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Construction of winners and losers in the smart mobility innovation policy in the Netherlands

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1) Introduction

Smart mobility is an emerging paradigm in mobility characterized by the use of ICT and new mobility services enhancing behavioural change. In recent years, this paradigm has garned attention in the Dutch mobility policy domain. The Dutch Ministry of Infrastructure and Environment (I&M) aims to position the Netherlands as a frontrunner in the area of smart mobility. This interest has been institutionalized in the mobility policy subsystem by multiple policy actions, including an implementation roadmap, innovation platforms, and national and regional programs.

One of the current smart mobility programs is Beter Benutten ("Better Utilization" in English, BB). Initiated in 2011, BB aims to reduce traffic congestion by 20% and door-to-door travel time by 10%, by optimizing existing infrastructure usage and by improving mobility network interconnections (Tweede Kamer der Staten-Generaal, 2011). BB encompasses three major innovations in the field of mobility management: customized regional packages with national coverage; regional decision-making mechanisms in which market parties, and local and regional governments are represented; and a strong emphasis on travellers' behavioural change.

These innovations suggest that the mobility solutions and travellers groups being targeted may differ from one region to another, based on regional decision-making processes. These groups, in policy sciences, are referred to as 'target groups': groups towards which a policy is directed. Examples of target groups in mobility policy include car drivers, cyclists, and daily commuters. In theory, if groups share similar characteristics (e.g. demographic, economic, etc.), they should be treated by policy in the same way. However, recent research has indicated that this is not always the case. These groups may be treated differently in two jurisdictions, receiving different benefits and burdens, or wins and losses.

An emerging framework in policy sciences explaining this divergence in target groups' treatment is the Social Construction and Policy Design (SCPD). In this framework, a social construction is "a world-shaping exercise [...] in which the 'realities' of the world are defined" (Ingram, Schneider, & Deleon, 2007). The SCPD postulates that policy decisions are not completely 'logical' and 'rational'[1], but that the "contradictions, images, rationales, and other design components" that operate in practice should also be considered (Schneider and Sidney, 2009, p.105).

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[1] Complete rationality assumes that policy actors maximize utility by analyzing costs and benefits of their actions, and that these actors can rank their preferences in order of importance (see Cairney, 2011, chapter 5).

Current research using this SCPD framework has largely ignored the role of science and technology in social constructions (see Ingram, Schneider, & Deleon, 2007). In contrast, the interdisciplinary field of Science and Technology Studies (STS) considers technology to be more than a linear application of science. STS argues that as science and technology have deeply penetrated all dimensions of our culture, from those directly connected to technology and science (communication and mobility), to the less obvious aspects (norms and values), one cannot understand the modern Western society without understanding the role of science and technology in it (Bijker, 2001). Hence, we combine insights from SCPD and STS to understand the role of technology and the differential treatment of target groups in innovation policy.

The main research question addressed in what follows is how target groups are socially constructed by decision-makers in the BB regions of Maastricht and Brabant. These two regions are part of the Dutch Road Authority (Rijkswaterstaat, RWS) South of the Netherlands jurisdiction. The following three sub questions are addressed. First, what are the decision-making processes of target groups' construction in the two regions of RWS South of the Netherlands? Secondly, which target groups have emerged in this RWS jurisdiction and what are their specific wins and losses (benefits and burdens)? The third inquiry addressed is what is the role of technology in the creation and treatment of these groups? After answering these questions, and as final remarks, we reflect on how the SCPD framework can help us understand better the differential treatment of target groups.

To answer these questions, we conducted a comparative case study between the regional BB programs of Brabant and Maastricht. These two regions exhibit different socio-historical developments and imaginaries, as well as different approaches to smart mobility innovations. Moreover, these regions are geographically adjacent. We see the regionalisation of BB as an implicit consideration and implementation of different perspectives or of social construction.

2) Theoretical background

The Social Construction and Policy Design (SCPD) framework is a recent constructivist theory which focuses on the treatment of target groups. According to dominant policy frameworks, similar target groups should receive comparable treatment in policy. However, these frameworks are not necessarily representative of the actual policy outcomes, as in some cases similar target groups are differentially treated. To explain these differences, the SCPD framework was developed. Originally developed by Schneider and Ingram (1993), this framework argues that social constructions are an essential component in policy design, or the content of the policy.

