



SUITS

BUILDING SMALL-MEDIUM LOCAL AUTHORITIES' CAPACITY TO INTRODUCE INNOVATIVE TRANSPORT SCHEMES

Workbook of participant

2

MODULE





SUITS


Capacity Building Programme

Outline of the course

Welcome session

- 1** Introduction
- 2** Innovative Transport Schemes (InnoTS)
- 3** Value for S-M cities (Challenges, Benefits and Beneficiaries)
- 4** Successful Case studies or Best practices of SUITS cities
- 5** Innovative financing, procurement, partnership
- 6** Business model canvases
- 7** Process and implementation aspects
- 8** Available tools and guidelines

This material is result of WP5 of SUITS project.







1

Introduction

TERMINOLOGY

The following terms will be extensively used throughout the course:

SUITS: Supporting Urban Integrated Transport Systems: Transferrable tools for Authorities

CBP: SUITS Capacity Building Program

SUMP: Sustainable Urban Mobility Plan

LAs: Local Authorities

S-M cities: Small-medium size cities, i.e. cities with population ranging between 50,000 and 250,000 residents in their urban centre

BMC: Business Model Canvas

MaaS: Mobility as a Service

InnoTS: Innovative Transport Schemes, i.e. car-sharing, car-pooling, bike-sharing, MaaS

SUITS Supporting Urban Integrated Transport Systems: Transferable tools for authorities



Funded under: H2020-EU.3.4. - SOCIETAL CHALLENGES - Smart, Green And Integrated Transport

Topic: MG-5.4-2015 - Strengthening the knowledge and capacities of local authorities

Funding scheme: RIA - Research and Innovation action

Coordinator: Coventry University

Total cost: approx. EUR 4M

Duration: 4 years (From Dec 1st 2016 to Nov 30th 2020)

22 Partners (see map)

Project Website: <http://www.suits-project.eu/>

COORDINATOR

UK: Coventry University

PARTICIPANTS

UK: Arcadis, Transport for West Midlands

Italy: Politecnico di Torino, RSM, Eurokleis, Citta di Torino

Ireland: Interactions

Greece: Lever, Sboing, Makios, Municipality of Kalamaria

Spain: ITENE, INNDea

Romania: Integral Consulting, Municipality of Alba Julia

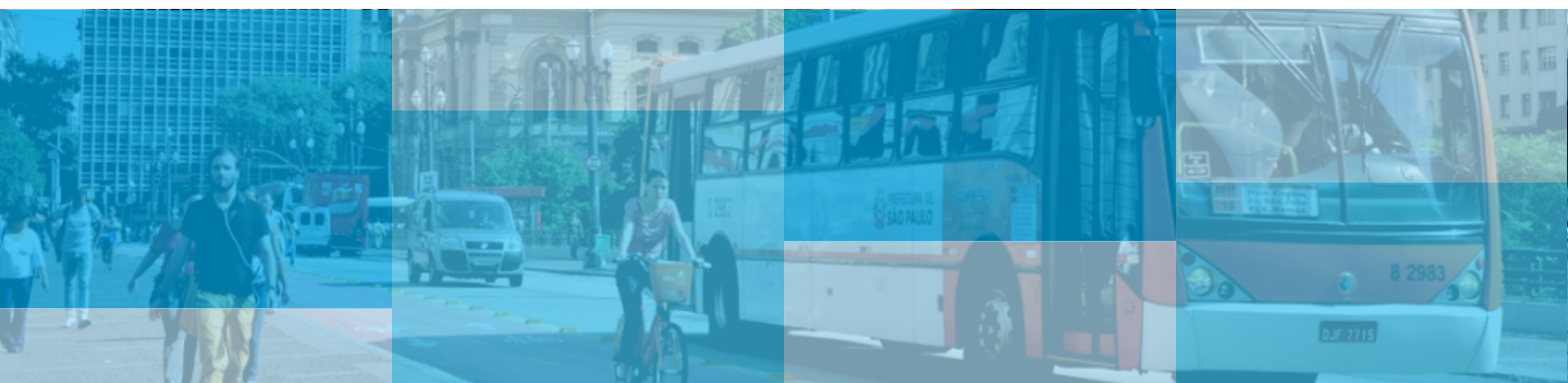
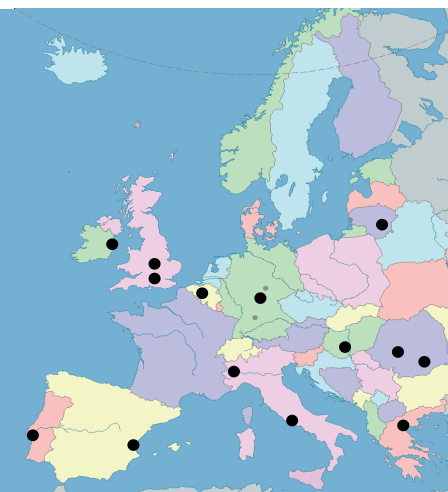
Portugal: VTM

