Business Models for Incentive-based Mobility Services for Changing Traveller Behaviour

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Abstract
This paper presents the development and application of a process and methodology to develop business models for sustainable mobility services that aim at changing travel behaviour and shifting people from carbon fuelled vehicles (CFVs) to other means of transportation. The mobility services will be implemented in 4 lead cities and 11 take up cities in Europe as part of the European project Empower. The paper summarises three deliverables within the project in which a literature study and case review, methodology development, and business model development in the 4 lead cities were conducted.

Keywords: mobility services, incentive scheme, business models

Introduction
The aim with this paper is to 1) present challenges when developing business models for incentive-based mobility services to reduce CO2 emissions of conventionally fuelled vehicles (CFVs), and 2) how such challenges can be bridged by using key success factors in the development work. The work presented in the paper was carried out within the European Project EMPOWER¹ and this paper summarises the results from three research activities: 1)
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an international review of business models for transport oriented incentive schemes, 2) development of a methodological approach for creating business models, and 3) resulting first order business models for the Empower lead living lab cities (Manchester in UK, Enschede in The Netherlands, Gothenburg in Sweden, and Helsinki in Finland). The main objective with the paper is to synthesize all these experiences into generalized recommendations and a business model development framework.

This paper is structured as follows. First, a review of business models for existing incentive programs and solutions is discussed. From this analysis, a set of challenges and success factors is derived for designing sound incentive-based business models. These challenges and success factors are then input to the development of a business model methodology, which is the topic of the next Section. The methodology was applied for the four Living Lab cities in the Empower project and in the succeeding Section present the results from the co-production of eight business models is presented along with an evaluation of the models using the ten key success factors as evaluation baseline for one example in Gothenburg. The paper concludes with some lessons learned and recommendations for further work.

Applied Research Process

In order to fulfil the aim, a structured research process was developed to organize the business model effort performed from May to December 2015, see figure 1. The research work involved 1) a structured literature review, 2) multiple case reviews and 3) participatory workshops in each Living Lab City involved in the project to design tentative business models, which will be evaluated throughout the remaining EMPOWER project.

![Figure 1: Research Process](image-url)
State-of-the-Art Review: comparison of incentive-based mobility services and business models

In the state-of-the-art case review, a predefined structure was used to review the identified cases involving six categories: description of the solution, key stakeholders, target customers, value proposition, elementary offering, and basic revenue model. These categories were derived from a parallel business model literature review including sources such as Enquist & Juell-Skieløse (2010), Kranenburg et al. (2014), Osterwalder (2004) and Osterwalder et al. (2005). Due to page limits the literature review is not included in this paper, please confer Hjalmarsson et. al. (2015a).

In total six different state-of-the-art cases were included in the analysis. Three solutions that currently target Europe (Mobidot, SMART, Slim uit de Spits (SUDS)), one solution that is operational in Europe, Asia and Latin America (CommuteGreener), one solution that has been launched in cities in north America, but is based on a service launched in Singapore (Travel Smart Award / Urban Engines) and one loyalty discount oriented program operated in Canada (Merci). Table 1, displays a comparison of the six solutions with respect to the six unit of analysis used.

