Nieuwe business modellen voor duurzame mobiliteitsmaatregelen
Welke rol kan de overheid spelen?

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Samenvatting

Nieuwe business modellen voor duurzame mobiliteitsmaatregelen. Welke rol kan de overheid spelen?

Er worden veel experimenten en praktijkproeven uitgevoerd om nieuwe beleidsmaatregelen te ontwikkelen en te testen, die gericht zijn op het stimuleren van duurzamere mobiliteitskeuzes (milieuvriendelijke modaliteiten, buiten de spits reizen en minder reizen). Het gaat hierbij om nieuwe vormen van reisinformatie, verkeersmanagement en mobiliteitsmanagement. Voorbeelden zijn gepersonaliseerde routeadviezen aan reizigers, snelheidsadviezen om filegolven te verminderen en spitsmijden maatregelen waar spelelementen aan worden toegevoegd. Er is en wordt veel publiek geld geïnvesteerd in deze experimenten en proeven. Echter, waar in Nederland veel maatschappelijke kosten-baten-analyses worden uitgevoerd, is er nog verrassend weinig aandacht voor het ontwikkelen van haalbare business modellen voor duurzame mobiliteitsmaatregelen. In deze bijdrage gaan we in op de vraag of de overheid hier wel zoveel in moet investeren.

Binnen het BestMOB project (Behavioural Change for Sustainable Urban Mobility, project onderdeel van EIT Climate KIC) zijn verschillende business modellen onder de loep genomen. BestMOB staat aan de basis van dit paper.

In deze bijdragen lichten we toe welke stappen er zijn in de ontwikkeling van een business model. Dit wordt gedaan door gebruik te maken van de best practices uit BestMOB en het Business Model Canvas. Vervolgens gaan we in op een van de business modelen: Spitvrij. Ondanks de projectsuccessen en een positief resultaat voor de MKBA, ziet de Provincie Utrecht het als een zwakte dat voornamelijk de overheid investeert. Aan de hand van de theorie over business modellen hebben we in het BestMOB project nagedacht over verbetermogelijkheden hiervoor. De belangrijkste suggestie ter verbetering van het Spitsvrij business model is het creëren van een gedeeld online platform voor alle Nederlandse Spitsmijden projecten. Dit online platform kan een grotere groep specifieke deelnemers aantrekken, wat het project aantrekkelijker maakt voor private partijen (als partner of als adverteerder). Daarnaast kan het platform een grote kostenbesparing ten opzichte van de huidige situatie, waarin elk project een eigen platform gebruikte.

De belangrijkste conclusies zijn dat business modelering vanaf het begin onderdeel moet zijn van het innovatieproces. De services moeten vanuit de klant geredeneerd zijn en moeten opgeschaald worden om voldoende gebruikers aan te trekken. Ook is er een rol voor de overheid: Overheidsgelden zijn vooral in de opstartfase noodzakelijk. Daarnaast kan de overheid een faciliterende rol bieden, bijvoorbeeld door partijen bij elkaar te brengen onder een PPS, of door regelgeving, standaarden en pilot-locaties beschikbaar te maken.

1. Introduction

In The Netherlands it is common to use experiments and practical tests to develop and test new policy measures to influence the behaviour and choices of travellers. Sustainable mobility projects envision to get travellers use more sustainable modes of transport, avoid the rush hours or decrease their number of trips. Services that provide travel information, traffic management and mobility management are means to realize this. Some examples that are developed in the past years are personalized travel information, speed advice to avoid congestion waves and rush hour avoidance projects with game elements.

A lot of public money is invested to develop and introduce these experiments. A lot of the investments of the government is subject to extensive cost benefits analysis. But extensive research on the business models and how to improve the business models for the services is not covered. These subjects were part of the BestMOB (Behavioural Change for Sustainable Urban Mobility) project, a project part of the EIT Climate KIC. The results of the BestMOB projects were used for writing this paper (Kranenburg, Sluijsmans, Vonk Noordegraaf, & Kruijff, 2014).

The goal of this paper is to discover new business models for policy measures targeting sustainable transport. This question is supplemented with the question how governments should be involved in these kind of projects.

The paper starts with a typology of the current services and the best practices of existing services in chapter 2. Chapter 3 will discuss the business model canvas, which is used to (further) develop the business models of existing and new services. This business model canvas is used in chapter 4 to give an overview of the business model of an example case, Spitsvrij at Utrecht, and will try to give suggestions to enhance the business model. The paper is finalized with conclusions and recommendations.

