Activity Deliverable

21062-SmartHubs
DEL15 SmartHubs Business Model Toolkit

EIT Urban Mobility - Mobility for more liveable urban spaces

EIT Urban Mobility

Utrecht, 20-12-2022

eiturbanmobility.eu

Co-funded by the European Union

Reporting year	2022
Activity code	21062
Deliverable No. Deliverable title	DEL15 SmartHubs Business Model Toolkit

Document information

Author(s) and contributing partner(s) - if any

Name	Organisation	Contribution
Roméo Labban	Capgemini	DEL 15

List of abbreviations

MSP	Mobility Service Provider
MaaS	Mobility as a Service

Contents

1. Executive Summary

This deliverable aims to provide a uniform toolkit as part of this work package, the business and service models to build a sustainable business will be defined. It has done so by offering a business model known as Service Dominant Business Model Radar (SDBM/R). The SDBM/R identifies the added value of the service to the customer or user, functions and capabilities required by each party (organizations, institutions, companies, customers, etc.) participating in the model, as well as the expected costs and benefits. The business models (BMs) for a service (or a coherent collection of services) also provide a solid basis for the requirements for the solutions. Looking into the possibilities to commercialize the concept of a 'SmartHub' preferably by creating a business network. By describing what a SmartHub stands for and what the added value for the customer is, how a SmartHub operates and what the value is it brings taking the different stakeholders into account. The business partners working together in the SmartHub concept deliver together (in co-creation) certain value for the customers. The Business model describes this co-created value, the composition of the SmartHub business network (actors), the costs & benefits, the role in the business model (co-production activity) and the value proposition. The Business and Service models are the basis for the revenue model (2022).

This model requires detailed interviews with relevant actors in order to produce value propositions which are discovered by using persona and value propositions canvasses. By involving multiple actors with the intention to understand their motivations, reservations and more, a clear and precise image of their attitudes towards SmartHubs in this case can be revealed. Each actor plays its part within the business model and provides some kind of added value to the product or service under investigation.

In essence the toolkit consists of three steps:

1. Appointing relevant stakeholders (actors) and conducting interviews to form persona canvasses;
    I. Although relevant actors depend on the investigation at hand, in the case of SmartHubs the same (or closely related) actors are relevant for all pilot cities.
    II. Interview questions are based upon the three axes of the persona canvas: positive/negative trends, opportunities/headaches, hopes/fears.
2. Using the value proposition canvas to discover the actors' added values based on their persona canvasses;
    I. This reveals each actor's co-created value in use (SmartHubs in our case).
3. Ultimately filling in the SDBM/R with the value propositions derived from the canvas in the prior step and so concluding on actors' added value to the service/product under investigation.
    I. Actor's costs/benefits, co-produced activities and their value proposition are now clearly displayed in the model, as a result of combining all steps.

For cities that wish to implement smart mobility solutions within their governance areas, the SmartHubs toolkit has proven itself useful when conducting thorough interviews with carefully selected actors prior to steps one (persona canvas) and two (value proposition canvas), which eventually lead to the final and third step (SDBM/R).

More details on the use, definitions and other relevant topics are discussed in chapters two and three.

2. SmartHubs Business Model Toolkit

2.1. Defining and describing the SmartHub

To define what exactly a 'SmartHub' stands for, we must first understand the goal of the overall SmartHubs project: it aims to develop and validate effective and economically viable mobility hub solutions by doing pilots in six cities to provide answers to three important questions: where, how and what size should the hubs be? What business models are the best to make the hubs scale? and what procurement methods are the most suited?

As for describing a SmartHub one can image a specified place in the public domain, either in downtown areas, residential neighbourhoods or on the periphery of the city, where various electrically motorised vehicles are parked and (fully) charged: ready-to-use. Through the app of a MSP or even better, an application of the MaaS, which has fully integrated all possible Mobility Service Providers, the traveller has the option to reserve, contract and pay for any kind of shared vehicle available: a car, scooter/moped, (cargo)bike or step (scooter). Once verification is done, the traveller can unlock the vehicle of choice and go along his/her way discovering the city, its downtown areas and parks without causing noise hindrance, polluting the air, producing gas emissions or permanently adding extra vehicles to the already busy city centre as it is a commonly shared form of mobility.

Once arrived in the vicinity of the traveller's final destination, another SmartHub strategically located, allows the traveller to park and charge the vehicle so the next customer can easily pick up a ride when needed knowing there are various modes of transportations, always available and instantly 'ready-to-go'. It just takes a simple action in the smartphone application to ensure timely reservation, contracting and payment of the vehicle of choice. Even if the availability is none or very little, there is always a SmartHub in the neighbourhood, within 500 meters walking distance, which has enough on offer to satisfy the travellers mobility needs in a sustainable fashion.

2.2. Toolkit & methodology

The wish to produce a universally applicable 'toolkit' for interested municipalities that want to research the possibilities of implementing shared, smart mobility in their cities has been fulfilled during the SmartHubs pilot project of EIT. The method used to do research and discover insights is profoundly interactive: through interviews with involved or affected parties (actors), value propositions have been thoroughly validated

and have provided insights for the co-created value in the service dominant business model radar (SDBM/R).

This section of the report focusses on the theoretical background, analytical framework and shows examples of the used methods in order to assist municipalities in dealing with questions surrounding research and implementation of smart, shared mobility in their area. Ideally, future endeavours of a similar kind can use this methodology, which is intended to be a universally usable toolkit.