Table 1: Comparison of state-of-art solutions from a business models’ viewpoint

<table>
<thead>
<tr>
<th>#</th>
<th>Description of solution</th>
<th>Key stakeholders</th>
<th>Target customers</th>
<th>Value proposition</th>
<th>Elementary offerings</th>
<th>Basic revenue model</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mobidot</td>
<td>Platform-based service enabling personalising and incentivising end-user mobile services (campaign-based)</td>
<td>Multiple, e.g., cities, transit operators, employers, travellers, service providers</td>
<td>Organizations: e.g. city mobility and traffic management authorities, transit authorities</td>
<td>B2B solutions where low cost personal level travel data and capabilities to influence travellers behaviour are the main value drivers</td>
<td>Multiple: analysis of travel behaviour, incentive provision, behavioural change mechanisms</td>
</tr>
<tr>
<td>2</td>
<td>SMART</td>
<td>End-user mobile service that enables traveller to understand travel behaviour, organize traveling and be stimulated to make smart travel choices</td>
<td>Multiple, e.g. city government, service providers, incentive partners and systems developers</td>
<td>Individuals: car commuters and commuters in general</td>
<td>B2C solution for travellers to understand and organize travel behaviour. The operator can stimulate travellers to make sustainable travel choices</td>
<td>Multiple end-user features (e.g. mobility profile, multi-modal route planner) delivered through a mobile phone application and website features</td>
</tr>
<tr>
<td>3</td>
<td>CommuteGreener</td>
<td>End-user service providing ways to measure and reward improved everyday travel behaviours as well as enable smart ride-sharing including social network features.</td>
<td>Multiple: e.g. city authorities, employers and equivalent organisations that enable contacts with end-users who mainly is driving CFVs</td>
<td>Organizations: corporations, city authorities concerned with congestion and environmental impact from CFV use</td>
<td>B2B solution offers expertise and a scalable system set-up enabling cities, corporations and citizens to gain measurable results and improve everyday travel.</td>
<td>Multiple: e.g. campaign, measurement and reward tools to stimulate travel change, ride-sharing; support and social network features</td>
</tr>
<tr>
<td>4</td>
<td>TSR</td>
<td>End-user service wherein public transit users receive transferable points, based on CEPAS card transactions, for using public transit weekdays with a boost on time slots where the demand on the system is lower</td>
<td>Multiple: city authorities, transit operators, service providers</td>
<td>Individuals: public transit users</td>
<td>B2C solution that enables customers to earn monetary rewards for using public transit. Tier levels and lottery system are added to increase use. The value for the operator o is to spread demand of public transit from peak hours.</td>
<td>Website for registration, social media application for lottery and game and information. Solution connected to a public transit card.</td>
</tr>
</tbody>
</table>
What is clear from all cases is that the relevant stakeholders include both private and public actors. The public agency objectives are often related to resolving the negative effects of transports, while private companies have a profit maximising objective (in which CSR can play a role). In some cases the rewards are organised through shops with offers from external rewards providers which adds both additional complexity and opportunity to the business setup. With regard to target customer a clear distinction needs to be made between suppliers of IT solutions for incentive schemes (Mobidot, Greener Commute, and Urban Engines) compared to implementation of these schemes in which travellers in general or car drivers (commuters) are primary target groups. Depending on the target groups there will also be different value propositions. For consumers, the value proposition includes at least the reward as a benefit but often offers additional services like travel information and implementation apply positive feedback to users on contributions to the environment. For employers and other private companies in the scheme, a key B2B value proposition is found in cost reductions for marketing and operations (like for example parking costs or extra capital investments in public transit capacity) as well as increased revenues through extra sales. Depending on the value proposition for the end client, either public or private, different revenue models are applied ranging from project-financed campaigns to license fees (e.g. per user, per month). One important

Challenges and Key Success Factors in Designing of Business Models for Incentive-based Mobility Services

The multiple case reviews in the previous section together with the literature review of business model development were the starting point of identifying the main challenges and success factors for incentive scheme business models. Four main challenges and ten key success factors were identified.
Challenges
The cases from the previous Section gave insights about the barriers and challenges that arise for introducing incentive-scheme based services that aim to reduce emission from CFVs. The only non-campaign based, long-term sustainable, high-volume solution that was reviewed was the Travel Smart Award in Singapore. The system is paid from larger reductions in costs, the rewards consist of travel allowance for the MTR (at zero out of pocket costs for the operator) and it was built upon a huge existing client base. The Travel Smart Award system does not however have a clear societal objective at the core when compared to. Compared to the other cases a few challenges then arise, which we describe below:

If the starting point is to reduce car use and changing the behaviour of car users, how can customer relationships between the incentive scheme organiser and car users (Challenge 1)? Commute Greener has approached this challenge by addressing employers since they have direct contact with their employees, but this restricts the focus to commute and business trips only.