In this framework, target groups are defined as those populations who receive wins and losses through the various mechanisms of policy-making process, or through the elements of the policy design (Ingram, Schneider, & Deleon, 2007). These target groups are seen as socially

constructed. Social construction happens in an intersubjective process of attributing policy-regulating statuses or values to different groups based on singled-out key characteristics (Pierce et al., 2014). Examples of such key characteristics include being a student or being an employee. In short, the social construction of a target group happens when these characteristics come into practice as a selection-criterion for specific kinds of treatment or for access to policy-regulated resources.

Policy-making occurs in a context in which the "cultural characterizations or popular images of [...] groups whose behaviour and well-being are affected by policy" influence policy outcomes (Schneider and Ingram, 1993). These characterizations and images are transmitted through diverse mechanisms, such as education, media, religion, and public opinion (see Schneider and Ingram, 1993); and they explain the variation in policy treatment of similar groups, e.g. cyclists shifting from road users interfering with road traffic to commuters committed to sustainability, but this shift has not occurred homogeneously. Even though cyclists across jurisdictions may share similarities and objective attributes (e.g. economic capacity, or activities performed in society) given a comparable problem formulation, they are treated differentially.

The SCPD suggests that two main variables explain this differential treatment: the target group's political power, and its positive or negative social construction. Political power primarily refers to the capacity of a certain group for resource mobilization, including "votes, wealth, and propensity of the group to mobilize for action" (Schneider and Ingram, 1993). But political power can also refer to a group's social capital, wealth and access to public officials (Ingram, Schneider and Deleon, 2006). Recent SCPD applications suggest that the framework use several dimensions of power drawing from political science including observable visible political choices, such as public engagement; non visible political behaviour, by actions i.e. agenda setting; and by imposing ideologies in policy (Pierce et al, 2014; see Cairney, 2011).

Further, the positive or negative social construction of a target group refers to the use of rhetoric, discourses, and arguments, to think about a group in a certain positively or negatively valenced way. Classical positive constructions of target groups include thinking about a group as 'honest', 'socially committed', 'trustworthy', or 'in need of support', while negative characterizations see a group as 'dishonest', 'inconsiderate', 'burden to society', or 'irresponsible'. Following SCPD, positively constructed target groups include elderly, entrepreneurs, and orphans; while negatively constructed groups encompass thieves, terrorists, and bureaucrats (Pierce et al., 2014). Positive groups receive benefits with "high levels of discretion, short implementation chains, and strong provisions [...] [with] actual material benefits" while negative constructed groups receive benefits with "low levels of discretion, [and] long implementation chains" (Schneider and Sidney, 2009, p.107).

Illustrating these two explanatory variables, figure 1 shows a matrix of four 'ideal types' of target groups: positively constructed and powerful ('advantaged'), positively constructed and

powerless ('dependents'), negatively constructed and powerful ('contenders'), and negatively constructed and powerless ('deviants'). 'Advantaged' groups receive considerable wins and limited losses, and policy makers increase their political capital by allocating them benefits. 'Contenders', as negatively constructed, have high losses. These losses are generally more rhetorical than material. Their level of power allows them to easily overcome any material losses, if present. Moreover, they have hidden wins. 'Dependents' have high wins, but their limited power capacity results in rather rhetorical than material ones. This group is highly dependent on the way the society and policy makers perceive them. Finally, 'deviants' receive high losses (both rhetorical and material) and low wins (Schneider & Ingram, 1993; Ingram, Schneider, & Deleon, 2007; Schneider & Sidney, 2009; Pierce et al., 2014).

	Positively constructed	Negatively constructed
High level of power	ADVANTAGED	CONTENDERS
Low level of power	DEPENDENTS	DEVIANTS

Table 1: Four 'ideal types' matrix of target populations.

Wins and loses can be distributed to groups by several mechanisms. We have identified four relevant for this research: regulatory, economic, informative, and symbolic. Regulatory mechanisms are used by authorities to modify the behaviour in legal terms. In economic mechanisms policy-makers redistribute resources among groups. In informative mechanisms, target groups are provided with knowledge (e.g. education or advice). Finally, symbolic mechanisms use beliefs and values of target groups (Helgøy and Homme, 2006; Schneider and Ingram, 1993).