Theoretical background of business models

Business models can be understood as the abstraction or conceptualisation of a company's modus operandi (Janssen et al., 2007). According to Keen and Qureshi (2006), two common themes are underpinning the conceptualisation of business models: the focus on value and a statement of the basic logic of the business. They argue that the logic of value generation is the core of a business model and also assert that business models are a vehicle for addressing how to balance value between the customer and the provider.

A business model can then be viewed as a collection of organisational roles, the system functionalities, a detailed description of a mechanism, and relationships among parties. Business models describe or prescribe more specifically how resources are combined and transformed to generate value for customers and other stakeholders, and how a value-generating company will be rewarded by its exchange partners that receive value from it (Magretta, 2002). In other words, for business models, the quest is to identify the elements and relationships that describe the business a company does. Thus, the business model concept can best be understood as a conceptual view of a particular aspect of a specific company. In face of the diversity of definitions and proposals, we adopted the definition proposed by Alexander Osterwalder (2004). Accordingly, to this author *"a business model describes the rationale of how an organisation creates, delivers, and captures value"*.[1]

Preliminary step 0 – Selection of relevant actors

Prior to using the toolkit, it is of significant importance that the right actors (or stakeholders) are selected. Although there isn't a universal method for actor selection, as each research/pilot project has its own relevant stakeholder field, a simple way to find out who's important to include can be to ask oneself: 'who are either influenced by or affect (influence) the research/pilot to be conducted?'

As an example, we will take the SmartHubs pilot project to clarify. The most profound actor who influences the SmartHubs project is of course the traveller while the municipality, MSP's and MaaS are also relevant stakeholders that affect the SmartHub, likewise yet less prevalent, the resident (who lives among the SmartHubs) and the local businesses (who profit from the SmartHubs existence) are actors that *could* affect the SmartHubs success positively or negatively by means of appreciation or protest.

Who to select and take into account as actors is always related to the subject at hand, depending on the project scope, its intentions, its initiators and benefactors.

[1] EIT UM Deliverable_BusinessModels Final _V03 04 Oct 2022

Once selection of relevant actors is done, the first step of the toolkit is to draw a picture of each actor's mindset and possible experience with the subject of investigation.

Step 1 – Persona Canvas

The persona canvas can be used to give a customer segment a face and name to make it easier to step into the shoes of the customer. Personas make talking about customers and their characteristics more tangible and concrete. It also makes it easier to refer back to a pattern of characteristics. Personas make it possible to create and share mental models and have a common language about several customer types.

The six main themes to reveal are: positive/negative trends, opportunities/headaches and hopes/fears.

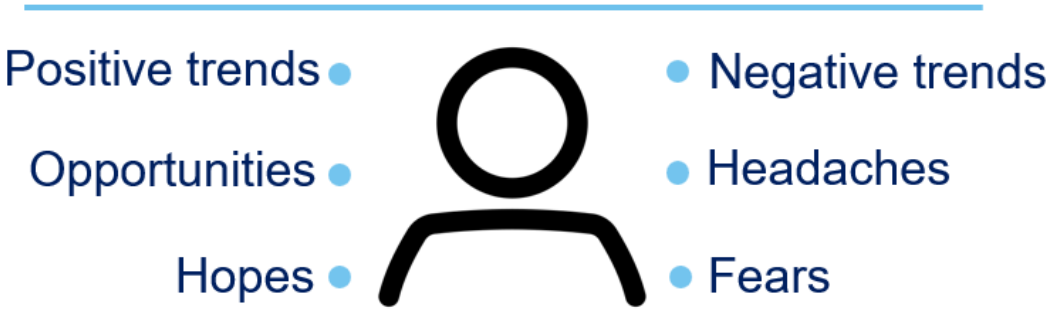

Fig. 1 – Blank persona canvas

The persona canvas has been successfully implemented during the SmartHubs pilot project. By conducting interviews with the relevant actors, multiple persona canvasses were produced; these revealed actors' needs, restraints and other negative/positive aspects concerning smart mobility in their area. A filled-out canvas can be seen on the next page.

