely related.

The flexibility of the OECD framework made it possible to fit it properly to the context of the company bike. The applied method to this research also enabled to gather in-depth information, such as the semi-structured interviews. Nonetheless, because of the broad definitions of the criteria and their explanations, it was hard to capture the whole definition of the criteria applicable to the company bike measure research. For instance, the definition of the criterion relevance contains many aspects related to different stakeholders. Therefore, it was hard to capture all those different dimensions. Moreover, the criteria are strongly interrelated to each other; the functioning of one influences the functioning of the other. Therefore, it is sometimes hard to specify to which criterion a piece of information belonged to, also because the interviewees could interpret the questions asked differently. In an attempt to tackle this problem, the descriptions of the criteria were read out in detail and the interviews were coded as precisely as possible.

The usage of the added PSS characteristics in the form of sub criteria proceeded similarly as the other criteria. Even though these criteria were not used as part of the OECD framework before, and therefore

were not described as extendedly as the existing OECD criteria, the usage of these characteristics was relatively straightforward. The general definition and explanation of 'impact' by the OECD (2019) together with the information about the PSS characteristics provided by Hüer et al. (2018) ensured guidance to evaluate the company bike measure concerning the PSS criteria properly. In doing so, this study adds a framework to the literature, which could be useful for the evaluation of other PSSs. It can also be used by practitioners, consultants, or for other practical policy research. For them it can be helpful to apply a framework specifically for PSS to systematically evaluate its functioning. As PSSs are increasingly applied and recognised in literature as well as by practitioners (Li, Kumar, Claes & Found, 2020), it is imaginable that more PSS concepts, such as the company bike, will be introduced.

The developed framework for PSS policy evaluation also contributes to the literature in the area of policies for sustainability. Today's research on transitions to sustainability focuses mainly on niche experiments and new emerging technologies (Van Waes, Farla, Frenken, De Jong, & Raven, 2018; Luederitz et al., 2017). Other evaluation frameworks are mostly assessed by quantitative indicators (Li & Mathiyazhagan, 2018; Lynch, Donnellan, Finn, Dillon & Ryan, 2019). Additionally, studies focussing on sustainability transitions focus less on existing policies, but mostly on policies that are thought to be suitable (Nykamp, 2020). Instead, this study contributes to literature on evaluating sustainability policies by using the adjusted OECD framework, which is a comprehensive and demonstrated policy evaluating framework for years. Moreover, the adjustments made to the framework incorporated the higher-level effects on sustainability to the policy measure. Herewith, a relevant framework is developed for policies stimulating PSS.

6.2 Reflection and relevance in relation to Product Service System research

In scientific literature there is a discussion on the potential contribution of PSS to sustainability. It describes when products and services of the PSS concept, or in this case the company bike measure, are designed and consumed in a sustainable and environmentally-friendly way, it could have some positive effects on sustainability level as well. When this is not the case, it could possibly influence the sustainability levels negatively (Hüer et al., 2018). Even though cycling is considered as a sustainable mode of transportation, some aspects need to be discussed.

Firstly, the ownership structure. In case the providers stay the owner of the product and provides services to enlarge the products' lifetime, during and at the end of the lifecycle products and components could be recycled (Annarelli, Battistella & Nonino, 2016; Dalhammar, Machacek & Bundgaard, 2014; Weterings, Bastein & Tukker, 2013). This research finds this positive effect might be limited, as the provider of the company bike is mostly only for three years the owner of the bike, after which it is sold. Furthermore, in order to reach high sustainability levels, according to the literature, there should be strived for providing and maintaining products with the highest value while minimising resource use (McAloone, 2019). Additionally, the environmental costs should be internalised in order to increase recycling and waste management, among others. It could also help reduce costs of the production company and improve the firm's operative efficiency (Ferrón-Vílchez, De la Torre Ruiz, & Ortiz-de-Mandojana, 2015). This research finds, the bikes are becoming more sustainable step by step, but there could be much improved. Selecting sustainable brands, as Employee leasing company 2 does, is only a small step in that direction. The company bike's lifetime could be enlarged by keeping the ownership of the bike for its whole lifetime, or at least for a longer period, at the provider. In order to accomplish this, the contracts of the company bicycles should be extended or the bicycles should be returned to the provider after the lease period after which they will be made available for another contract period.

Secondly, in literature it is claimed that collaboration along the supply chain could increase sustainability levels, as the consciousness about sustainability-issues and will increase if knowledge and information in each step of the supply chain is transferred (Tukker, 2015; Thomas, Walter, Loos, Schlicker & Nüttgens, 2007; Dal Lago, Corti & Wellsandt, 2017). This research finds that by adjusting the company bike measure, cooperation in the supply chain is intensified. In addition, the interaction along the supply chain is intensified and more companies are involved in the company bike market. At the moment, it seems it did not have a positive impact on sustainability levels of the measure.

Thirdly, the sustainability level could also be negatively influenced through careless behaviour of the consumer (Manzini & Vezzoli, 2003; Mont, 2002). In this research, it turned out that the bike shop owner recognises careless behaviour to a little extent; the rest of the interviewees mention they do not recognise this. The careless behaviour might be intercepted by the deductible excess, consequences written in the contract, the negative influences it has if the company bike is not functioning optimally, and the possibility to buy the bike after the contract period, which increases the sense of psychological ownership.

An interesting finding of the study was that the company bike measure is adopted not as many as some stakeholders hoped and expected. Interpreting the findings in the light of existing theory on PSS might shed some light on why this is the case.

Firstly, this could have been to do with the acceptance of the u-PSS concept, or in other words, the company bike as a concept. The end-user only purchases the services for a certain period of time while the service provider remains the owner of the product. Consumers are familiar to buy products and to be the owner of these products (Mont, 2002; Tukker, 2015; Edbring, Lehner & Mont, 2016). Changing this way of doing is experienced as risk-taking (Mont, 2003). The ownership over products gives end-users the sense of control and freedom (Tukker, 2015).