If other modes of transport were the best option for travellers (taking into account that creating habits has value for people) they would already be chosen. How do operators offer sufficient value so that travellers will choose other travel options than the car (Challenge 2)? How do the incentives provided contribute to solving the life puzzle in a way so that the car is needed less?

The operational costs of an incentive system must be as low as possible. The recruitment of users/clients is an important cost component. Attracting large user groups will depend on automated marketing techniques. How is a large user base generated without continuous expensive marketing campaigns by using for example social networking (Challenge 3)?

By reducing the use of cars, societal benefits a generated through reductions in travel times, emissions, etc. It can even be that the need for infrastructure investments can be reduced. The societal benefits can be a main driver in incentive scheme development. How can societal benefits be monetized in order to build and operate the system if there are no clear and direct monetary benefits for operators such as road authorities or cities (Challenge 4)?

Key success factors
Ten key success factors to navigate the above stated challenges were then defined to provide support in the design and implementation of incentive-scheme based business promoting reduction of CFV use:
1. Incentive-scheme business models require a *strategic marketing approach* to attract both users and incentive providers to the scheme, utilizing cost effective social media tools to boost impact;

2. An Incentive-scheme business model is **not a static entity**, but an evolutionary process that involves continually changes in the business model setup and organizational design;

3. Incentive-scheme business models should **evolve in terms of the value proposition**. The model should not be solely focused one ideal situation, but rather should the design meet conditions connected to different phases: e.g. a value proposition when the service is introduced, a value proposition to build user base and user engagement and a value proposition when extensive user base is reached;

4. An incentive-scheme **business model should be developed intertwined with the technical solution**;

5. An incentive-scheme business model should be **designed for a multi-sided market** that goes beyond the dyadic relationship between one buyer and one seller, and might require the design of new relationships between customers and suppliers or the utilization of proxy organisations that provide such relationships to the market.

6. An incentive-scheme business model should be a *win+win+win enabler* providing value to several different stakeholders and customers (service operator, incentive partners, and travellers). The perspective of different stakeholders should be included when the business model is designed.

7. Incentive-scheme business models promoting the reduction of CFV use **rely in early stages on operator funding**, but alternative and complementing **commercial revenue streams can be created and should be identified** for a situation when the system reaches a large user base.

8. An incentive-scheme business model should be developed based on **available techniques and best practice**. State-of-art modelling techniques and existing business model archetypes should be used to speed-up the development process and enable easy communication of results.

9. An incentive-scheme business model should provide a **comprehensive and attractive model** for the business setup. When multiple stakeholders are involved, a common vocabulary regarding the service should be established in the beginning and all the perspectives on "value" should be taken into account.

10. Incentive-based business models should be **designed mindfully in respect to sustainability**. E.g. in the choice of partners, combining distribution channels, consider re-use or cradle-to-cradle in the value proposition, etc.

**Introducing a Methodology to Co-Produce Business Models for Incentive-based**
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Mobility Services

Based on the key success factors, the challenges and the literature review a design methodology was conceptualised (c.f. Hjalmarsson et al. 2015b). It is organized in three phases as presented in Figure 2. In the pre-design phase, input data is gathered for the design phase that follows through identification of key stakeholders and local objectives, review of literature, and existing cases. The pre-design phase is followed by the design phase in which the collaborative design workshops are planned and organized.

![Figure 2: Business Model Methodology](image)

The design phase consists of three recursive steps, namely 1) business strategy creation, 2) business model design, and 3) value network mapping. The business strategy provides a general framing of the business logic for positive incentive-based services that aim to reduce the use of CFVs. It comprises five models depicting the business strategy from different viewpoints: competitive landscape, business platform, brand-platform and key drivers to be used when designing the specific business models including marketing and communication plans. It also includes a value structure for the services linking together the business strategy level with the Lead-city specific business models.