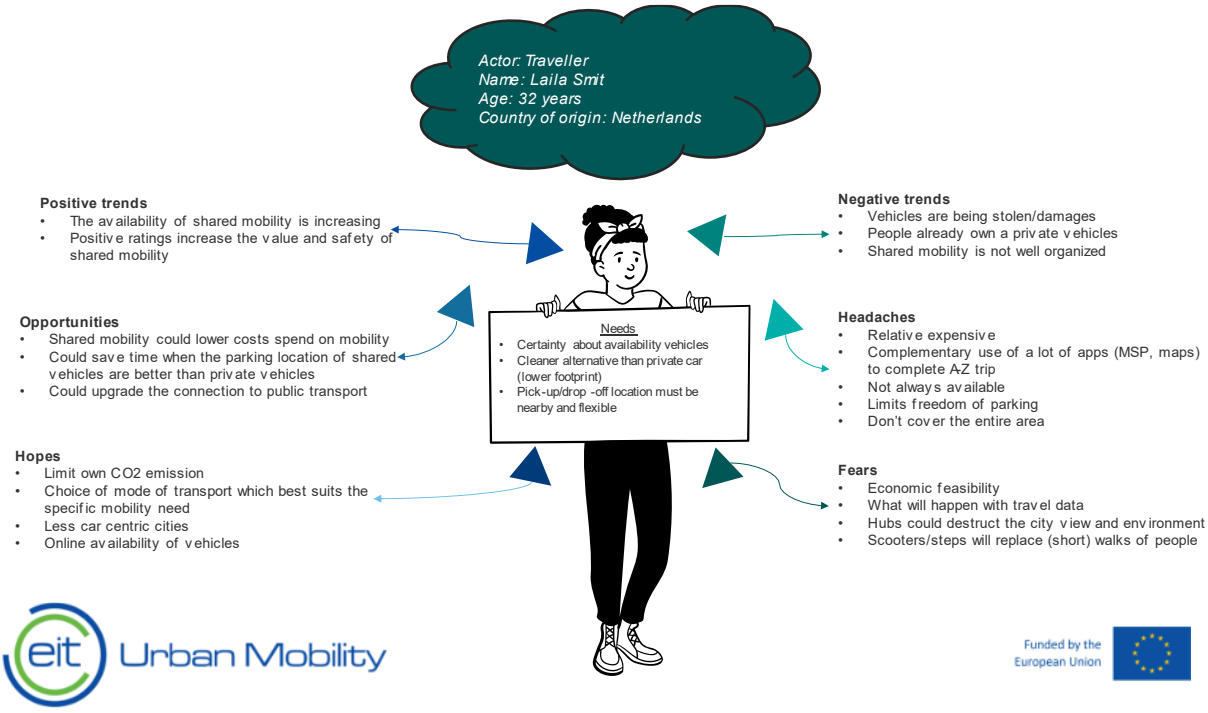

Fig. 2 – Completed persona canvas of the traveller

As pictured above, the persona canvas reveals various opinions, feelings and remarks of the 'traveller' – an actor deemed important and relevant for the SmartHubs pilot.

During the interviews with actors, it's important to create an informal, comfortable atmosphere as much as possible. This can be done by starting off with some small-talk and introductions in order to ease in the conversation; its best that the actor experiences the interview not as interview necessarily but as casual conversation about SmartHubs in this case to reveal the deeper consternations and point of view. This is a job for the interviewer, something not everybody is cut out for; selecting the appropriate interviewer is crucial for the success of the interviews as well as the input retrieved from it.

Step 2 – Value proposition canvas

The Value Proposition Canvas focuses on understanding customers' problems and producing products or services that solve them. Because just telling people you have a great product doesn't make them want it.

For instance, a product could have a lot of features or technical novelties, but if it fundamentally doesn't help customers, or its value isn't explained clearly, it won't be bought.

Understanding why customers buy is at the heart of the value proposition canvas. The value proposition canvas is critical for a business model as it helps decision making and positioning of the product. It is more than just a graphical representation of customer wants; businesses can align their strategies according to customer needs to produce products which customers actually want.

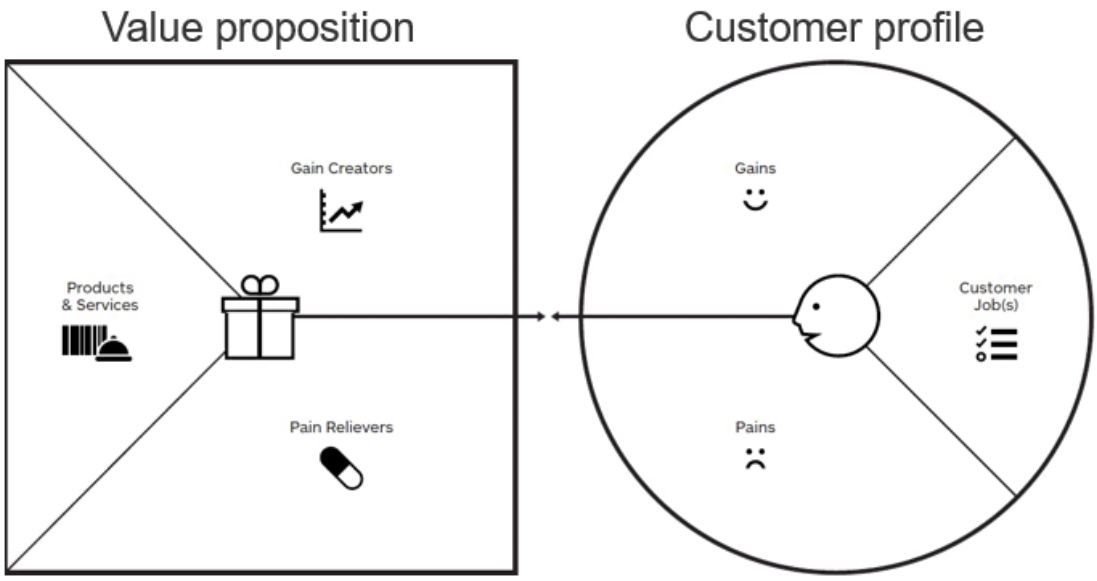

Fig 3. – Blank value proposition canvas

After collecting and assessing all persona canvasses, various value drivers were extracted and validated through usage of the value proposition canvas for the SmartHubs pilot project. An example of the travellers' value canvas is shown below to clarify.