2. Typology of services and best practices

In this chapter the typology of the current services and the best practices of existing services are discussed.

2.1 Typology of the services

The BestMOB project focusses on business models for sustainable mobility. To structure the services in this field, a typology of services is made. The typology contains two axes: the horizontal axis contains different service groups, and user needs are presented on the vertical axis. The services typology is presented in the picture below. Figure 1 shows some examples of existing services in the field of sustainable mobility are plotted (the orange blocks).

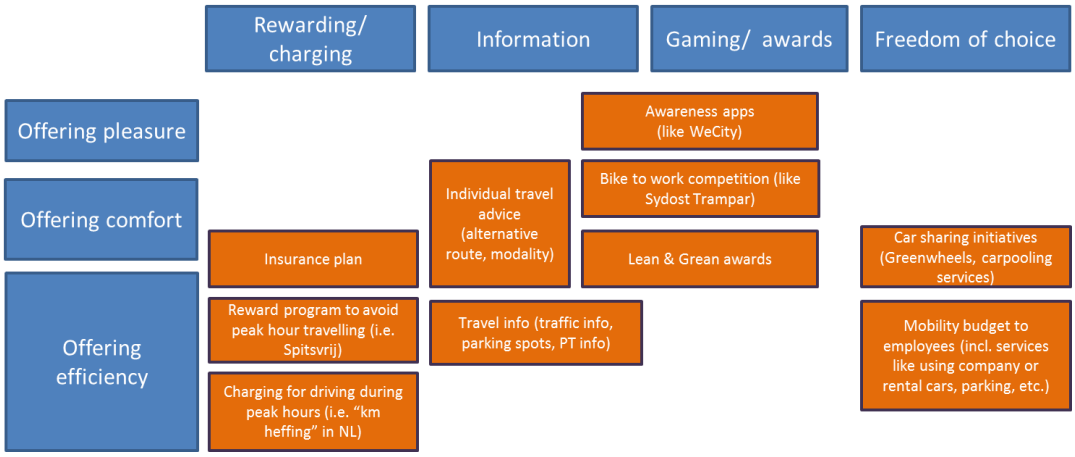

Figure 1 - services typology

The typology divides the services into four groups:

- Services that use a rewarding or charging scheme
- Information services
- Services that have an element of gaming and awards to stimulate more sustainable behaviour
- Services that enable freedom of choice, like a mobility budget for employees

Most services can be mapped on one of these four groups. Some services have elements of more groups. For example the WeCity app in Emilia-Romagna, Italy offers and collects information, but is also linked to a game with prizes.

When designing new business models, a crucial element is always the user need. To create a feasible business model, the need of the user should be a starting point. That is why user needs form the second axis of the services typology. Most user needs are covered by the following three elements Pleasure, Comfort and Efficiency (Kappetijn, 2012):

- Pleasure: users want to have (more) fun in doing things
- Comfort: things are made easier and/or quicker to do for users
- Efficiency: users want to earn money or reduce costs

The user may be a traveller (e.g. commuters), but may also be another entity, like society. An example of a concept aimed at society is road pricing (charging for driving during peak hours). This concept does not serve individual road users, but should serve society by using road capacity more efficiently during peak hours.

Some services have more elements of the three elements of user needs in it: for example an individual travel advice offers comfort, but may also suggest the most efficient modality (in time and money) at a specific moment.

2.1 Best practices

The BestMOB project analysed several European best practices about innovative measures to increase sustainable mobility. In this section the success and failure factors are discussed.