The second step in the design phase is labelled business model design. During this step, a core business model is developed for the mobility service with a focus on the key business relationship in the scheme: the principal supplier and the key customer. During the last step in the design phase, the core business model is expanded through an analysis of the whole value network involved in the scheme. This step will result in additional business models being developed to complement and expand the core business model developed in step 2.

The post-design phase involves operations and trials of the business model. In order to structure the assessment of the strategy, the core business model and the value network developed in the design phase, evaluation is performed prior to the operations with a focus on the coherence and attractiveness of the business-modelling outcome. The pre-assessment is complemented by a post-assessment performed after the operations and the trials, with a focus on the effects that the business models generate when operated in a city, region or area.
Design of Lead-city Business Models

In this Section we present the resulting initial business models for all the lead cities within the EMPOWER project and in the succeeding Section one of the cases from the Gothenburg lead city will be presented more in detail. The objective in each living lab was to design sound, initial and testable business models for the incentive-based mobility services that will engage the key stakeholders. These business models along with other EMPOWER outcomes will be tested, evolve and be evaluated within the four lead-cities during the project. Development of business models was by design a co-producing process with varying stakeholder involved that was managed through one preparation meeting followed four workshops in the lead city in Autumn of 2015 (see Figure 3). During these workshops, representatives from 24 stakeholder-organisations and project-partners co-created tentative business models for relevant use cases in each city.

Figure 3: The Business Model Design Component in EMPOWER

These business models and underlying value propositions will develop over time and for all the details of the eight tentative business models that were developed we refer to the Empower deliverables. In the Section we will provide a summary and highlight the Gothenburg business models in more detail.

Table 2 presents a comparing the business models on five key elements: 1) customer segment, 2) value proposition, 3) distribution channel(s), 4) revenue-streams, 5) profit logic. For a complete description of all business models we refer to Hjalmarsson et al. 2015c.
### Table 2: Lead-city Business Model Comparison

<table>
<thead>
<tr>
<th>Business model building blocks</th>
<th>Enschede</th>
<th>Gothenburg</th>
<th>Helsinki</th>
<th>Manchester</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BUSINESS MODEL 1</strong></td>
<td>Employer Provided Incentive Scheme (legacy scheme in operation)</td>
<td>Employer Provided Incentive Scheme (no legacy scheme in operation)</td>
<td>Incentive Scheme Promoting Smart Mobility Services</td>
<td>Incentive Scheme to Attract and Retain Youth to Public Transport</td>
</tr>
<tr>
<td><strong>BUSINESS MODEL 2</strong></td>
<td>Employer Incentive Scheme (legacy scheme in operation)</td>
<td>Employer Incentive Scheme (no legacy scheme in operation)</td>
<td>Incentive Scheme Targeting Citizens in Suburban Communities</td>
<td>Incentive Scheme to Improve Impact of MaaS Solutions</td>
</tr>
<tr>
<td><strong>Customer Segment</strong></td>
<td>Employees</td>
<td>Employees</td>
<td>Citizens in suburbs</td>
<td>Employees</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Youth in general</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Mid income travellers</td>
</tr>
<tr>
<td><strong>Value Propositions</strong></td>
<td>Improve health; receive value boost; multiple point shops</td>
<td>Improve health; receive value boost</td>
<td>Travel smarter; receive local value offer</td>
<td>Travel smarter; receive value boost</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>More value for money; sense of independence</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>More value for money; relax; better use of time</td>
</tr>
<tr>
<td><strong>Distribution Channel(s)</strong></td>
<td>Incentive-based Service (SMART) plus Incentive scheme in place</td>
<td>Incentive-based Service Service (SMART)</td>
<td>Incentive-based Service plus Interface to use smart services</td>
<td>Incentive-based Service plus Service plus MaaS (Mobility as a Service) plus smart mobility services</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Incentive-based Service plus PTO digital service plus Bus service</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Incentive-based Service plus PTO digital service plus Bus service</td>
</tr>
<tr>
<td><strong>Revenue Streams</strong></td>
<td>Cost savings; Health</td>
<td>Cost savings; Health</td>
<td>Cost savings; Increase of mobility service revenues</td>
<td>Cost savings; Increase of mobility service revenues</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Increase in ticket sales</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Increase in ticket sales</td>
</tr>
<tr>
<td><strong>Profit Logic</strong></td>
<td>Cost savings minus operational costs; Health improvements</td>
<td>Cost savings minus operational costs; Health improvements</td>
<td>Cost savings minus increased revenue minus operational costs; Brand development</td>
<td>Cost savings minus operational costs; Health improvements</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Return on investment; Solution export</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Return on investment; Solution export</td>
</tr>
</tbody>
</table>