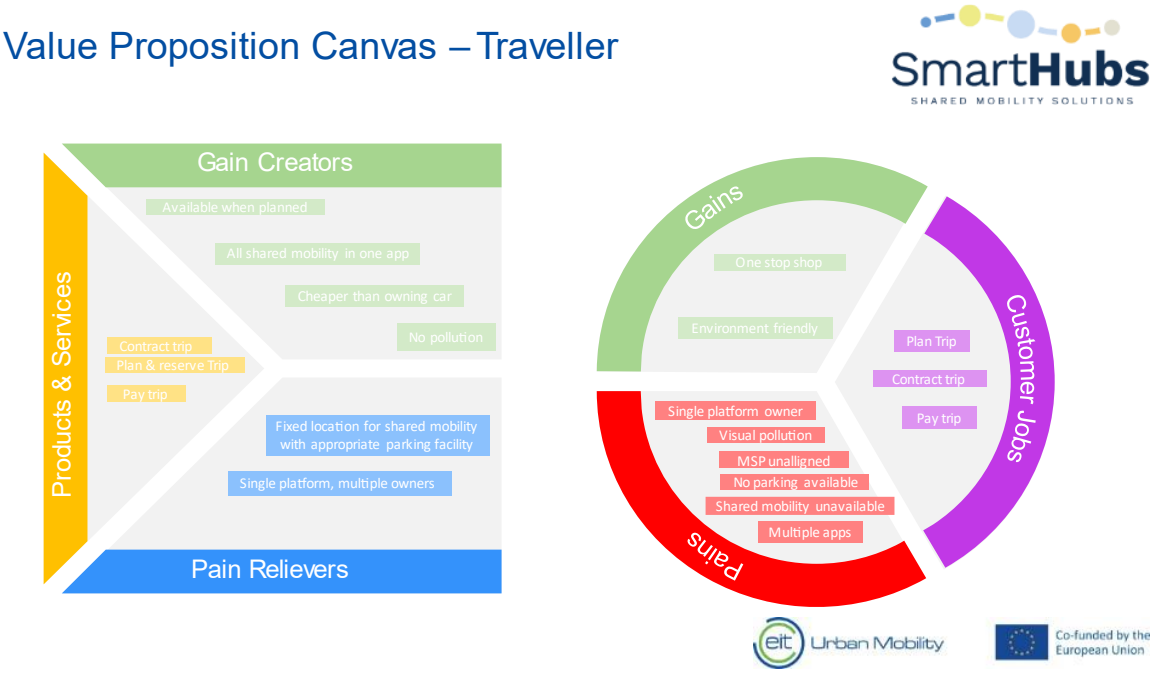

Fig. 4 – Traveller's persona canvas

Above, figure 4 shows the values of the traveller based upon the previous persona canvas. Through this canvas value propositions can now be validated. For the traveller we could conclude that:

- The value proposition of the traveller is that he/she is the **prime user** of the SmartHub, **paying** a fair price for shared mobility through an easy useable, data savvy (artificial intelligent) application that ensures privacy and interacts with local public transportation services. Therefore, the multiple modes of transportation must be readily available at all times while the driving ranges must be flexible yet convenient and centralized at the same time.

Finally, the value propositions extracted through the persona and value canvasses provide input for the chosen business model, in this case the Service Dominant Business Model Radar.

Final step 3 – Service dominant business model radar (SMBM/R)

The SMBM/R identifies the added value of the service to the customer or user, functions and capabilities required by each party (organizations, institutions, companies, customers, etc.) participating in the model, as well as the expected costs and benefits. The business models (BMs) for a service (or a coherent collection of services) provide a solid basis for the requirements of the solutions. The conceptual tool that can be used as a guiding reference for business model design is the Service-Dominant Business Model Radar (SDBM/R)2. SDBM/R has a network-centric design at its core, allowing the composition of service design in multi-party business networks. It defines how the actors in the business ecosystem participate in value co-creation and what the cost–benefits distribution is. It has been successfully used to represent the business models underlying several mobility solutions.

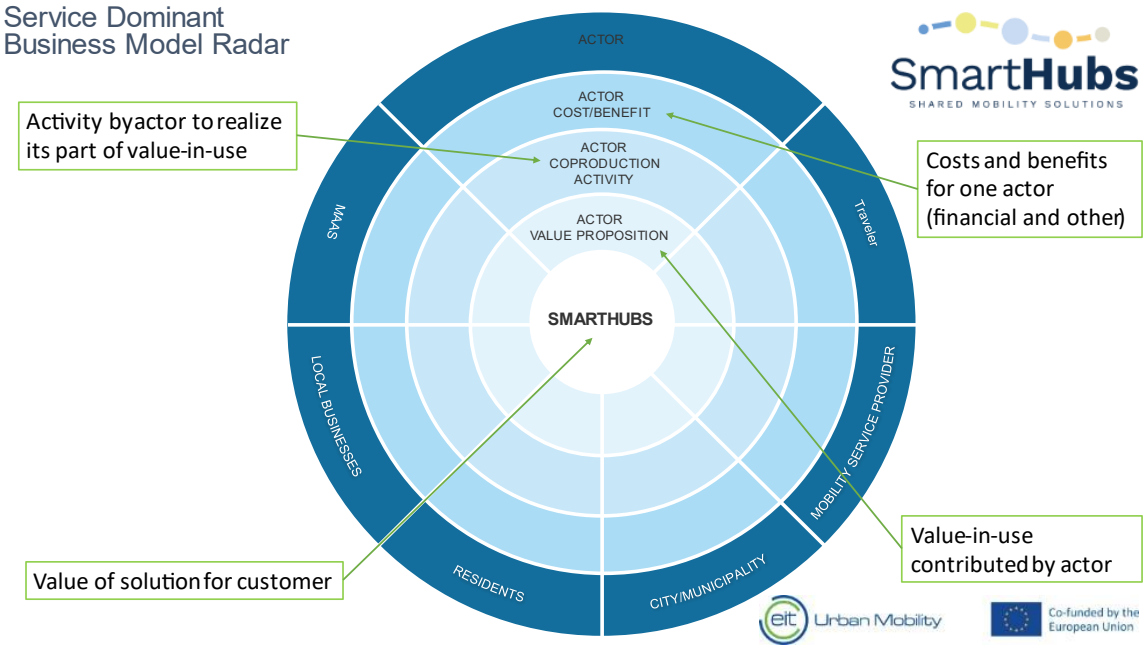

Fig. 5 – SDBM/R

[2] Turetken, O., Grefen, P., Gilsing, R. et al. Service-Dominant Business Model Design for Digital Innovation in Smart Mobility. Business Information Systems Engineering, 61, 9–29 (2019). https://doi.org/10.1007/s12599-018-0565-x

Using the SDBM Radar

The business model may take an informal scenario as a basis for inspiration, which is refined during the design process into a description of a customer service scenario. This scenario offers a brief description for the high-level operation of the future solution.