Secondly, consumers experience u-PPS's often as less flexible as more research and planning is needed and no spontaneous decisions can be made (Borg, Mont & Schoonover, 2020). This situation is reflected by Employer 2 and 3 as they wanted to have more flexibility concerning the contract of the company bike. However, the contract itself is relatively flexible; with each company and end-user is negotiated what is in the contract and under what conditions, such as the height of the contribution of the employee and payment method. In contrast, this research points this flexibility of the company bike measure makes it harder to communicate it en masse.

Thirdly, the slow adoption of the company bike can also be a consequence of uncertainty and lack of trust. This uncertainty and lack of trust can have a variety of causes (Borg, Mont & Schoonover, 2020), for example, lack of information about the terms and conditions (Rexfelt & Ornäs, 2009) and not knowing the relevant company behind the contract (Poppelaars, Bakker & Van Engelen, 2018). In line with this, the same counts for the company bike measure; it takes time for employers and employees to find out how the measure works and what it means for them and their employees. A similar process was experienced in Belgium and Germany, where they have a similar measure. Therefore, it might take time for the company bike measure to succeed.

Fourthly, some of the interviewees experience the company bike measure as costly. Edbring, Lehner & Mont (2016) state that consumers perceive the recurrent payments to be problematic and prefer to pay the amount at once. Especially for long-term contracts, they find the recurrent payment potentially more risky and more expensive, even though the amount of the recurrent payment and payment at once is the same (Vezzoli et al., 2015). In this research, a similar finding was found; some interviewees mentioned they preferred another measure, as they wanted to pay the amount of the bike at one, without being bound to a contract. This could be overcome by giving end-users the possibility to pay

their share of the company bike at once. However, the extent to which the employer and employee perceive the costs for the company bike as costly, depends on the situation. The employees who have to do a financial contribution rather perceive the cost as high compared to the employees who do not have to do a financial contribution next to the 7% addition. The small and medium sized enterprises tend to experience the costs as higher too compared to the larger companies.

6.3 Limitations and future research

During this research, different kinds of stakeholders are interviewed, both from the supply and demand side of the company bike. Consequently, it was harder to conduct detailed case studies of the behavioural change of end users. However, it is valuable to capture multiple actors, as it represents the complete setting. Future research could focus more specifically on certain types of stakeholders in order to better understand the topics like the behavioural change. In addition, as the end-users assumed the company bikes as their own bikes most of the time, i.e., the end-users handle the bikes with care, just like their own bike, and the company bikes are just normal bikes, it is interesting to know more precisely what the company bike means for and to them.

Furthermore, for some questions respondents might have been tempted to give a socially desirable answer. Questions that tried to find out how the end-users handled their bike, for instance, might not be answered completely honestly by the end-users itself. Nevertheless, this was tried to tackle through triangulation. These questions are also asked to the employers, leasing companies and bike shop owners, which had given a complete picture of the situation.

This research was conducted during the COVID-19 pandemic. For future research, it will be valuable to evaluate the company bike measure again in about four or five years. It will be interesting to see how the company bike measure will function in a non-crisis situation. Moreover, the company bike market could have learned from the company car market and thus grown to a more mature market, as expected by Employee leasing company 2. Also, the Ministry of Finance evaluates a measure after five years, if it is a tax expense. This is not a tax expense, but it would be worthwhile to keep the same time span. Possibly, the research could be extended to the other bicycle fiscal incentives as found in table 7. These incentives are interconnected to each other, as the (well or dis)functioning of the one measure could have influence on the (well or dis)functioning of the other measure; making use of the one measure, means they cannot make use of the other measure anymore at the same time.

Finally, as there is a certain degree of uncertainty in the process of composing categories belonging to the evaluation criteria of the OECD framework, more structure and guidance would be helpful here. The OECD released in March 2021 a publication in which it extensively explains how to apply the criteria with given categories (OECD, 2021). For future research, it might be helpful to update some of the categories chosen in this study by the categories of the OECD, as they are set up by the OECD after years of experience with the framework. This will help to structure the research and to capture each criterion orderly.

7. Conclusions

In this research an answer is found on the following question: *“How is the Dutch policy measure for stimulating the company bicycle performing?”*. It is subdivided into two sub questions: *“How can a policy measure aimed at stimulating Product Service System be evaluated?”*, and: *“How is the policy measure performing in respect to the developed evaluation criteria for policies aiming at stimulating*

Product Service System?". In order to answer both questions, a qualitative research was conducted, whereby next to a literature study, twenty interviews were held with various stakeholders around the policy measure. Together, this serves as an ex-durante policy evaluation of the Dutch company bike measure, which was adjusted on January 1st 2020.

Regarding the first sub question, the OECD (2019) criteria provide a universally accepted and useful basis to evaluate policies in different research areas. As the context of each research differs, the framework should be adapted to the context these criteria are applied in. The lease concept of the company bike is an example of a Product Service System and therefore characteristics of PSS were included in the framework in order to fit well with the PSS concept. This has led to a framework in which the sub criteria 'durable design', 'consumption', and 'cooperation' are added under 'impact'. These originate from the PSS characteristics as given by Hüer et al. (2018). This results in following criteria: relevance, coherence, efficiency, effectiveness, and impact, whereby impact has the sub criteria durable design, consumption, and cooperation. Consequently, this study contributes to literature on evaluation sustainability policies, since the OECD policy evaluation framework is adjusted to the context of PSS and is applied by incorporating higher-level effects on sustainability.

Regarding the second sub question, across the criteria there is a diverse picture of their performance. The policy measure is considered *relevant*, i.e., the company bike measure can contribute to the sustainable and healthy transportation mix the Dutch government is aiming for, and for employers, it can be a token of loyalty to the employee and save costs. However, the measure is only attractive to three groups of people: the people with a company car, the people with a public transport card and the people who do not receive travel cost compensation, because they receive no or little travel cost compensation. Concerning the *coherence*, there are several interventions taken in the Netherlands to stimulate cycling, such as providing good infrastructure and fiscal stimuli for cycling an employer can make use of, on the one hand. On the other hand, the consistency with other measures can be improved. At the moment, there is an incoherent VAT deduction the employer has to pay and the employee loses their travel cost compensation on the days the end-user is coming by company bike to work. Improving this will make the measure financially and administratively more attractive for both the employer and employee.