Ingram et al (2007) have already pointed to the relevance of including social construction theory to classical policy frameworks. However, to our best knowledge, the role of science and technology has been largely ignored in understanding the construction of target groups in policy. We live in a technological culture, where technology and science are deeply integrated in every dimension of our society, from those directly connected to technology and science - communication and mobility, to the less obvious aspects - norms, values and identity (Bijker, 2001). Access to technology and science are thus necessary for participating in our technological society (ibid.).

This perspective links to the role of mobility in our hyperconnected culture, where mobility (both as a practice and a technology) is deeply ingrained in the functioning of our society (Hannam, Sheller and Urry, 2006). Being mobile and using mobility technologies is essential for participating in a hyperconnected and hypermobile society (Ibid.). When analysing creation and treatment of target groups, in this article, we also analyse what role technologies play in accommodating wins and losses. STS offers illuminating perspectives for understanding how innovations are politicised

by including actors or users in technology design, or by e.g. providing them with access use the technology and thereby to perform actions within society, while excluding other users (see Wyatt et al., 2002).

STS studies the relationship between users and technology, by asking questions such as 'how users are defined and by whom?' (see Oudshoorn and Pinch, 2003), and 'what social groups have been defined as non-users and thus excluded from having the access to technologies as well as to their impacts or benefits?' (see Wyatt et al., 2002). We combine STS and SCPD to analyse whether the perspective of considering target groups as users (and non-users) is relevant for understanding how wins and losses are distributed among target groups.

Furthermore, STS focuses on the processes of science and knowledge production, or actors' decision-making about employing certain methods, expertise, and tools; whereas the SCPD has not paid enough attention to the mechanisms and processes of the social construction of target groups. Following STS' perspectives, the use of certain tools or technologies influence the culture or the set of practices in which it is used, we analyse whether considering the role of smart mobility technologies in BB decision-making processes is useful for identifying new decision-making mechanisms and practices of distributing wins and losses among target groups.

3) Methodology

We combined two qualitative methods, namely literature study and semi-structured interviews, because they provide a 'holistic' overview of the study, e.g. by including the perceptions of participants (Miles and Huberman, 1994). These methods enable us to answer our main research question 'how target groups are socially constructed by decision-makers in the Dutch smart mobility innovation policy' from two dimensions, including looking into which are the target groups (and their wins and losses) in the Dutch smart mobility policy and what decision-making processes have led to construction of these target groups.

First, we conducted a literature study of primary documents and websites, which informed us about program aims (both national and regional) as well as about the solutions developed to reach those aims. Second, we conducted qualitative semi-structured interviews with decision-makers responsible for implementing the BB program in two regions. Qualitative interviews are useful for understanding the complex process of decision-making that is not apparent from any other sources (Weiss, 1994). Qualitative interviews enabled us both, to compensate for the limited information provided in primary document and to triangulate or cross-verify our findings obtained through the literature study.

The interviews were conducted in a semi-structured and an open-ended way, aiming to generate comparability of the multiple decision-makers' perspectives in the evaluation process, while

at the same time providing the interviewees with the chance to elaborate on topics of priority to them. Semi-structured interviews are a valuable method for obtaining knowledge about the interviewees' "attitudes and values" towards a specific issue (Bryne, 2004, p.182), which is necessary for answering how can SCPD framework inform us about the differential treatment of target groups.

As the regional programs are small in size, we have conducted twelve interviews with decision-makers participating in the program. We opted for a symmetrical representation of interviewees with similar functions from both contexts (ranging from coordinators, researchers and consultants responsible for implementing the BB solutions).

4) The findings and the conclusions

Beter Benutten (BB) is a program established in 2011 by the Dutch Ministry of Infrastructure and Environment, which officially has two goals: to reduce 20% traffic congestion and to lower 10% door-to-door travel time. During our interviews, an additional non-official goal was identified: creating a market for mobility services. A major innovation in this program is the use of behavioural change as a tool to achieve these goals e.g. by changing travellers' route or transport mode during rush hours.

4.1) Comparing the two regional contexts: Brabant and Maastricht

At the moment, the BB is divided into 12 regions, from which Brabant and Maastricht are in the Rijkswaterstaat (RWS) South of the Netherlands jurisdiction. However, these two regions have different contexts, which we elaborate on in this section.