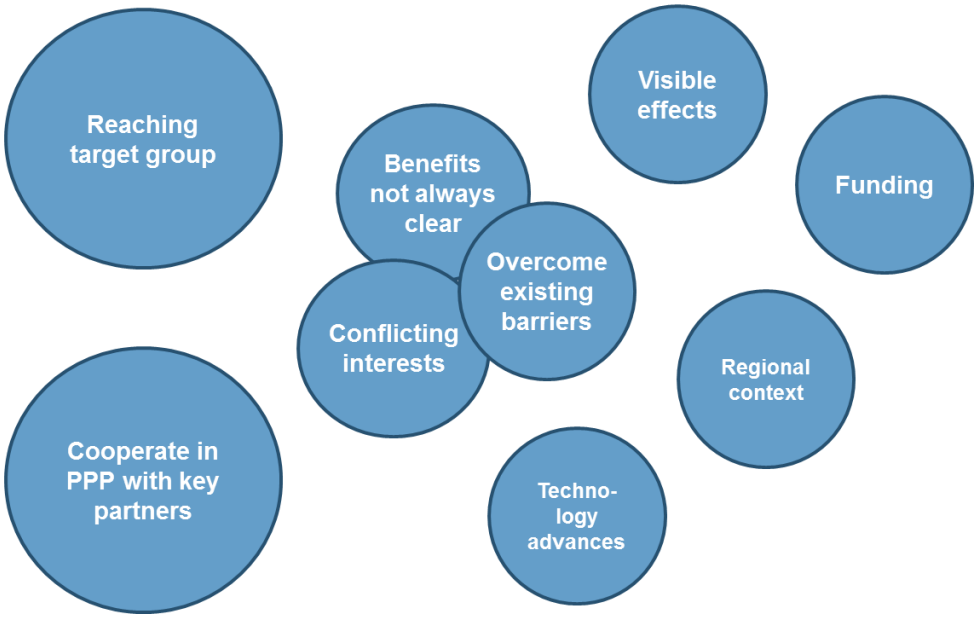

Figure 2 - Overview of success and failure factors

Below, each element that is present in Figure 2 will be further elaborated.

Reaching the target group

Having the right target group is one of the most important aspects of creating a successful service. There are three major questions to be asked regarding the target group.

The first question is: Who should be the target group for the service? Different services ask for different types of potential customers to target. When providing sustainable solutions that tries to influence travel behaviour it is best to target people who have the possibility to change their travel behaviour.

The second question is: How can this target group be reached? Using wide media campaigns to inform a huge number of people at the same time maybe looks attractive, but is not very efficient. Having a direct and personal approach is the key to reaching out towards the target group.

The third and final question is: How can enough mass be created? Because having a service or product with only 10 users will probably not have the desired impact. At the start of the project it is often difficult to get to that mass, but phasing the project for different customer segments may be the solution for this. Also, adding strong brands to the project may increase its potential in attracting customers. And finally, success attracts customers, so the customer base may grow over time.

Cooperation in Public Private Partnerships, with key partners
Sustainable mobility is a societal issue in the first place, thus having governmental party in the lead or at least as a participant is often necessary. But private parties could contribute to services that increase sustainable mobility. Public and private parties can be combined using Public Private Partnerships that combine the assets of governments with the entrepreneurial skills and creativity of SMEs.

With a governmental party in the lead, it is their task to identify the potentials bottlenecks and problems that could occur and finding the correct partner to cover those. When those key partners see potential benefits in the service a PPP can be created.

Benefits, barriers and conflicting interests
Having a business model with more than one stakeholder can only be successful if the interests of all important stakeholders are met sufficiently. Identifying and addressing the benefits, barriers and conflicting interest is key to a successful business model.

Benefits may be better image, financial benefits or increased efficiency, but administrative burdens or regulations can be barriers for a service that could provide the benefits. The benefits for the stakeholders are not always clear, which could hamper the business model.

Visible effects
Measuring of effects on behavioural change, sustainability and efficiency is important to learn from projects. Making the effects visible will contribute to the awareness of the benefits for stakeholders. However there are still lots of sustainable mobility projects that do not measure and evaluate effects. This is a missed chance.

Funding
Many projects depend on governmental funding. Having funding is often described as one of the most important success factors, and lacking funding the most important barrier. Since sustainable mobility is in the first place a societal issue, funding a service that increases sustainable mobility is not unreasonable. But funding is often temporary and will stop after a while. This leads to temporary projects that are stopped after the funding period, whether or not they were successful.

Funding is most important at the start, when the critical mass is not yet reached. Potential revenue is not yet coming in, so having governmental funding may help and get the project up and running. A financially feasible business model should be there for the continuation, with less or no requirement of government funding after the funding stops.

Regional context
Sustainable mobility services are context sensitive. Social and cultural aspects have to be taken into account when developing business models. Success depends on the ability to target local and regional needs and end users. Also the local circumstances like weather, environment, regulations and available infrastructure are important.

Technology advances

During the last decade great technology advances have been realised. These advances have created new opportunities for sustainable mobility projects. Technologic innovations in the field of measuring enables services to use smartphones for GPS/positioning, to use Automatic Number Plate Registration (ANPR) to identify potential users, to use chip cards for public transport to increase the level of service of the public transport and to use social media to quickly locate and analyse incidents.