Comparing the resulting business models we find that five of the business models target the employer, as main solution provider/operator, that want to stimulate employees to shift travel behaviour through the use of incentives. One of these cases involves employer organisations that already have an incentive-based system within the organisation, and thus covers the aspect to consider when introducing a new system parallel to the one already in place. Four of the business models involve employer organisations that do not have incentive-based systems in place. Three of these models offer, in addition to achievement based rewards, alternative smart mobility solutions as stimuli to the employees to shift behaviour. One of the three business models that in contrary do not target an employer and employee setting, also provides smart mobility service alternatives, and is planned to be linked to an established local bonus commerce loyalty card, in order to attract users to the scheme. The other two cases involve a major public transport operator, acting as incentive solution provider, and the use of an incentive based service to attract youth and mid-income travellers to bus operated public transportation.
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An analysis of Business Model Design in Gothenburg

In Gothenburg two cases were identified: one that targets employees in large organisations, and one that targets citizens in suburbs within the Gothenburg Region. Both cases aim to stimulate participants to decrease the use of CFVs and instead use smart mobility services that have been made available to them. These climate smart mobility services could either be novel transport services, such as e-taxis and e-bikes, MaaS, traditional public transportation services or the use of other climate smart modes e.g. bicycle. For the purpose of this paper we use the second case - Incentive Scheme targeting Citizens in Suburban Communities (GOT BM2) - to illustrate how business models for mobility services aiming to change travellers’ behaviour were designed using the business model methodology.

Step 1 – Business Strategy Creation

A new initiative in the Gothenburg Region called “Sustainable Transit Connected Communities“ (STCC), aims to design, test and evaluation of efficient and attractive smart mobility services as alternatives for citizens. The initiative is sponsored and supported by a variety of local, regional, and national actors including public, private, and research entities. These services – e.g. e-bikes, e-taxis – aim to support citizens to make smart transport choices in different everyday life situations. By including an EMPOWER developed incentive service and connecting this to a local commerce bonus card system(s) already in place, the objective is to test if this creates leverage to scale up the use of smart mobility services, make the suburban communities even more attractive for residents, and also, to investigate if this is an effective tool to monitor the effects of using digitalised incentive schemes.

Step 2 – Business Model Development

In collaboration with the municipality, mobility service providers will offer e.g. e-bicycles to tenants as a part of the rent. Parallel to targeting the tenants, the case also will include climate-smart mobility services to all citizens in the municipality. These services will be accessible through an improved booking service developed locally. The plan is to utilise the IT-based mobility service to 1) incentivise usage of these services alternatively reward walking or bicycling, 2) monitor the use and measure effects of the scheme, 3) visualise and record points, and to 4) connect points to the external bonus card. Rewards will come in the form of free utilisation of smart mobility services and/or will be transformed into discounts facilitated through the local bonus card. Examples of the smart mobility services offered are mini electric taxis and traditional public transportation services.
Figure 4: Business Model for Scheme targeting Citizens in Suburban Communities

Figure 4 presents the tentative and testable business model for the case. It focuses only the provision of the service from a provider (not yet defined) to the tenants as well as the citizens in the community. It does not take into account other business relationships, e.g. the relationship between the provider and the external bonus card provider. Additional models have to be developed to explore and define such relationships. This model has a time scope of two years from introducing the service to the targeted customer group and additional models will need to be developed for a time-period beyond the Empower and STCC projects.