The policy measure has become more *efficient*, as the policy measure is structurally aimed to be budget neutral and requires fewer administration for employers and employees than before its adjustment. However, it still causes a high administrative burden and paperwork. Especially for small and medium sized companies, it could cost a lot of effort and strain to arrange this measure compared to larger companies. Nonetheless, the interviewees find the company bike measure flexible, as the end-user can use it whenever they want as well as the optional payment methods. In terms of *effectiveness*, the Ministry of Finance did not set specific goals and will not specifically be evaluated, but the measure did not result in the 150,000 extra bicycles the RAI Vereniging and BOVAG proposed. The measure is promoted as a very beneficial measure, but in reality, that is not always the case, as it depends on the contribution the employer makes to the company bike. The measure could make it attractive for the employee to take a relatively expensive bike, i.e., e-bike and speed pedelec, and cause an intensification of the bike use. To take into account, it seems like the policy measure is influenced by the COVID-19 pandemic.

The *impact* this company bike measure is generating is measured in terms of the durability of the design of the company bicycles, the changes in behaviour concerning bike use and cooperation in the supply chain of the company bike. The measure did not lead to a more *durable design*. Even though the incorporated service and maintenance contract ensures the bikes are maintained well, the

company bikes are just normal bikes and especially e-bikes and speed pedelecs last shorter, since they contain more technology, such as the batteries. Furthermore, the end-users handle their bikes mostly with care and just as normal bikes, since it is confirmed in the contract, there is a deductible excess, and the end-users can buy the bike after the lease period. This is beneficial for the *consumption* of the company bike, although careless behaviour could be present as indicated by the bike shop owner and literature about PSS. Since the adjustment of the company bike measure, the *cooperation* and interaction along the supply has strengthened, but did not lead to more sustainable bicycles at the moment. Especially, car leasing companies have jumped on the company bike, also by pressure to become more sustainable and the sustainable vitality needs of companies.

In addition to the study of Hüer et al. (2018), this study found the lease contract of the company bike helps to keep the bike in good condition. However, as the lease contract endures only for a short part of the bike's lifetime, there is much potential to enlarge the durability of the bike's design. Even though the company bike is not adopted as much as some stakeholders hoped, it takes time to take away the consumer's uncertainty and lack of trust in the PSS concept.

To answer the research question, in general, the functioning of the company bike measure can be seen as an improvement compared to the company bike measure before its adjustment. It fits in a sustainable and vital transportation mix for commuter traffic and the other interventions the Dutch government is undertaking in order to stimulate cycling. Additionally, it is an addition to the fiscal options an employer has to stimulate cycling to work for employees, which is beneficial to certain groups of employees. Furthermore, it helps the employer to become more sustainable, get more vital employees, reduce cost and use it as a token of appreciation to its employees.

However, there are still some barriers that should be overcome to let the measure work better and let the number of company bike users grow significantly. The policy measure is not as beneficial as many stakeholders thought it would be; it was promoted as a very beneficial measure financially for both the employer and employee. In practice, this is not always the case, as it still causes a high level of strain and paperwork, and can be very costly. To some groups of employees, the company bike measure is financially less beneficial, as they do not get the tax-free travel cost compensation anymore. For employers, the maximisation of the VAT reduction is making it less favourable for employers to place a company bike at the disposal of an employee both administratively and financially. Besides, the administration to track when the end-users came to work by company bike and when not costs companies relatively much effort. Also arranging the company bike measure can cost the company much effort, especially for small and medium sized enterprises, as they have less resources compared to larger enterprises.

8. Recommendations

Based on the analysis of this research, there are formulated some recommendations. Firstly, many interviewees complained about the incoherent VAT deduction above €749 and the 21% tax that have to be paid over the contribution of the employee for the company bike. By acquitting this limitation and the 21% tax over the contribution of the employee would save money and reduce organisational hassle for employers. The company bike measure still has a lot of paperwork and administration, which is partly caused by this rule.

Secondly, the administration for the travel cost compensation is considered a strain by many companies. Even though there is no best practice in doing this administration, there are some options which could make this administration easier for companies. As cited in 5.3.1, some companies are

developing software in order to track employee's commutings. Other options are to outsource this administration to a third party (Baroncini, 2018) or to use an app which tracks the mode of transportation the employee is using or if they are working from home and which compensation is belonging to that. This app passes this through directly to the relevant person or department within the company. Preferably choose an app which is certified by Stichting Keurmerk RitRegistratieSystemen (2019). In line with this, the ANWB is developing an app for their employees to make this administration easier (Kraniotis, 2020). These options are becoming more important since more people are working from home since the pandemic. The leasing companies and societal organisations could play a role here, e.g., by working out the possibilities companies have in order to make this administration easier. Next to that, the leasing companies could help setting up or providing an app similar to the one of the ANWB at companies; a simpler travel administration eventually could lead to more people adopting a company bike.

Thirdly, in order to enhance the sustainability and circularity of the bicycles, i.e., the reuse and recycling of materials and extending the bike's lifetime, the tax on labour for repairings should be lowered and the tax on raw materials, materials and waste should be raised (Vollebergh et al., 2017). Raw materials are getting scarcer, among which critical resources for bicycle and battery production, such as metals (Chan, Malik, Anawati & Azimi, 2020; André, 2020). Next to that, in order to reduce the dependence on other countries and thus to ensure the deliverance of components of the company bikes (Schmidt, 2019), especially in current times as a pandemic, the reuse of materials is essential. This does not lead necessarily to a change in price of the products (Vollebergh et al., 2017). To extend on this, at the moment, the tax on labour for bicycle repairings is 9% and the tax on components and accessories are 21% (Belastingdienst, 2021c). Even though there is already some differentiation, also here, more distinct differentiation could enhance sustainability and circularity, as it has the potential to generate environmental benefits (Whalen, Milios & Nussholz, 2018). Besides, the repairings for the speed pedelec are 21%, as it is legally a moped (Belastingdienst, 2021c). Lowering this tariff to 9% or even lower can reduce the costs for maintenance, repair and refurbishment and thus the costs for the employer. These measures are beneficial for the durability of the bicycles.