The business model design using the SDBM/R involves the following design steps:

1. Identifying and agreeing on the co-created value-in-use and the targeted customer (or customer-segment). The value-in-use is the added value of a solution for the customer, who also contributes to its creation.
2. Determining the components of the value-in-use (actor value propositions) and associated actors (roles). One actor is the focal organization, often taking the role of orchestrator. The number of actors is arbitrary, but it is a good practice to focus on the core actors at the initial stages of the design to reflect only the essence of the model.
3. Determining the costs and benefits for each actor. These can be of a financial or a non-financial character. A cost item of an actor typically relates to a benefit, often with another actor(s). An optional practice at this step is to define the cost/benefit flow among actors. This flow also provides an input for the customer journey and cost— benefit analysis.
4. Determining for each actor, the high-level activities that realize the actor-value proposition. These activities become a part of the customer journey and will be mapped -at a later stage- to (sequences of) tasks in use case descriptions/ business processes executed by the actors in the network.

Despite the sequential design steps described above, the business model design using SDBM/R should be applied as an iterative process. The outcome of this practice is a business model depicted in a radar together with the customer service scenario, which can be expressed textually as a story, or graphically as a story board. A practical setup for the business model design involves a number of stakeholders brought together around a theme in a business model design session, which is moderated by a person experienced in the use of SDBM/R. The moderator should foster out-of-the-box thinking while engaging the stakeholders in active communication and collaboration for innovative ideas.

In essence the SDBM/R can be filled in completely through results stemming of the persona and values propositions canvasses. In the next chapter, the results for the SmartHubs pilot are displayed via the SDBM/R.

3. Results

Results presented below are derived from validated value propositions which were produced using both persona and value propositions canvasses. This unput has allowed us to fill in the SDBM/R.

Fig.6 – SDBM/R as produced during the EIT Workshops session @ AMS Institute on October 7th, 2022

A note must be made prior to diving deeper into the results: the SDBM/R presented above, and its derived input was formed by interviewing various actors in different countries on SmartHubs in general and thus not conclude on any specific SmartHub pilot cities as presented in DEL12. However, an attempt has been made to elicit a conclusion based upon this model for variants of SmartHubs and recommended actions for the piloted cities. As in six European cities with different urban characteristics and demographics, a comparison is made between smart mobility hubs. Involved cities are Amsterdam, Eindhoven, Helmond, Lisbon, Sant Cugat de Vallès, Setúbal and Warsaw. At the end of the project, these cities had 8 SmartHubs operationalized. The aim of the SmartHubs project is to test and validate economically viable mobility hub concepts that foster the modal shift to sustainable transportation and more efficient use of urban space. The two pilot years resulted in many learnings and various outcomes. For example, the relevant insights that can be obtained by setting up a co-creation process while designing the SmartHub, or that also weather conditions will affect the use of different modes, the importance to keep an eye on which trips are substituted in order to stay focussed on the goals of that SmartHub, the importance of knowing how to handle wrongly parked vehicles at the hub, the fact that one size hub does not fit all, the importance of taking gender into account (the SmartHubs attracted more male than female users), the importance of proper signage and information. Some SmartHubs outperformed expectations and will be further developed into SmartHubs networks, other SmartHubs simple did not reach the desired demand and/or did not attract the right target group.