First, Maastricht is one of the oldest Dutch cities, with a small historic city centre, and it is a place of historical monuments and national landmarks. Maastricht has a highly regarded university, with a strong focus on social sciences and humanities. Students represent 25% of the overall population in this city. Closely located to Belgian and German borders, it attracts many visitors and tourists for cultural activities, recreation, education, shopping or work. The city faces all day long traffic congestion, as a result of the only traffic light in a highway from the Netherlands to Spain, following interviewee's utterances: "this creates a sense of urgency" (interview 1). Moreover, Maastricht does "not have a strategic policy on cycling [...] [and] the use of the bike is pretty low compared to other region[s] in the Netherlands" (interview 2).

Second, Brabant region consists of five main cities, Breda, Den Bosch, Helmond, Eindhoven, and Tilburg. The region is a major contributor of the Dutch national GDP. The region is a hub for technological innovation emerging from an interplay amongst knowledge institutions (e.g. Eindhoven University of Technology and the Design Academy) and technological companies (e.g. NXP and ASML). The focus on technological advancement was obvious among Brabant decision makers, often stressing: "We want to be the most innovative region of all" (interview 3). The region is self-

labelled as Brainport: a region based on "high-tech, design and a unique model of collaboration [...] [accelerating] high-tech growth" (Brainport, 2016). It is also home of the High Tech and Automotive campuses, the cradle of Dutch technological innovations. Helmond is home of the car industry in the Netherlands.

4.2) The decision-making processes of target group construction

Our interviews revealed several aspects of the process in which decision-makers construct the target groups. The structures in which the construction of these groups occur differ in the two regions. However, sharing the project goals and focusing on stimulating behavioural change, the two regions have commonalities, which are the inclusion of third parties, such as market parties in the development of this policy, and the role of knowledge institutions (both public and private) in identifying travellers' needs.

Regarding these structures, the decision-making mechanisms in the two regions differ from each other. On the one hand, Maastricht has a 'dedicated organization' -Maastricht Bereikbaar ("Maastricht Accessible" in English, MB), which has been successful in making employers and public institutions collaborate to offer mobility solutions. Moreover, employers have been engaged in BB since the beginning of the program, which did not happen in Brabant. In Maastricht, membership fees are placed for companies willing to participate in the program. Membership fees, according to an interviewee, can have a negative impact on small and medium enterprises, excluding them from the program benefits: "they are focusing on other things [rather than a mobility internal policy]" (interview 2).

On the other hand, Brabant has a network of collaborators, with limited results in engaging employers. Companies in Brabant "are not too eager to try new innovative programs" (interview 3) offered in BB. This difference in decision-making mechanisms also has an impact in the role of national, regional, and market parties representatives. Brabant is perceived by some interviewees as a place for innovation and testbed of novel approaches to mobility. "We have a triple helix, between industry, knowledge institutions, TNO, road authorities, but also private parties. This is kind of unique" (interview 4) Brabant has been facing challenges in getting companies to collaborate, mostly due to the lack of a central organization such as MB. In addition, Brabant will start implementing member fees in the near future (interview 3).

Both regions are "learning by doing" and collaborating with market parties as well as knowledge institutions in developing their solutions. We distinguish several ways in which these two new actors are contributing to construction and treatment of target groups.

Regarding the role of market parties in the development of the regional BB solutions, we found that in both regions market parties contribute either by developing mobility services or by

identifying target groups. Through tender calls, service providers are invited to provide solutions to BB actions, whereby they translate the BB policy objectives into specific projects. Governmental parties in the two regions set certain goals and provide guidelines, while still allowing the service providers to identify their targets. For example, in the case of Maastricht, removing one thousand car travellers in morning rush hour was set as a goal by the government, but that was "the only guideline we gave to them [service providers], so they can make their own program around the targets […] [They] "are getting a free hand in how to reach a specific group" (interview 2).

In a different role, employers are invited to collaborate with public institutions through promoting the BB solutions to their employees. Here, private companies actively select the group of employees to target, and they also broaden or limit the beneficiary groups. For example, in Maastricht, when employers were asked to offer BB solutions to merely car commuters, the employers explicitly required to include all employees avoiding "discrimination among their employees" (interview 2).