Fourthly, if the company bike measure will become a real success, several stakeholders should anticipate on this. Safety is becoming a hot topic in Belgium because more e-bikes and speed pedelecs are on the road because of the success of the company bike measure (Employee leasing company 4). Even though general safety measures are undertaken in order to improve cyclists' safety, for example by the Ministry of Infrastructure and Water Management in the Netherlands to improve the safety on bicycle paths and campaigns for bike lighting (Rijksoverheid, 2021c), more specific safety measures are needed in order to guarantee company bike users. Speed pedelec riders as well as other road users are often not (fully) informed about the traffic rules of speed pedelecs. This leads to unsafe situations and incomprehension (Van den Steen et al., 2019). This could be improved by obliging a specific speed pedelec course. In Belgium such courses are already provided for companies, containing theoretical courses, practical courses and risk prevention (VSV, 2019). Leasing companies can start by including these courses within the lease contract.

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10. References

Ackermans, B. (2021, February 24). *Máánden wachten op die felbegeerde fiets, want de markt is oververhit*. AD. https://www.ad.nl/auto/maanden-wachten-op-die-felbegeerde-fiets-want-de-markt-is-oververhit~a8a4de3c/.

ALD Automotive. (2020, June). *De leasefiets: een onderzoek*. Rapportage deel 2. https://www.aldautomotive.nl/Portals/netherlands/Documents/PDF%20Nederlands/Onderzoek_leasefiets_deel2a.pdf?ver=2020-07-07-190028-880.

André, H. (2020). *Assessing Mineral Resource Scarcity in a Circular Economy Context* (Doctoral dissertation, Chalmers University of Technology).

Annarelli, A., Battistella, C., & Nonino, F. (2016). *Product service system: A conceptual framework from a systematic review*. Journal of cleaner production, 139, 1011-1032.

ANWB. (2020a). *2020: het jaar om zakelijk een fiets te leasen*. Retrieved at November 24, 2020, from https://www.anwb.nl/fiets/fietslease/fietslease-2020.

ANWB. (2021a). *Wat is fietslease?*. Retrieved at May 8, 2021, from https://www.anwb.nl/fiets/fietslease/wat-is-fietslease.

ANWB. (2021b). *E-bike versus speedbike*. Retrieved at April 30, 2021, from https://www.anwb.nl/fiets/soorten-fietsen/elektrische-fietsen/e-bike-versus-speed-pedelec.

ANWB, BOVAG, Fietsersbond, Natuur&Milieu, RAI Vereniging, & VNA Lease. (2017, December). *Position Paper Fietsvriendelijk Fiscaal Beleid*. RAI Vereniging. https://www.raivereniging.nl/artikel/positionpapers/position-papers-fiets.html.

Austrian Development Agency. (2009, July). *Guidelines for Project and Programme Evaluations*. OECD. https://www.oecd.org/derec/austria/AUSTRIA%20ADA%20ADC%20Guidelines.pdf.

Automobiel Management, VNA, RDC, NS, RET & VMS Insight. (2021, January). *Nationaal zakelijke mobiliteitsonderzoek*. https://ss-usa.s3.amazonaws.com/c/308054019/media/8427603f8fe73a10b63703659152009/NZMO_SamenvattingLR%20%28optimized%29.pdf.

Baroncini, B. (2018, August 8). *Besteed je reiskosten administratie vooral uit!*. Terberg Business Mobility. https://terbergbusinessmobility.nl/blog/besteed-je-reiskosten-administratie-vooral-uit/.

Belastingdienst. (2021a). *Kleinschaligheidsinvesteringsaftrek (KIA)*. Retrieved at May 19, 2021, from https://www.belastingdienst.nl/wps/wcm/connect/bldcontentnl/belastingdienst/zakelijk/winst/inkomstenbelasting/inkomstenbelasting_voor_ondernemers/investeringsaftrek_en_desinvesteringsbijtelling/kleinschaligheidsinvesteringsaftrek_kia.

Belastingdienst. (2021b). *Toegestane aftrek personeelsvoorzieningen*. Retrieved at May 20, 2021, from https://www.belastingdienst.nl/wps/wcm/connect/bldcontentnl/belastingdienst/zakelijk/btw/btw_aftrekken/personeelsvoorzieningen_en_relatiegeschenken/toegestane_aftrek_personeelsvoorzieningen#:~:text=Eigen%20bijdrage%20fiets,de%20volledige%20btw%20mag%20aftrekken.

Belastingdienst (2021c). *Btw-tarief fietsen repareren*. Retrieved at May 2, 2021, from https://www.belastingdienst.nl/wps/wcm/connect/bldcontentnl/belastingdienst/zakelijk/btw/tarieven_en_vrijstellingen/diensten_9_btw/fietsen_repareren#:~:text=Bij%20reparaties%20van%20fietsen%20moet,onderdelen%20(21%25%2Dtarief) .

Bocken, N. M., Short, S. W., Rana, P., & Evans, S. (2014). *A literature and practice review to develop sustainable business model archetypes*. Journal of cleaner production, 65, 42-56.

Borg, D., Mont, O., & Schoonover, H. (2020). *Consumer Acceptance and Value in Use-Oriented Product-Service Systems: Lessons from Swedish Consumer Goods Companies*. Sustainability, 12(19), 8079.

BOVAG (2018, May 28). *Verkeersregels hinderen doorbraak speed pedelec*. https://www.bovag.nl/nieuws/verkeersregels-hinderen-doorbraak-speed-pedelec.

BOVAG. (2020, July 3). *Vakhandel verkoopt recordaantal elektrische fietsen*. https://mijn.bovag.nl/actueel/nieuws/2020/juli/vakhandel-verkoopt-recordaantal-elektrische-fietse#:~:text=De%20verkoop%20van%20e%2Dbikes,werden%20verkocht%2C%20een%20absoluut%20maandrecord.

Business Insider. (2018, September 12). *Fiets van de zaak: straks kun je voor een paar euro een kostbare fiets bij je werkgever leasen*. https://www.businessinsider.nl/fiets-van-de-zaak-bijtelling/.

Business Insider. (2020a, April 9). *De 1,5-metereconomie biedt enorme kans voor de zakelijke e-bike – dit moet je weten als werkgever over de 2 belangrijkste lease-opties*. https://www.businessinsider.nl/belangrijkste-e-bike-lease-opties-voor-werkgever/.