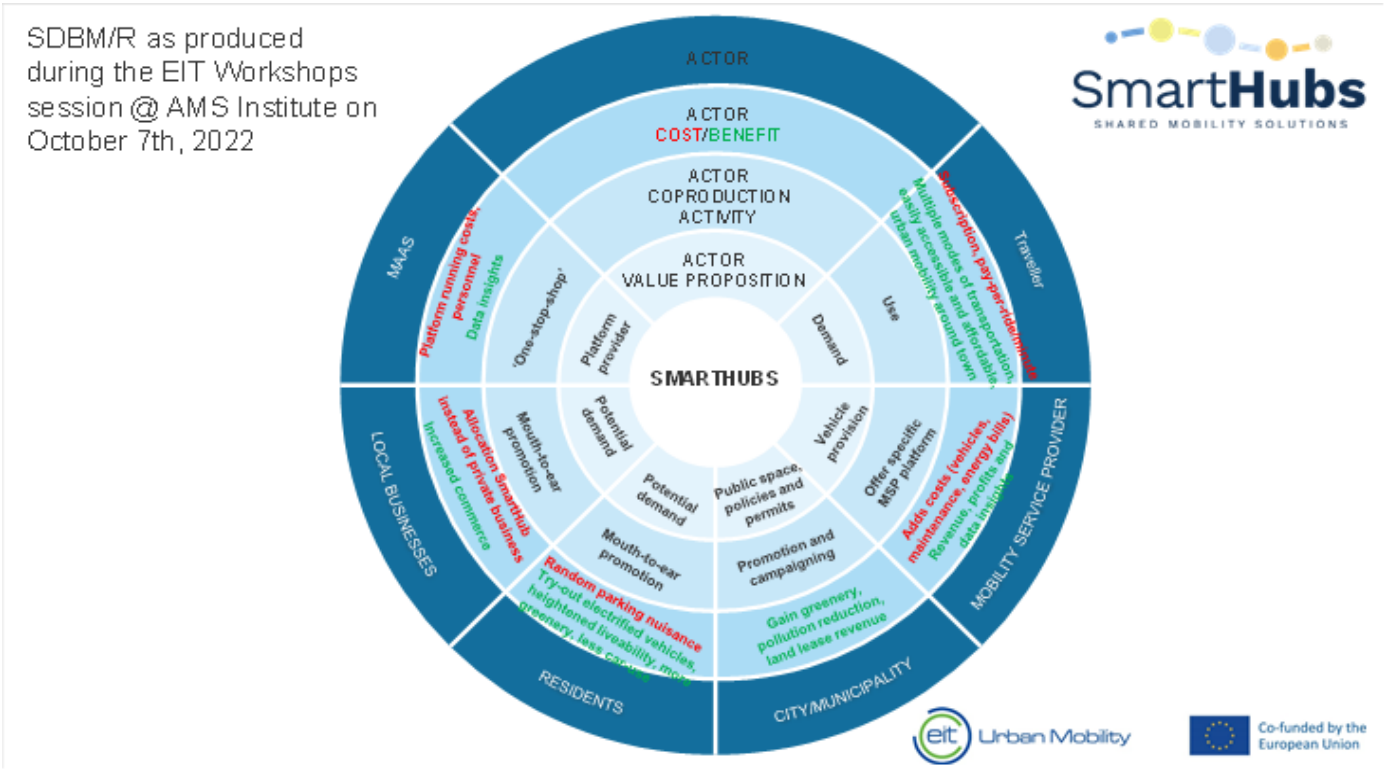

Fig.7 – SDBM/R completed based on the EIT Workshops session (Fig. 6)

The radar model above has been interactively filled in by participating actors during a workshop. If possible, organizing a workshop to personally address the SDBM/R and jointly produce it is considered very helpful as is spawns discussions to further pinpoint the values presented. The table displayed also represents the various sections of the model radar as it splits all segments of the radar model as displayed before, it indicates what the costs/benefits are per actor, which activity the actor performs in relation to, and what their contribution is to the SmartHub.

Actor	Traveller	MSP	MaaS	Municipality / city	Resident	Local business
Cost / benefit	Subscription, Pay per ride/ minute Multiple modes of transportation, easily accessible and affordable,	Vehicle costs, maintenance, electricity bills Revenue, profits and data insights	Platform running costs, personnel Data insights, revenue / profits	Gaining greenery Reduction pollution Land lease	Random parking Able to try-out electrified vehicles without commitment, heightened liveability, more	Allocated spaces to SmartHubs instead of private businesses Increased commerce

	urban mobility around town				greenery, less car-use	
Activity	Use	Platform specific for certain MSP (limited)	Single application for all MSPs 'One-stop-shop' (reserving, contracting, paying)	Promotion, campaigning	Promotion, campaigning (mouth-to-ear) Potential use	Promotion, campaigning (mouth-to-ear)
Contribution	Demand	Provide electrified vehicles	Platform provider	Public space Policies/permits	Potential demand	Potential demand

The table above displays that each actor creates added value for the SmartHub. Note that the last two actors (residents, local businesses) are deemed less relevant than the other four; residents are not primary users, but potential users and local businesses might profit from increased commerce due to more people finding their stores through use of SmartHubs, although this might be of insignificant proportions compared to the contribution of the other four actors. It is clear that the traveller (demand) is essential to the existence, continuation and feasibility of the SmartHub; it starts with their demand for smart, shared mobility – without them no SmartHub can survive. Of course, there is the supply side of the hub which is primarily taken care of by the municipality/city in cooperation with the mobility as a service provider for application possibilities and mobility service providers for their contribution of vehicles.

Eventually, the four most relevant actors have to find common grounds to establish a clear, concise and reasonable business case to fulfil the demands of travellers while taking into account all pains, gains, hopes and fears expressed by actors through their value propositions when the time has come to realize actual SmartHub construction in accordance with the city permits and legislation. Now the final 'tool' within the 'toolkit' has been used successfully as displayed and described above. For cities that wish to implement smart mobility solutions within their governance areas, the SmartHubs toolkit has proved itself useful when conducting thorough interviews with carefully selected actors prior to steps one (persona canvas) and two (value proposition canvas), which eventually lead to the final and third step (SDBM/R).

Specified variants and options for piloted cities

Amsterdam

As in this case the SmartHubs are integrated within private premisses; respectively the Student Hotel and Fashion Hotel City, its existence and visibility is per definition impaired comparing to other SmartHubs. Its clientele is also different as many users are temporary (foreign) students, tourists and other hotel visitors who share a common pattern, namely they'll only be using these hubs temporarily within the urban centre

of the city, where distances are often walkable too. The results presented in DEL12 conclude no feasibility for SmartHubs in this location as there weren't sufficient users.

If we consider the SDBM/R in this case, the added value for hotels is prevalent as they are interesting locations nonetheless. Being able to provide transportation straight out of their premises can be a big plus for travellers who intend to discover vast proportions of the city and who don't want to be bothered with local, public transportation schedules et cetera. A 'light' variant of a SmartHub could possibly exist with just a moderate number of selected vehicles to ensure transportation demand of visitors, students and tourists. Moreover, further engagement with locals and hotel visitors could create more demand for the hubs, like handing over a flyer with each new booking, and external visibility through billboard or signs might heighten findability as well. Thus, in relation to the SDBM/R, a special focus on the traveller actor, with a revised proposition regarding their demand of MSPs, could heighten the use of the SmartHubs overall.