Additionally, behavioural change is expected to be more successful when steered towards the individual needs of each targeted participant. Yet, public institutions often lack the access to individual needs of travellers (interview 1, 2 & 5). In both regions collaborating with private parties has become essential for public institutions to reach their BB goals, e.g. by researching what wins the users appreciate or by gathering information about users current transport means. In the early phases of BB, Brabant collaborated with research institutes, universities of applied sciences, and municipalities in gathering data on user preferences; while Maastricht did most of such research in-house and focused more in partnering with employers whose employees they were targeting. Thereby, Maastricht obtained valuable personal information about the participants, i.e. their current transport mode. Currently, collaboration for these purposes is increasingly being used in both regions.

Finally, while both regions share BB goals, they differ in the ways they conceptualize target group creation and treatment. Brabant interviewees, referred to their group identification process in a way that resonates with the linear adoption of innovations: "[we have] early adopters, a positive majority, neutrals, a late majority, and lagers"* (interview 4). Yet, Maastricht has a different approach, which considers multiple factors (e.g., daily commuting distance, age, and personal circumstances) affect behavioural change. Thus, the processes of identifying target groups, as described by the decision-makers seem to differ in each region. Interestingly enough, the findings show similar outcomes in target groups identifications.

4.3) The target groups (and their wins and losses)

In both regions, we have identified four types of target groups: 'modality switchers', employees who had been commuting by car, but as a result of participating in BB switched their transport mode; 'obedients', employees who have not been using the car (but bicycles or public transport) for commuting before the introduction of the BB solutions; 'students', regardless of their transport mode; and 'rebels', a group travelling by car, despite being invited to switch their transport mode.

Table 2 shows their wins and losses. As can be seen, the group 'modality switchers' receive major wins in comparison to other groups. In contrast, students have the major limited wins and are the groups who get major losses. Furthermore, obedients are subject to potential wins, which are mostly negotiated by employees with policy makers. Even though most of the wins and losses are specific to a certain target group, some of them are open to everyone (e.g. less pollution, healthier lifestyles and infrastructure).

	Target groups	
Group	**Modality switchers**	**Students**
Wins	Considerable wins. Both regions in early phases prioritized: Free trials, purchasing discounts, fiscal benefits, online motivational coach, lottery, online credit (to buy e.g. a museum ticket), less stress. In the later project stages both regions have been demonetizing their wins: personalized (environmental, health, fuel savings).	Limited 'wins'. Massive open online courses (MOOCs), and changes in lecture times. Mostly rhetorical, non-materialized as other groups Interviewees suggested potential wins to this group in the near future.
Losses		Limited mobility. They are encouraged to avoid the use of public transport during rush hours, to allow other target groups to use it.
Group	**Obedients**	**Rebels**
Wins	Few operationalized measures. In Maastricht: in the early phases employees extended to this group the 'modality switchers' wins. This is being changed to treat them as modality switchers. Brabant in early stages offered to this group online motivating coach, online credit (to buy e.g. a museum ticket) or participate in a lottery, while in later stages it offers no benefits to the obedients.	As less people use the car, they benefit from less congested roads. Less stress and less time travelling.
Losses		Infrastructure solutions to other groups can reduce the road space for them. Parking becomes more expensive.
Common wins	Parking schemes, less congestion, less stress and time travel, infrastructure upgrading.	
Common losses	Less freedom to move. In the short term, some infrastructure upgrading may contribute to more travel time and stress.	

* Note: this does not include the rebel group.

Table 2: Targets groups and their respective wins and losses in both BB Maastricht and Brabant.

In Maastricht, the interviewees commented they are primarily focusing on three target groups, including students, employees and visitors; while in Brabant the interviewees said to be focusing on collective goals, targeting everyone, and thereby differentiating between user groups depending on their adoption time i.e. early adopters. However, despite different interpretations of their processes, the outcomes of the decision-makers actions are mostly the same.

Following BB aims, the two regions target a new group in smart mobility policy, which we call 'modality switchers', who are employees daily commuters using car during rush hours, and are invited to switch to other transport modes, of which bikes (including e-bikes) are the dominant solution.