Business Insider. (2020b, May 14). *Aandacht trekken? Deze impact heeft een e-bike van de zaak op je bedrijfsimago*. https://www.businessinsider.nl/e-bike-van-de-zaak-bedrijfsimago/.

Bryman, A. (2016). *Social research methods*. Oxford university press.

Carlak, A. (2020, January 1). *Leasefietsen zijn nu aantrekkelijker – maar niet voor iedereen*. Volkskrant. https://www.volkskrant.nl/nieuws-achtergrond/leasefietsen-zijn-nu-aantrekkelijker-maar-niet-voor-iedereen~b7722d24/.

CBS. (2020a, September 1). *Emissies van broeikasgassen berekend volgens IPCC-voorschriften*. https://www.cbs.nl/nl-nl/cijfers/detail/70946ned?dl=2628E.

CBS. (2020b, 1 September). *Emissies naar lucht op Nederlands grondgebied; mobiele bronnen*. https://www.cbs.nl/nl-nl/cijfers/detail/84735NED?dl=37779.

CBS. (2020c, November 30). *Bevolkingsontwikkeling; maand en jaar*. https://opendata.cbs.nl/statline/?dl=2C8D4#/CBS/nl/dataset/83474NED/table.

Ceschin, F. (2013). *Critical factors for implementing and diffusing sustainable product-Service systems: insights from innovation studies and companies' experiences*. Journal of Cleaner Production, 45, 74-88.

Chan, K. H., Malik, M., Anawati, J., & Azimi, G. (2020). *Recycling of End-of-Life Lithium-Ion Battery of Electric Vehicles*. In Rare Metal Technology 2020 (pp. 23-32). Springer, Cham.

Chierici, E., & Copani, G. (2016). *Remanufacturing with upgrade PSS for new sustainable business models*. Procedia CIRP, 47, 531-536.

Clo (Compendium voor de leefomgeving). (2019, November 15). *Herkomst stikstofdepositie, 2018*. https://www.clo.nl/indicatoren/nl0507-herkomst-stikstofdepositie.

Cook, M. B., Bhamra, T. A., & Lemon, M. (2006). *The transfer and application of Product Service Systems: from academia to UK manufacturing firms*. Journal of cleaner production, 14(17), 1455-1465.

Dalhammar, C., Machacek, E., Bundgaard, A., Zacho, K. O., & Remmen, A. (2014). *Addressing resource efficiency through the Ecodesign Directive: A review of opportunities and barriers*.

Dal Lago, M., Corti, D., & Wellsandt, S. (2017). *Reinterpreting the LCA standard procedure for PSS*. Procedia CIRP, 64, 73-78.

De Haas, M. & Hamersma, M. (2020, October 12). *Fietsfeiten: nieuwe inzichten*. Kennisinstituut voor mobiliteitsbeleid (KiM). https://www.kimnet.nl/publicaties/brochures/2020/10/12/fietsfeiten-nieuwe-inzichten.

De Haas, M., Hamersma, M. & Faber, R. (2020, April 20). *Mobiliteit en de coronacrisis*. Kennisinstituut voor mobiliteitsbeleid (KiM). https://www.kimnet.nl/publicaties/rapporten/2020/04/20/mobiliteit-en-de-coronacrisis.

Department of Performance Monitoring and Evaluation (DPME). (2019, November). *National Evaluation Policy Framework*. Pretoria, South Africa. p.28. https://www.dpme.gov.za/keyfocusareas/evaluationsSite/Evaluations/National%20Policy%20framework%20Nov%202019.pdf.

Dige, G. & Dilling, R. (2017). *EEA guidance document - policy evaluation*. P.11.

Dutch Cycling Embassy. (2021). *Best practices Dutch Cycling*. https://www.dutchcycling.nl/downloads/0113-DCE-Book-96-dpi.pdf.

Edbring, E. G., Lehner, M., & Mont, O. (2016). *Exploring consumer attitudes to alternative models of consumption: motivations and barriers*. Journal of Cleaner Production, 123, 5-15.

Ferrón-Vílchez, V., De la Torre Ruiz, J. M., & Ortiz-de-Mandojana, N. (2015). *How much would environmental issues cost? The internalisation of environmental costs in the European transport industry*. Environmental Engineering and Management Journal, 14(9).

Financieel Dagblad. (2020, February 27). *Stella lanceert e-bike bestemd voor steden*. https://fd.nl/ondernemen/1336243/fietsfabrikant-stella-lanceert-een-nieuw-merk-e-bike-tod1caQSsbMO.

Fietsersbond. (2019, September 19). *Wat is gunstiger voor jou: leasefiets of km-vergoeding?*. https://www.fietsersbond.nl/nieuws/kosten-leasefiets/.

Fietsersbond. (2021). *Waarom Fietsen naar het werk?*. Retrieved at May 19, 2021, from https://www.fietsersbond.nl/onderweg/fietsen-naar-het-werk/waarom-fietsen/.

Frenken, K. (2017). *Political economies and environmental futures for the sharing economy*. Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences, 375(2095), 20160367.

Fouka, G., & Mantzorou, M. (2011). *What are the major ethical issues in conducting research? Is there a conflict between the research ethics and the nature of nursing?*. Health science journal, 5(1), 3.

Gezonde Leefomgeving. (2021). *Stimuleren van fietsen*. Retrieved at April 18, 2021, from https://www.gezondeleefomgeving.nl/thema/fietsen.

Guyader, H., & Piscicelli, L. (2019). *Business model diversification in the sharing economy: The case of GoMore*. Journal of cleaner production, 215, 1059-1069.

Hofman, F. (2020, December 17). *Een leasefiets via de baas? Bij grote bedrijven duurt dat regelen soms eeuwen*. NRC. https://www.nrc.nl/nieuws/2020/12/17/zakelijk-fietsen-heeft-aanloopje-nodig-a4024356.

Hudson, B., Hunter, D., & Peckham, S. (2019). *Policy failure and the policy-implementation gap: can policy support programs help?*. Policy design and practice, 2(1), 1-14.

Hüer, L., Hagen, S., Thomas, O., & Pfisterer, H. J. (2018). *Impacts of product-service systems on sustainability–a structured literature review*. Procedia CIRP, 73, 228-234.