The internet and social media can also be used to inform. The real-time character of the internet enables continuous updates of the actual situation on routes for all modalities. And smartphone applications offer a simple and inexpensive way to offer services to large target groups. These apps can be used to give personalized feedback to travellers, give real-time route and modality information and suggest alternatives when appropriate, thus influencing the travellers.

3. What is a business model?

This chapter will focus on the business models of the services.

Numerous definitions of business models exist. In the BestMOB project we have used the Business Model Generation method from Alex Osterwalder (Osterwalder, 2010). This method gives a clear and practical method for the creation and improvement of business models. Osterwalder defines a business model as follows:

"A business model describes the rationale of how an organization creates, delivers and captures value."

The elements of a business model are shown in the Business Model Canvas (Figure 3). The canvas is used for the design of business models.

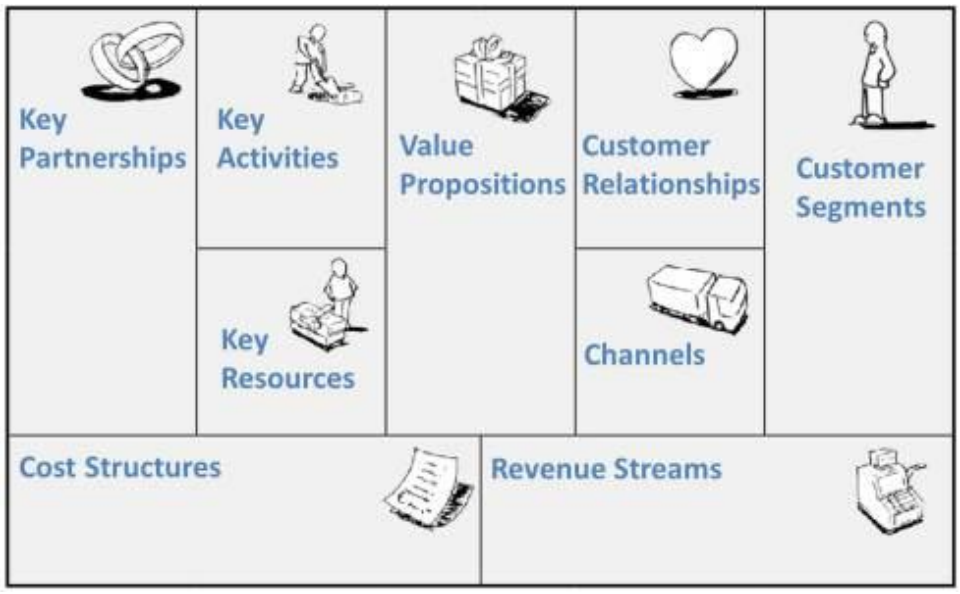

Figure 3 - Business Model Canvas

The Business Model Canvas contains the following elements:

Customer Segments
This field forms the start of the creation of a business model. It describes: who are the main customers that an organization creates value for.

Value Propositions
The centre of the business model is the value proposition. It describes the value that is delivered to the customer segments. The value proposition should respond to the customer's needs, and/or alleviate his pains.

Customer Relationship
This field describes how the relation with the customer is established and maintained. This may vary from dedicated personal assistance to an automated service.

Channels
Which channels are used to reach the customer segments? These channels may differ for the different channel phases: awareness, evaluation, purchase, delivery and after sales.

Customer relationship
The type of relationship that is established with the customers is described here. This may vary from personal assistance to automated services and communities.

Revenue streams
This field describes the revenue streams that are generated. One can think of subscription fees, sales revenues, revenues from advertisers, etc.

Key resources
What resources are required for the value propositions, the distribution channels, etc.? Examples are FTEs, knowledge and intellectual property, machinery, etc.

Key activities
This field denominates the activities that are required to create the value proposition and run the business model. Think of production, management of IT systems, etc.

Key partnership
What partners are needed to offer the value proposition to the envisaged customer segments? Reasons to partnering may be acquisition of particular resources and activities, access to customer segments, risk reduction, etc.

Cost structure
The most important costs are denominated. They are mainly based on the key resources and key activities. Some costs will be fixed (like initial investments) and other variable.

4. Improving the business model for Spitsvrij

The knowledge of the best practices and with the use of the Business Model Canvas an existing business model is analysed and improved. Figure 4 shows the schematic Business Model Canvas for the case SpitsVrij, with the Province of Utrecht as problem owner. This chapter will cover the current business model of Spitsvrij and will discuss ways to enhance the business model.