Eindhoven

This hub location in the South of Eindhoven is part of the EIT SOUL project, was finished by the end of 2020 and served as the pilot hub location for this project. It is a so called 'P+R' (Park & Ride) location with a SmartHubs strategically located in its vicinity. It has over 600 parking spaces and is located next to one of the main entrance roads of Eindhoven.

The pilot proved that even though Hely's shared modes of mobility were used only limitedly, the P+R locations on the city periphery are valid; many users came from and went to the city centre via a P+R and made some use of the SmartHubs, besides the connecting busses. Here the limited number of MSPs (only Hely in this case) was a bottleneck, thus offering more MSPs to this hub specifically could enhance its usage. Also, the relative high tariffs of Hely's vehicles compared to bus tickets didn't foster use, yet perhaps a combination ticket or other possible integration of MSPs and local public transportation services could prompt users to use both modes more frequently when offered a discount of some sort. It will remain a challenge for SmartHubs to achieve existence for the long run as most P+R locations are served via public transportation like trams, busses and sometimes even metros already. Considering the SDBM/R, the added value for especially the city/municipality is to offer more P+R locations, adjust policy accordingly and engage further with MSPs to ensure sufficient vehicles are available in correspondence with the demand.

Helmond

The original pilot was aimed at Brainport Smart District (BSD). However, since hardly anyone lives there yet, the project has been overtaken by reality and a mini hub has been realized in June 2021 at the Brandevoort side of the station (south) with Brandevoort now as a living lab. Residents in the neighbourhood were targeted. Unfortunately, the research proved no validity for this SmartHub location due to vandalism, technical issues and the fact that the hub was merely placed there temporarily.

Despite this negative result, placing SmartHubs at train stations (or similar venues like bus/tram/metro stations) can be seen as potentially lucrative: they are transitional places where many people commute through on a daily basis. However, the challenge remains (as seen before) of offering the right service for a decent prince. Fare competition is prevalent between the traditional (public) transportation services and MSPs. Also, many residents in this area have their own modes of transportation readily available and only the e-cargo bikes could possibly interest them instead of buying a second care for cargo purposes a couple

a time a year. Considering the SDBM/R, the main advice for this hub would thus be to offer a limited number of this specific mode of transportation via the MSPs until the urge is naturally enhanced when newly built suburbs don't provide parking spaces so custom to the street scene and so forcing people to use the SmartHub mobility. Here the residential added value is being able to use those specific vehicles (e-cargobikes) besides their own modes of transportation, the MSPs won't need to extend their offer to scooters and regular ebikes but can focus on the local demand of e-cargobikes instead.

Sant Cugat de Vallès

The Bicibox pilot project was implemented next to the Mira-Sol FGC railway station in Mira-sol Shopping Centre of the Sant Cugat del Vallès Municipality. The pilot hub includes facilities such as FGC railway station, bus stations, parking areas and a Bicibox station containing 18 secure bike racks, 2 shared cargo bikes, 12 sockets for charging electric bikes, a repair desk and an inflator. The hub also contains non-mobility services such as multiple grocery stores, restaurants, a dance and fitness centre and a library.

This hub not only offers commuters of trains and busses a mode of transport but also mall visitors and shoppers. Usage is mostly for work (29.6%) and shopping (29.6%), followed by secondary studies (14.8%). When considering the SDBM/R, a reflection on the hub's remarkable added value to the economic activity of involved users is significant as it could greatly contribute to improving local commerce. This specific SmartHub seems very much suited for its demand.

Thus, focussing on the local businesses as actors could further enhance their findability and economic potential. Especially when MSP are keen on providing sufficient cargo bikes to ensure people can transport their purchases. Lastly, enhancing this SmartHubs interconnectivity with other SmartHubs is recommended.

Lisbon

Under the SmartHubs project, EMEL worked on a new concept of mobility hubs for short distance trips within the city of Lisbon, aiming to improve the current docking stations of the Lisbon bike-sharing system (GIRA). To this end, EMEL planned to improve the docking stations into mobility hubs to support and boost the use of public and shared transport, providing citizens with more multimodal solutions, which facilitate the last-mile, including the use of bicycles.

The results show a positive picture of the SmartHub with high demand with recommendations to improve the hubs secondary services like Wi-Fi or a co-working/studying area. Considering the SDBM/R, added value for the travellers is mostly based upon extended services by the MSPs when booking a ride at a SmartHub, thus not only a readily available selection on vehicles but other amenities like Wi-Fi as well. Besides, the methodology developed and carried out to cocreate a mobility hub has proven to be an excellent way to engage with the community in the design of future services and it could be scalable and replicated in the creation of a future network of shared mobility hubs in Lisbon, contributing to ensure that the specific (mobility) needs of each neighbourhood are met.

Sétubal

The mobility hub in Setúbal was planned with the purpose of promoting the use of public transport and micro mobility among residents and visitors who commute to Lisbon. It's located near a multimodal station where both bus and train services are available.

As many technical issues and a protocol of collaboration circumvented the project, it has had delays. Yet, with some adjustments this hub can be interesting as it was used frequently. Considering the SDBM/R, integration with regional mobility providers, in this case TML, is most relevant for the hub's continued service. Further focus on informing the travellers about multimodal transportations services of the MSP can enlarge is use in this specific case.