Each region has developed a smart mobility cycling solution for stimulating behavioural change of modality switchers. In Brabant the B-riders project was developed, which is expected to be implemented in three phases, of which they are currently in the second one (interview 3 & 6). In the first phase, modality switchers, were offered monetary rewards calculated by a mobility app. This app traced user's activity, rewarding every kilometre using their bicycle instead of a car (12¢ (<10 km) or 15¢ (>10 km) per km during rush hours, and 8¢ per km outside rush hours). This has been changed in the second and third project phases, where the reward is 10¢ per km only in rush hours and reward points for outside the rush hours. In the first phase, the monetary reward was limited to the modality switchers, while the obedients only obtained access to the motivating coach, online points for getting small presents (e.g. a museum ticket) or entering a lottery (e.g. weekend getaway). As our interviewee phrased it: "to get the money reward you need to be using a car and really change your behaviour" (interview 3).

In contrast, Maastricht, started with 'Burn Fat Not Fuel' which promotes the use of e-bikes among modality switchers through offering free-trial and buying discount schemes, assistance in choosing the e-bike model to purchase, motivating coach as well as feedback techniques e.g. on users savings in terms of CO2, fuel costs and health. In this solution, participation was exclusive to modality switchers (interview 5). They are about to launch a new initiative, in which an app connected to users' agenda provides them with travel advice. Whereas in the previous solution the financial incentive was primary and the feedback was secondary, in the upcoming solution both are equally important (interview 2). Furthermore, whereas the former was exclusive to the modality switchers, the latter includes the obedients as beneficiary group, based on the assumption that it will create social pressure to modality switchers (ibid.). However, due to their specific institutional arrangements of collaborating with employers, in Maastricht only the employees working for the companies partnered with MB can participate.

Regarding the wins, in the first stages, both regions have been favouring monetary wins, i.e. purchasing discounts, while in the later stages they have shifted towards softer wins, relating to

savings in terms of participants health, CO2 emissions, and fuel costs. We have identified direct and non-direct wins and losses. The direct wins are direct impacts of using a specific technology, in our case the connected bike as a part of participating in a specific policy initiative. The indirect wins are not as explicitly limited to switching to the connected bike; these wins are also obtainable by using alternative technologies and by other means than participating in a specific policy initiative. Specifically, the direct wins are only obtainable for employees' car-users who switch from using cars to connected bikes. Examples of indirect wins include participants becoming fitter, saving on fuel costs, being less stressed and lowering CO2 emissions.

4.4) The role of technologies

In both contexts, the preferred solution is the connected bike, which is a (e-)bike connected with GPS or tracking technology recording the traveller's activity, to provide feedback on user's activity (e.g. by an app). The connected bike is perceived as a valuable new option as it is more sustainable and causes less congestions than cars. In both regions, policy-makers believe that the connected bikes can deliver several wins to those partaking in the initiatives.

Regarding the wins and losses the connected bike materializes otherwise non-existent personalized wins, e.g. the sensors are tracking user's activity and distances and calculating these into personalized monetary, fitness and CO2 emission wins. These personalized wins remain at an intangible level of values and emotions (e.g. becoming healthier) and only become tangible and material (e.g. amount of calories burned) after they have been calculated in specific numbers and after they have been presented on a screen to the user.

In conclusion, use of persuasive technologies in policy-making enables promotion long-term behavioural change through distribution of personalized wins, which are altogether a new policy mechanism for stimulating behavioural change enabled by tracking technologies and ICT.

4.5) The differential treatment

It struck us that while the students are also members of the car-users daily commuters target group in both regions, student car-drivers are excluded from the behavioural change policies for switching to (e-)bikes. For example, the decision-makers have identified the students as non-users of, or as not being interested in owning, (e-)bikes; mainly because they are perceived as lacking of money for purchasing an e-bike (interview 1 & 2), which is an intriguing example of a social construction considering that some of them can afford a car. Other answers referred to the fact that students already have a benefit in terms of the free public transport pass (interview 3 & 7). By identifying students as non-users of e-bikes, the decision-makers have excluded them from the direct wins such as free trials and monetary assistance in purchasing the e-bike. We thus perceive students to be the

losers in our case. Additionally, in terms of having access to direct wins, the employees who are already commuting to work using bikes or public transport would also count as losers. Despite this fact, we perceive the employees are better off as they have better financial conditions, e.g. purchasing an e-bike.