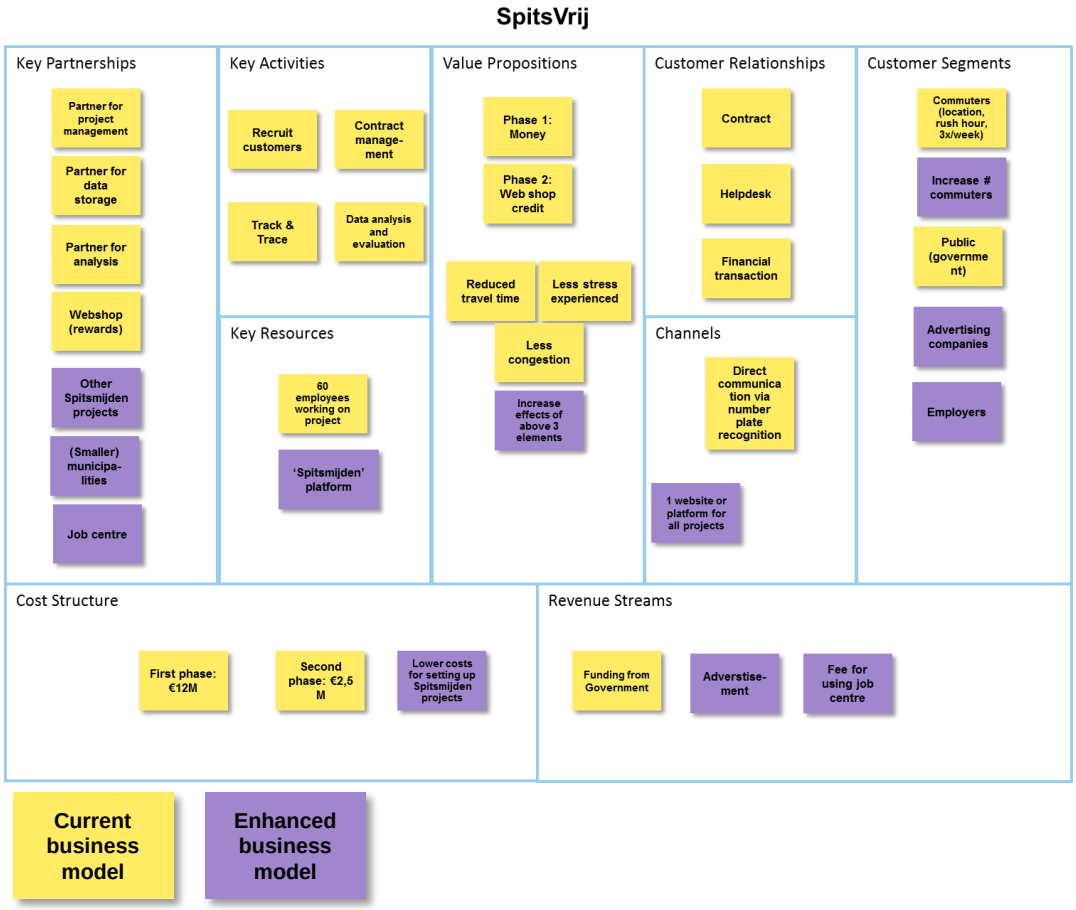

Figure 4 - Spitsvrij

4.1 Current Business Model of SpitsVrij using the Canvas elements (yellow elements)

Customer segments

SpitsVrij is a project aimed at reducing traffic during rush hours on a certain location in the Netherlands, Province of Utrecht (triangle of Utrecht, Hilversum and Amersfoort). Extra congestion on this location was expected due to road works.

The customers/end users of this project are commuters in the project area that are using these roads often (minimal 3 times a week) during rush hours. They are encouraged to avoid travelling by car during rush hours by leaving at another time, using alternative transport modes and practicing alternative ways of working (for example work at home). When the project is a success, and less commuters will use the congested roads, also society will have profit: they will benefit from reduced congestion and pollution. Society is represented by the government of the Province of Utrecht.

Value proposition

To persuade the commuters not to use the roads during rush hours, commuters will get an incentive to change their behaviour. During the first phase of Spitsvrij this consisted of a financial reward in cash and during the second phase of web shop credits. The value created for society is a combination of reduced travel time on the road segment, less stress experienced (for road users) and reduced polluting emission.

Channels
The commuters are recruited by contacting them directly. This could be done using number plate recognition and by asking commuters who were using the road during the rush hour for more than 3 times a week to participate in the SpitsVrij project. During the project, the participants were kept informed by using a website.