Step 3 – Value Network Mapping

With the core business model as base five key stakeholder types was identified to establish a value network for the solution in this case:

1. **Incentive provider** (an organisation that determines what behaviour is incentivised and in what way): the city centre association assigned by the municipality to provide the system.

2. **Reward provider(s)** (an organisation that provides rewards based on changed mobility behaviour): e.g. local retailers that utilize the platform as a marketing channel to get new customers, public transport operators, or the municipality.

3. **Solution provider** (an organisation that provides the mobility and incentive platform): a third-party provider that receives revenue based on the offers added to the platform and per booking of mobility service made through the platform.

4. **Mobility service providers** (an organisation that offers climate-smart mobility services to inhabitants in the community): the mobility service providers use the platform to offer mobility services to inhabitants via a booking service. Every booking of a mobility service...
generates a charge to the solution provider.

5. **Inhabitants** (the target group of the incentive scheme): residents that are offered climate-smart mobility services for a fee that can be easily booked via the platform, the use of the mobility service will generate points that can be transformed into discounted offers in the local retail stores.

For each of the stakeholders a business model was developed complementing the core model. To illustrate the different value offers in the network the model in Figure 5 was created to map the win+win+win potential for each involved stakeholder in the scheme.

![Figure 5: Mapping the Value Network in GOT BM2](image)

The climate-smart service provider will through the technical solution (in the value network map labelled gotPORTAL and gotSMART) receive a novel marketing channel, new customers and a booking system that enable inhabitants to book and use the climate-smart mobility services. Local retailers will though the scheme receives a digital marketing channel when rewards are provided as incentives to use book and use the climate-smart mobility services. The inhabitants will receive both mobility services and retail offers. The municipality will through the scheme create increased commercial activity in the suburb, ensure local sustainable mobility and in the end receive more satisfied inhabitants and local retailers. The solution provider will receive a revenue stream based on offers added to the platform (incentive) and a percentage per booking of the climate-smart mobility services provided through the system. As a base stream, the municipality will provide financial support for operation and maintenance of the scheme.

The business model development is an on-going process in which the value proposition of each stakeholder is a key focus. The central question in this process: How can we generate additional value for all involved at operational costs? The business model is also constantly evaluated.
against the 10 success factors in order to increase chances for success and survival of the scheme after project funding stops. Table 3 presents an overview of how the success factors are being addressed within the business model development. One of the key enablers is the flexibility in the technical systems to adapt offers and incentives towards both stakeholders and end-users at almost no cost.

Table 3: Addressing success factors in business model design in GOT BM2

<table>
<thead>
<tr>
<th>Key success factor</th>
<th>Applied in the Gothenburg case</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategic marketing approach</td>
<td>The combined services and offers are largely based on existing services with marketing channels and users. Social media marketing is enabled within the frontend and backend solutions.</td>
</tr>
<tr>
<td>Dynamic process</td>
<td>Discussions with existing and new stakeholders are on-going and by design the underlying setup of the scheme allows for new stakeholders to contribute, both regarding mobility service providers and local retail.</td>
</tr>
<tr>
<td>Evolving value proposition</td>
<td>The dynamic process of engaging new stakeholders leads to evolving value propositions for end users, stakeholders, and service providers.</td>
</tr>
<tr>
<td>Intertwined technical development</td>
<td>The technical solutions are not entirely fixed but it does build on the flexible SMART solution combined with the locally existing retail reward system. This technical setup enables the dynamic process and an evolving value proposition.</td>
</tr>
<tr>
<td>Designed for multi-sided market</td>
<td>The solution provider enables a market for providers of mobility services and retail offers.</td>
</tr>
<tr>
<td>Generate stakeholder value</td>
<td>The dynamic process is constantly seeking to enhance the value for stakeholders so that the system can be self-sustaining after project funding stops.</td>
</tr>
<tr>
<td>Transition from reliance on funding to commercial revenue streams</td>
<td>The solutions providers (in this scheme: a combined retail bonus system and the SMART service) have a clear interest in developing a system that can be sold to other locations in Sweden and their involvement in the design ensures a balance between operational costs and value generations for stakeholders.</td>
</tr>
<tr>
<td>Use off the shelf techniques and practises</td>
<td>The system builds on applied and tested technical systems that will be connected and tailored for the Gothenburg situation.</td>
</tr>
<tr>
<td>Common vocabulary</td>
<td>An on-going process mainly where retail and transportation professionals</td>
</tr>
<tr>
<td>Sustainability focus</td>
<td>Reducing CFV and creating liveable communities are core objectives of participating public entities and the Empower project. Use of sustainable modes of transportation will be incentivised.</td>
</tr>
</tbody>
</table>