The obvious winners are the modality switchers, since they have the access to most of the direct and non-direct wins. Interestingly enough, the employees who continue using cars (rebels) are also winners, since the car-users switching to connected bikes enable the non-switchers benefiting from the overall goal of the BB program: spending less time in traffic congestions. This group receive only a few losses from policy-makers, e.g. increasing parking costs.

Additionally, students are not targeted with exclusive wins and they have specific losses e.g. getting them out of the public transport in rush hours. In both regions, most of the solutions beyond behavioural change (i.e. bike-renting schemes or parking solutions) are in principle open to everyone, while primarily targeting the employees.

Furthermore, we identified a differential treatment within the employees, where each of the two regions distribute differently the wins among modality switchers and obedients. On the one hand, Maastricht started with an exclusive program, where one could only participate upon a representation of a note signed by their employer confirming they are travelling to work by car (interview 5). As some of the employers refused to practice such differential treatment, MB later adapted to a more inclusive scheme (interview 2). On the other hand, Brabant was in the B-riders first phase more inclusive of both groups. This, mostly due to lack of participation of the employers in the B-riders and consequently lack of reliable information about participants current mode of transport (interview 3). However, this has changed to the participants having to bring a signed note from the employer stressing they are car-users (interview 3). In conclusion, Maastricht is becoming more inclusive in their approach, while Brabant seems to be becoming more exclusive.

5) Construction of target groups in the Dutch smart mobility policy: final remarks

In this study we answered how target groups are socially constructed by decision-makers in the Beter Benutten (BB) program by comparing the regions of Maastricht and Brabant. Four major target groups were identified in the BB program, modality switchers, obedients, students and rebels.

Following the SCPD, all groups are being created in positive terms, even though some groups have more wins than others. However, surprisingly, rebels are not negatively constructed. Our research points out to a differentiation between groups, even though groups are treated as equally important by policy makers.

Additionally, the SCPD and STS helped us to understand the differential treatment in practice. SCDP theory suggests that students, as a dependent group, will benefit mostly from

rhetorical wins. Moreover, the STS notion of an excluded user helped us to identify students as the losers in the BB, based on the construction that they are not interested in, or not able to, buy and use the technology and thereby not suitable for some of the smart mobility solutions. Their few materialized wins are normally almost non-existent in terms of access and funding (Schneider and Sidney, 2009), which we also found to be the case in the design of BB and distribution of wins and losses. Following SCPD terms, the dependents suffer from stigmatization or labelling in policy design which is difficult to reverse (Ingram and Schneider, 1993).

Advantaged groups may access wins without intermediation or complication. They are generally entitled to tools such as "non-income-tested subsidies, [...] free information, training, and technical assistance" (Schneider and Sidney, 1993, p. 339), which is present in both regions. In the case of -the connected bike, employees are entitled to participate in a project "easy to register [and] with no risk involved", helping them to "make this otherwise difficult decision [switching their modality]" (interview 2). Moreover, SCPD suggests the benefits given to advantaged groups are usually labelled in terms of collective public goals.

Focusing on the process of target group creation, we have identified a new decision-making mechanism, namely inclusion of private parties in the identification of target groups (and their wins and losses). Collaborating with private parties is the most significant mechanism for differential treatment (between modality switchers and obedience groups) between the two regions and deserves future exploration.

In both regions, the connected bike is the dominant solution for reaching the BB goals. The unique combination of (e-)bikes with tracking technology with the BB behavioural change aims is a persuasive technology which allows a distribution of new types of wins: personalized wins. It represents a novel tool which enable policy-makers to distribute highly personalized wins tailored to the user needs and to communicate the wins directly and immediately through personal devices.

In conclusion, the combination of SCPD and STS has enabled us to identify novelties in innovation policy. We have identified several differences in the processes of the target group constructions in the two regions ranging from having different organizational structures, to different mechanisms of collaborating with private parties. While the target groups constructed the same in both regions, these differences often directly influenced the distribution of wins and losses. We linked the use of persuasive technologies and the use of personal devices in smart mobility solutions to emergence of a novel policy making mechanism, which also results in new types of wins, thus elements for differential treatment. Future research should reflect on the implications of using persuasive technologies for creating more differential treatment within target groups.

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