Ipsos. (2019). *Relatief veel draagvlak voor nieuwe regeling voor een fiets van de zaak*. https://www.ipsos.com/sites/default/files/2019-12/ipsos_fietsplan_v1.0.pdf.

Kern, F., Rogge, K. S., & Howlett, M. (2019). *Policy mixes for sustainability transitions: New approaches and insights through bridging innovation and policy studies*. Research Policy, 48(10), 103832.

Kiekebelt, W. (2020). *De fietsmarkt in Nederland*. Retrieved at April 30, 2021, from https://hellorider.com/de-fietsmarkt-in-nederland/#:~:text=De%20VNA%20houdt%20wel%20bij,dat%20dit%20jaarlijks%20behoorlijk%20toeneemt.

Kirkman Company. (n.d.). *Autofinanciers op ontdekkingsreis naar duurzaam fietslease-product*. FD. https://fd.nl/advertorial/kirkman/1341695/autofinanciers-op-ontdekkingsreis-naar-duurzaam-fietslease-product.

Koster, P. (2020, February 28). *Autobedrijf Amega neemt rijwielhandel over*. AD. https://www.ad.nl/dordrecht/autoboer-amega-ames-koopt-fietsenzaak-in-zwijndrecht~a175a5aa/.

Kraniotis, L. (2020, December 13). *'Reiskosten- of thuiswerkvergoeding straks per dag bijhouden'*. NOS. https://nos.nl/artikel/2360473-reiskosten-of-thuiswerkvergoeding-straks-per-dag-bijhouden.

Leeflang, G. (2020, April 21). *Na de leaseauto is het nu tijd voor de leasefiets; Kruitbosch uit Zwolle ziet grote kansen*. De Stentor. https://www.destentor.nl/zwolle/na-de-leaseauto-is-het-nu-tijd-voor-de-leasefiets-kruitbosch-uit-zwolle-ziet-grote-kansen~acd13d0a/.

Li, A. Q., Kumar, M., Claes, B., & Found, P. (2020). *The state-of-the-art of the theory on Product-Service Systems*. International Journal of Production Economics, *222*, 107491.

Lynch, J., Donnellan, T., Finn, J. A., Dillon, E., & Ryan, M. (2019). Potential development of Irish agricultural sustainability indicators for current and future policy evaluation needs. Journal of environmental management, 230, 434-445.

Luederitz, C., Schäpke, N., Wiek, A., Lang, D. J., Bergmann, M., Bos, J. J., ... & Westley, F. R. (2017). Learning through evaluation–A tentative evaluative scheme for sustainability transition experiments. Journal of Cleaner Production, 169, 61-76.

Magro, E., & Wilson, J. R. (2019). Policy-mix evaluation: Governance challenges from new place-based innovation policies. Research policy, 48(10), 103612.

Manzini, E., & Vezzoli, C. (2003). A strategic design approach to develop sustainable product service systems: examples taken from the 'environmentally friendly innovation' Italian prize. Journal of cleaner production, 11(8), 851-857.

Mathison, S. (1988). Why triangulate?. Educational researcher, 17(2), 13-17.

McAloone, T. C. (2019). Transitioning to the Circular Economy: What does It Take to Go from Efficiency to Effectiveness.

Menon, S., Karl, J., & Wignaraja, K. (2009). Handbook on planning, monitoring and evaluating for development results. UNDP Evaluation Office, New York, NY.

Matzler, K., Veider, V., & Kathan, W. (2015). Adapting to the sharing economy. MIT Sloan Management Review, 56(2), 71.

McConnell, A. (2015). What is policy failure? A primer to help navigate the maze. Public Policy and Administration, 30(3-4), 221-242.

Meijer, C. (2019, February 7). Leasefiets voor werknemers. Fietsersbond. https://www.fietsersbond.nl/nieuws/kies-voor-de-leasefiets/.

Ministry of Infrastructure and Water Management. (2020, July 6). Onderzoek onder Nederlandse werkgevers (100+ medewerkers): inzicht in maatregelen omtrent duurzaam reisgedrag. https://zowerkthet.nl/wp-content/uploads/2021/01/onderzoekondernederlandsewerkgeversinzichtinmaatregelenomtrentduurzaamreisgedrag.pdf.

Ministerie van Infrastructuur & Waterstaat. (2020, November 26). Normerende regeling werkgebonden personenmobiliteit. https://www.internetconsultatie.nl/norm_werkgebonden_personenmobiliteit.

Mitake, Y., Hiramitsu, K., Nagayama, A., Muraoka, N., Sholihah, M., & Shimomura, Y. (2020, May). A CONCEPTUAL FRAMEWORK OF PRODUCT-SERVICE SYSTEMS DESIGN FOR SUSTAINABILITY TRANSITIONS. In Proceedings of the Design Society: DESIGN Conference (Vol. 1, pp. 2069-2078). Cambridge University Press.

Mont, O. K. (2002). Clarifying the concept of product–service system. Journal of cleaner production, 10(3), 237-245.

Mont, O., & Plepys, A. (2003). Customer satisfaction: review of literature and application to the product-service systems. Final report to the Society for Non-Traditional Technology.

MuConsult. (2019, September). Financiële prikkels om fietsen naar het werk te stimuleren – Een studie naar de effecten. Opgesteld op verzoek van Programma Fiets, Ministerie van IenW.

MuConsult. (2020a). Missie en visie. Retrieved at January 8, 2021, from https://muconsult.nl/missie-en-visie/.

MuConsult. (2020b). Geschiedenis. Retrieved at January 8, 2021, from https://muconsult.nl/geschiedenis/.

Navis, J. (2019, December 4). Auto-importeur Louwman gaat ook fietsen verkopen. AD. https://www.ad.nl/den-haag/auto-importeur-louwman-gaat-ook-fietsen-verkopen~a1b8fd90d/?utm_source=twitter&utm_medium=social&utm_campaign=socialsharing_web.

NOS. (2019, December 6). De leasefiets als geheim wapen tegen de files. https://nos.nl/nieuwsuur/artikel/2313621-de-leasefiets-als-geheim-wapen-tegen-de-files.html.

Nykamp, H. (2020). *Policy mix for a transition to sustainability: Green buildings in norway*. Sustainability, 12(2), 446.