Warsaw

Mobilne Miasto joined the SmartHubs project in the middle of the year 2021, by replacing the Warsaw Transport Authority (ZTM) and taking over its project activities (conducting a feasibility study on implementing mobility hubs in Warsaw), but also by adding new activities – opening pilot mobility hubs in two locations: first in 2021 and another in 2022. With regards to pilot mobility hubs, the goal for 2021 was therefore to launch first such implementation, in the most multimodal (different shared mobility modalities available in the hub) and economically sustainable (hub partners contributing to hub operations) way possible.

For this specific hub, the lack of interaction with other (public) transportation services proved a disadvantage. Considering the SDBM/R, the potential here is present, yet many landlords don't see the benefits of SmartHubs (yet); something that is prone to change in the next years and could foster the creation of several hubs in the city and so fulfilling the transportation demands of citizens. Thus, the landlords, through informed statements and due policy of the municipality, could be swayed to ease their approach towards MSPs and SmartHubs in general, offering their grounds accordingly.

4. Conclusions and lessons learnt

This deliverable aims to provide a uniform toolkit to be used by municipalities and consortia to support cities that wish to implement similar smart mobility solutions. It has done so by offering a business model known as Service Dominant Business Model Rader (SDBM/R). Prerequisites of this model entail detailed interviews with relevant actors in order to produce value propositions. By involving multiple actors with the intention to understand their motivations, reservations and more, a clear and precise image of their attitudes towards SmartHubs can be revealed. Each actor plays its part within the business model and provides some kind of added value to the product or service being researched.

The proposed 'toolkit' that can be applied beyond this research as support tool for cities that wish to implement smart, shared mobility like SmartHubs. These cities must consider three main 'tools': the

persona canvas, the value proposition canvas and lastly, the SDBM/R. Through detailed interviews the researcher can obtain relevant elements for the persona canvas, which leads to input for the value proposition canvas. By assessing both canvasses, the SDBM/R can be filled in accordingly.

Combining these models leads to a more complete overall picture.

1. Appointing relevant stakeholders (actors) and conducting interviews to form persona canvasses;
    I. Although relevant actors depend on the investigation at hand, in the case of SmartHubs the same (or closely related) actors are relevant for all pilot cities.
    II. Interview questions are based upon the three axes of the persona canvas: positive/negative trends, opportunities/headaches, hopes/fears.
2. Using the value proposition canvas to discover the actors' added values based on their persona canvasses;
    I. This reveals each actor's co-created value in use (SmartHubs in our case).
3. Ultimately filling in the SDBM/R with the value propositions derived from the canvas in the prior step and so concluding on actors' added value to the service/product under investigation.
    I. Actor's costs/benefits, co-produced activities and their value proposition are now clearly displayed in the model, as a result of combining all steps.

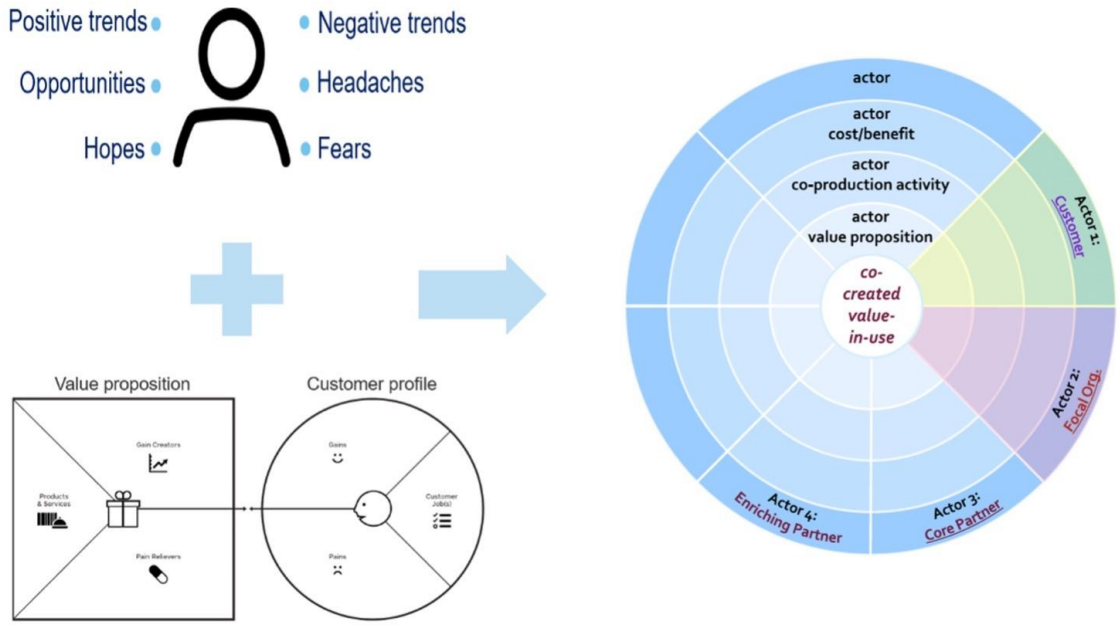

Fig.8 – Toolkit process visualised in three simple steps

5. References

The input for this deliverable consists of information produced through persona and value propositions canvasses as part of deliverable DEL-13. This information was obtained solely through interviews with actors (field research). The canvasses were obtained through desk research which were selected prior to the authors assignment.

The SDBM/R was selected as preferred business model and has been derived through desk research prior to the researcher's assignment.

- EIT UM Deliverable_BusinessModels Final _V03 04 Oct 2022
- EIT UM DEL12 - End of pilot evaluation

6. Acknowledgement

Thanks to all to consortium members and EIT in general for making this research possible.