The business strategy, the core business model and the value network are tentative, and planned to be explored and evaluated alongside the IT-based incentive scheme throughout the Living Lab in Gothenburg 2016-2018. This process is supported by users and stakeholder needs workshops, interviews, and questionnaires. In parallel with further technical development, a
CONCLUSIONS AND LESSONS LEARNED

In the EMPOWER project the business model aspects of incentive-based mobility services were researched and developed using different methodologies and steps and for 4 different European cities with varying (transport political) contexts. A wealth of data and knowledge was gathered so far and the process is on-going. One of the key lessons to date is that the time scales of decision making for different stakeholders may be different and that the flexible setup of a model ensure that stakeholders can join, change their contribution, etc, once an enabling core of stakeholders is committed. Six core design principles could be identified that enable the development of business models for incentive-based mobility services:

- **Evolutionary development.** The foundation of the methodology is that it is designed to organize the work effort as an evolutionary process. A business model is not a static entity. It evolves over time to meet the conditions for the business at specific times during its lifecycle. The methodology will thus result in tentative models for organizing the business at different stages pointing out difference e.g. in value propositions and revenue streams.

- **Collaborative process.** The methodology is designed to facilitate a collaborative process, which means 1) that business modelling is not viewed as a separate activity decoupled from e.g. technical design or incentive development, 2) that the design and assessment of artefacts is regarded as joint process involving perspectives from different organizations or stakeholders. The process that the methodology comprises provides thus methodological support to facilitate stakeholder involvement and joint activities to both design and evaluate outcomes.

- **Stakeholder involvement.** The methodology advocates multi-stakeholder involvement to avoid that the business setup is defined only from the viewpoint of the service provider. A win+win+win situation must be defined for the incentive-based business model to succeed. This requires that attractive value propositions for multiple stakeholders are identified within a specific city/region. The method contains techniques for identifying and involving stakeholders and also guidelines for facilitating diverse groups of participants in workshop settings.

- **Sustainability adapted.** Incentive-based services should generate both commercial and societal benefits. Therefore, the methodology is not only designed to identify commercial benefits for the services reducing CFV usage, but is also adapted to identify and incorporate societal values and resources. Furthermore, it addresses how to generate societal streams of benefits and how these can be monetized in order to build and operate a system where there are no clear and direct monetary benefits for a region or a city.

- **Modern structure.** The business model methodology relies on a modular design configured with models (i.e. guidelines, criteria and method support) that have been
proven practical and valuable both in literature and current practice. The novelty of the methodology lies in the configuration of the used models as these are derived from different disciplines – i.e. information systems, management, transport studies and innovation theories – providing state-of-art modelling techniques, implementation guidelines and assessment criteria to speed-up the development process and enable easy communication of results.

- **Integrated marketing and communication approach.** Three of the four challenges in developing successful incentive-based services are related to user aspects. The requirement to develop an effective marketing and communication approach using social innovation for the participating cities/regions has also influenced the design of the business model methodology.

References