Customer relationship
The participants have signed a contract to seal their participation. Also the helpdesk and financial transactions are part of the customer relationship.

Revenue streams
The project is fully funded using governmental money. The (non-financial) rewards were made available by a web shop.

Key resources
About 60 people contributed to the project.
The technical infrastructure to gather and analyse data, consisting of number plate recognition, in-car technology, etc.

Key activities
The first essential activity is recruiting enough participants. Not all participants are able to avoid the rush hours every day, so to make a difference on the road the user group must be big enough. The contracts have to be handled. To make sure the participants do avoid the rush hours, they get in-car technology to track and trace them. The data that is gathered has to be analysed and evaluated.

Key partnership
Province Utrecht is not able to perform all (key) activities. There is a partner for the project management, the data storage and the data analysis. The (non-financial) rewards were made available by a web shop. In return, the web shop got access to an interesting target group.

Cost structure
The first phase of the project had a total cost of €12M and the second phase €2,5M.

4.2 Enhancing the business model (purple elements)
To enhance the business model, the first question is to find the most stressing problem for the project owner. The project is 100% funded by governmental money, which is not the desired situation. So the challenge is to find ways to relief the share of government funding in the project. This can be realised by finding new partners that provide additional revenue streams to finance the project. Another way to relief the financial contribution of the Province of Utrecht is to cut costs.

The main "customer", the commuter, actually earns money by participating in the project, which leads to high costs. This was partly relieved by changing the financial rewards in gifts from a web shop. The benefit for the web shop, that made the gifts available for free, was getting access to an interesting target group: the participants of the project are very specific, as they driving during rush hour by car, probably to work, so they have a job and

(probably) money to spend. This target group could also be very interesting for advertising companies. The Spitsvrij website will form an appropriate medium to get the advertisement to the participants, because it serves as a communication tool to provide the participants with daily information about their earned money/credits.

However, the total number of participants is not very high, which may reduce the attractively for advertising companies. To create a significant target group, it may be a solution to cooperate with other projects like SpitsVrij, of which there are many. If all these projects can use a (to be created) shared "Spitsmijden" platform, the (total) amount of participants, thus page views, will increase along with the number of projects, making advertisement more attractive. This may also result in increased efficiency for all involved projects: all projects had/have to spend resources on websites, structure and platforms. The costs of a shared platform can be shared among the different projects.

Currently the societal cost-benefits ratio is positive for SpitsVrij. A high percentage of the participants retained their changed travelling behaviour after the project had stopped. Reducing the costs to setting up a Spitsmijden project, for example by cooperation between projects, will increase the possibilities, even for smaller governmental organisations, such as municipalities. Scaling up the number of Spitsmijden projects and participants will increase the value for the public (reduced travel time on the road segment, less stress experienced and less congestion and pollution).

5. Conclusions and recommendations

The following conclusions and recommendations result about business modelling for sustainable mobility are taken from the BestMOB project:

- Business modelling should be part of the innovation process from the beginning. It helps innovation teams to think about essential elements like customer segments, the value proposition and key partners.

- Customers and their needs should be the starting point of every business model. For sustainable mobility the focus should be on groups that have the possibility to actually change their travel behaviour. To reach this target group, personal approximation and communication via communities worked well in a number of sustainable mobility projects.

- Scaling up to a critical mass can be a challenging phase, in which government support is valuable. There is an opportunity to expand local success into the EU, but local context should be taken into account.

- Create business models in Public Private Partnerships where opportune. Find out what partners are needed, how private parties may benefit, and involve them in the business model.

- Focus on business models that prove to be (economically) viable in the long term, supported by the public sector during the initial phase. Be creative in identifying and utilizing benefits of sustainable mobility for all partners.

- Measuring effects and making them visible contributes to the awareness of the benefits for stakeholders. Exploit the technical opportunities for measuring, informing and influencing travel behaviour.

This also gives an answer to the question about the role of the government in new business models for sustainable mobility. Sustainable mobility is a societal issue in the first place. This makes governmental involvement justifiable. But there are chances of involvement of private parties. Entrepreneurs and SMEs can provide creativity and specialists in their field of work. Government and private parties cooperate using PPP.

A good scenario is when the governmental funding is used to set up the service and survive the initial period, for example using a PPP. A solid long term business model without the need of additional funding can be used to exploit the potential generated by the initial funding.

Apart from getting governments and private companies together and using funding to start up projects, there are other aspects where the government can have added value. The government can facilitate standardization, take care of necessary regulation and offer pilot location for projects that need a showcase.

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