OECD. (2019, December 10). *Better Criteria for Better Evaluation. Revised Evaluation Criteria Definitions and Principles for Use*. https://www.oecd.org/dac/evaluation/revised-evaluation-criteria-dec-2019.pdf.

OECD. (2021). *Applying Evaluation Criteria Thoughtfully*. OECD Publishing, Paris

Pattyn, V., & Verweij, S. (2014). *Beleidsevaluaties Tussen Methode En Praktijk: Naar Een Meer Realistische Evaluatiebenadering (Policy Evaluations between Method and Practice: Towards a More Realistic Evaluation Approach)*. Burger, Bestuur & Beleid, 8(4), 260-267.

Peck, J., & Shu, S. B. (Eds.). (2018). *Psychological ownership and consumer behavior*. Springer.

Piscicelli, L., Cooper, T., & Fisher, T. (2015). *The role of values in collaborative consumption: insights from a product-service system for lending and borrowing in the UK*. Journal of Cleaner Production, 97, 21-29.

Poppelaars, F., Bakker, C., & Van Engelen, J. (2018). *Does access trump ownership? Exploring consumer acceptance of access-based consumption in the case of smartphones*. Sustainability, 10(7), 2133.

RAI Vereniging. (2017). *Feiten en cijfers 2017*. https://www.raivereniging.nl/binaries/content/assets/downloads/themablad-leasefiets-2018.pdf.

RAI Vereniging. (2018). *Fietsspeciaalzaken in Nederland*. Themablad fietsspeciaalzaken 2018. Locatus. https://www.raivereniging.nl/artikel/fietsen/themabladen-fietsen.html.

RAI Vereniging. (2020). *Kerncijfers Tweewielers 2020*. https://www.raivereniging.nl/binaries/content/assets/downloads/kerncijfers-tweewielers-2020.pdf

RAI Vereniging. (2021). *Zoek een fiets*. Retrieved at April 29, 2021, from https://www.bijtellingfietsvandezaak.nl/.

RAI Vereniging, BOVAG & GfK. (2021). *FIETSEN IN DE STATISTIEK 2010 - 2020 NEDERLAND*. https://d15k2d11r6t6rl.cloudfront.net/public/users/Integrators/a0a42ab5-3cb9-4912-84b7-3c6e47330d5c/smart-pr-912/Verkoopstatistieken%20nieuwe%20fietsen%20RAI%20BOVAG%202010-2020.pdf.

Rexfelt, O., & af Ornäs, V. H. (2009). *Consumer acceptance of product-service systems: Designing for relative advantages and uncertainty reductions*. Journal of Manufacturing Technology Management.

Rijkswaterstaat. (2020a). *Duurzame mobiliteit*. Retrieved at November 23, 2020, from https://rwsduurzamemobiliteit.nl/.

Rijkswaterstaat. (2020b). *Steeds meer grip op onze CO2-uitstoot*. Retrieved at December 16, 2020, from https://magazines.rijksoverheid.nl/ienw/duurzaamheidsverslag/2018/01/klimaat-en-energie-rws.

Rijksoverheid. (2018, March 19). *Fiets van de zaak wordt aantrekkelijker*. https://www.rijksoverheid.nl/actueel/nieuws/2018/03/19/fiets-van-de-zaak-wordt-aantrekkelijker.

Rijksoverheid. (2020a). *Klimaatbeleid*. Retrieved at November 23, 2020, from https://www.rijksoverheid.nl/onderwerpen/klimaatverandering/klimaatbeleid.

Rijksoverheid. (2020b, October 13). *Wetsvoorstel Stikstofreductie en natuurverbetering*. Retrieved at January 13, 2021, from

https://www.rijksoverheid.nl/documenten/kamerstukken/2020/10/13/wetsvoorstel-stikstofreductie-en-natuurverbetering.

Rijksoverheid. (2020c). *Werkgevers stimuleren fietsgebruik medewerkers*. Retrieved at November 10, 2020, from https://www.rijksoverheid.nl/onderwerpen/fiets/werkgevers-stimuleren-fietsgebruik-medewerkers#:~:text=De%20overheid%20wil%20via%20de,op%20de%20fiets%20te%20krijgen.

Rijksoverheid. (2020d). *Fiets van de zaak*. Retrieved at November 9, 2020, from https://www.rijksoverheid.nl/onderwerpen/fiets/fiets-van-de-zaak.

Rijksoverheid. (2020e). *Vragen en antwoorden over de fiets van de zaak*. Retrieved at November 23, 2020, from https://www.rijksoverheid.nl/onderwerpen/fiets/vraag-en-antwoord/fiets-van-de-zaak.

Rijksoverheid. (2021a). *Maatregelen in het Nationaal Preventieakkoord*. Retrieved at April 19, from, https://www.rijksoverheid.nl/onderwerpen/gezondheid-en-preventie/nationaal-preventieakkoord.

Rijksoverheid. (2021b). *Hoe gebruik ik als ondernemer de werkkostenregeling (WKR)?*. Retrieved June 10, 2021, from https://www.rijksoverheid.nl/onderwerpen/inkomstenbelasting/vraag-en-antwoord/werkkostenregeling-wkr.

Rijksoverheid. (2021c). *Veilig fietsen*. Retrieved at May 2, from, https://www.rijksoverheid.nl/onderwerpen/verkeersveiligheid/veilig-fietsen.

RTL Nieuws. (2019, August 16). *Vanaf 1 januari rijd je voor een prikkie een dure fiets van de zaak*. https://www.rtlnieuws.nl/economie/life/artikel/4816196/fiets-van-de-zaak-bijtelling-1-januari.

RTL Nieuws. (2020, January 2). *Leasefiets van de zaak: gaan we nu wél op de fiets naar het werk?*. https://www.rtlnieuws.nl/editienl/artikel/4972846/bijtelling-fiets-van-de-zaak-e-bike-elektrische-fiets.

RVO. (2021a). *MIA \ Vamil*. Retrieved at May 19, 2021, from https://www.rvo.nl/sites/default/files/2021/03/BrochurenMilieulijst2021v2a.pdf.

RVO. (2021b). *Elektrische en waterstofvoertuigen en MIA\Vamil*. Retrieved at May 19, 2021, from https://www.rvo.nl/subsidie-en-financieringswijzer/miavamil/ondernemers/sectoren/elektrisch-rijden.

Schoonover, H. A., Mont, O., & Lehner, M. (2021). *Exploring barriers to implementing product-service systems for home furnishings*. Journal of Cleaner Production, 295, 126286.

Schmidt, M. (2019). *Scarcity and environmental impact of mineral resources—An old and never-ending discussion*.

Scriven, M. (1991). *Evaluation Thesaurus*, 4th edn. Newbury Park, CA: Sage.

Segenhout, J. and Kakebeeke, P. (2020, Augustus 19). *Fietsen naar het werk kan steeds makkelijker, maar doen we het ook?*. Retrieved at April 18, 2021, from https://fd.nl/achtergrond/1349740/fietsen-naar-het-werk-kan-steeds-makkelijker-maar-doen-we-het-ook-lrd1caJ0vs0n.

Smit, R. (2019, December 11). *Nieuwe leaseregeling geeft elektrische fiets extra duw in de rug*. Retrieved at April 18, 2021, from https://fd.nl/ondernemen/1327573/nieuwe-leaseregeling-geeft-elektrische-fiets-extra-duw-in-de-rug-lsd1caJ0vs0n.

Stahel, W. (2010). The performance economy. Springer.

Stichting Keurmerk RitRegistratieSystemen. (2019). *Het keurmerk*. Retrieved at June 24, 2021, from https://keurmerkritregistratiesystemen.nl/.

Stokkingreef, M. (2019). *Leasing: the best way for business to go green?*. Autumn 2019. World Leasing Review. http://newsletter.world-leasing-yearbook.com/autumn-2019/#/page/13

Stooker, C. (2020, November 11). *'Levertijd van meer dan zes maanden voor een nieuwe fiets'*. FD. https://fd.nl/ondernemen/1364037/levertijd-van-meer-dan-zes-maanden-voor-een-nieuwe-fiets-jae1capsAMLf.

Termaat, G. (2020, February 29). *Forens ontdekt de leasefiets*. Telegraaf. https://www.telegraaf.nl/lifestyle/1026893416/forens-ontdekt-de-leasefiets.

Thomas, O., Walter, P., Loos, P., Schlicker, M., & Nüttgens, M. (2007). *Hybride Wertschöpfung im Maschinen-und Anlagenbau-Prozessorientierte Integration von Produktentwicklung und Servicedokumentation zur Unterstützung des technischen Kundendienstes*. Wirtschaftinformatik Proceedings 2007, 26.

Tukker, A. (2004). *Eight types of product–service system: eight ways to sustainability? Experiences from SusProNet*. Business strategy and the environment, 13(4), 246-260.

Tukker, A. (2015). *Product services for a resource-efficient and circular economy–a review*. Journal of cleaner production, 97, 76-91.

Tweede Kamer der Staten Generaal (2018, September 19). *Wijziging van enkele belastingwetten en enige andere wetten (Belastingplan 2019)*. Kamerstukken 35026 nr.3. https://zoek.officielebekendmakingen.nl/kst-35029-3.html.

UN General Assembly. (2015, October 21). *Transforming our world: The 2030 agenda for sustainable development*, A/RES/70/1. https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E.

Van den Steen, N., Herteleer, B., Cappelle, J., & Vanhaverbeke, L. (2019). *Motivations and Barriers for Using Speed Pedelecs for Daily Commuting*. World Electric Vehicle Journal, 10(4), 87.

Van der Vlist, A. J., Bunte, F. H. J., & van Galen, M. A. (2007). *Beleidsevaluatie ex-post: methodiek en illustratie*. LEI.

van Waes, A., Farla, J., Frenken, K., de Jong, J. P., & Raven, R. (2018). *Business model innovation and socio-technical transitions. A new prospective framework with an application to bike sharing*. Journal of Cleaner Production, 195, 1300-1312.

Verdouw, G. (2020, April 8). *Sportschool op wieltjes –de e-fiets– steeds populairder*. RD. https://www.rd.nl/artikel/846208-sportschool-op-wieltjes-de-e-fiets-steeds-populairder.

Vezzoli, C., Ceschin, F., Diehl, J.C., Kohtala, C. (2015). *New design challenges to widely implement 'sustainable product-service systems'*. J. Clean. Prod. 97, 1e12.

Voermans, T. (2021, March 11). *Hoe duurzaam is een e-bike? 'Niemand vertelde ons dat ze maar tien jaar meegaan'*. AD. https://www.ad.nl/auto/hoe-duurzaam-is-een-e-bike-niemand-vertelde-ons-dat-ze-maar-tien-jaar-meegaan~a466993c/.

Vollebergh, H. et al. (2017). *Fiscale vergroening: belastingverschuiving van arbeid naar grondstoffen, materialen en afval*, Den Haag: PBL.

Vlaamse Stichting Verkeerskunde (VSV). (2019, April 30). *Allereerste bedrijfsopleiding speed pedelec van start*. https://www.vsv.be/pers/bedrijfsopleiding-speed-pedelecs/.

Wegrich, K. & Jann, W. (2007). *Theories of the Policy Cycle*. Handbook of Public Policy Analysis.

Weterings, R., Bastein, T., Tukker, A., Rademaker, M., & De Ridder, M. (2013). *Resources for our future: Key issues and best practices in resource efficiency*. The Hague Centre for Strategic Studies.

Whalen, K.A., Milios, L., Nussholz, J. (2018). *Bridging the gap: barriers and potential for scaling reuse practices in the Swedish ICT sector*. Resour. Conserv. Recycl.135, 123e131.

Williams, A. (2007). *Product service systems in the automobile industry: contribution to system innovation?*. Journal of cleaner Production, 15(11-12), 1093-1103.

Yang, M., & Evans, S. (2019). *Product-service system business model archetypes and sustainability*. Journal of Cleaner Production, 220, 1156-1166.

Zuid-Limburg Bereikbaar. (2021, January). *Fietsstimulering en fiscale regels 2021*. https://www.zuidlimburgbereikbaar.nl/media/3306/pmb128wtkfietsstimulering.pdf.