Hungary: Logdrill

Germany: Wuppertal Institute, Technische Universitat Ilmenau

Lithuania: Smart Continent

Belgium: SIGNOSIS



Course Framework: SUITS Project

Main objectives of SUITS Capacity Building

Overall aim: To increase the capacity of S-M local authorities to develop and implement sustainable, inclusive, integrated and accessible transport strategies, policies, technologies, practices, procedures, tools, measures and intelligent transport systems that recognize the end-to-end travel experiences of all users and freight

Support Small Medium Local Authorities in developing SUMP by:

- Transforming them into **learning organizations**.
- Make transport departments **resilient and responsive to new challenges and changes**.

Without capacity building and the transformation of transport departments into learning organisations, training materials will not provide the step change needed to provide innovative transport measures.

Expected outcomes of SUITS project

Transformation of transport planning departments in Small Medium cities into change agents. Through development of:

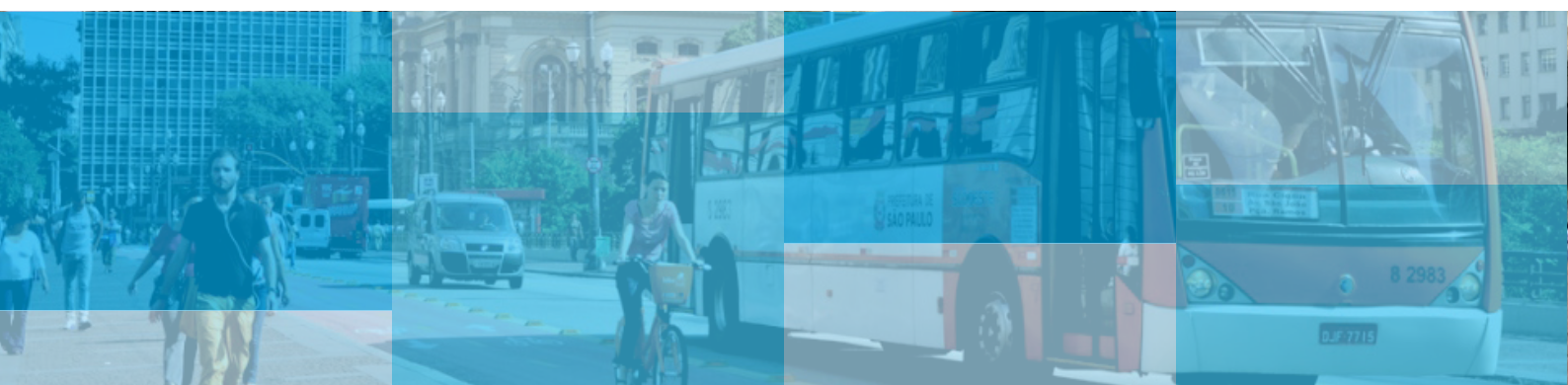
- A validated **capacity building programme** for transport departments.
- Resource-light **learning assets** (modules, e-learning material, webinars and workshops), based on stated needs.
- **Decision support tools** to assist in:
 - procurement,
 - innovative financing,
 - engagement of new business partners,
 - handling of open, real time and legacy data.
- **Better Integration/use of freight and passenger data**.



Course Framework: SUITS Project Modules

Module 1	“Building S-M LAs’ capacity to implement emerging transport technologies” (ITS, Electric mobility, CAVs etc.)
Module 2	“Building S-M LAs’ capacity to introduce innovative transport schemes” (MaaS, Uber, Business Models etc.)
Module 3	“Building S-M LAs’ capacity to implement urban transport safety & security measures for all/vulnerable users”(passenger and freight vehicles etc.)
Module 4	“Building S-M LAs’ capacity to implement urban freight transport measures”(SULPs, Crowdshipping, cargo bikes etc.)
Module 5	“Data collection and analysis tools for integrated measures”
Module 6	“Innovative Financing, procurement and business models”

Modules 1/3/4	Delivered as classroom courses
Module 2	Delivered as classroom course and webinar/e-learning
Modules 5/6	Delivered as e-learning courses/webinars



Module's purpose

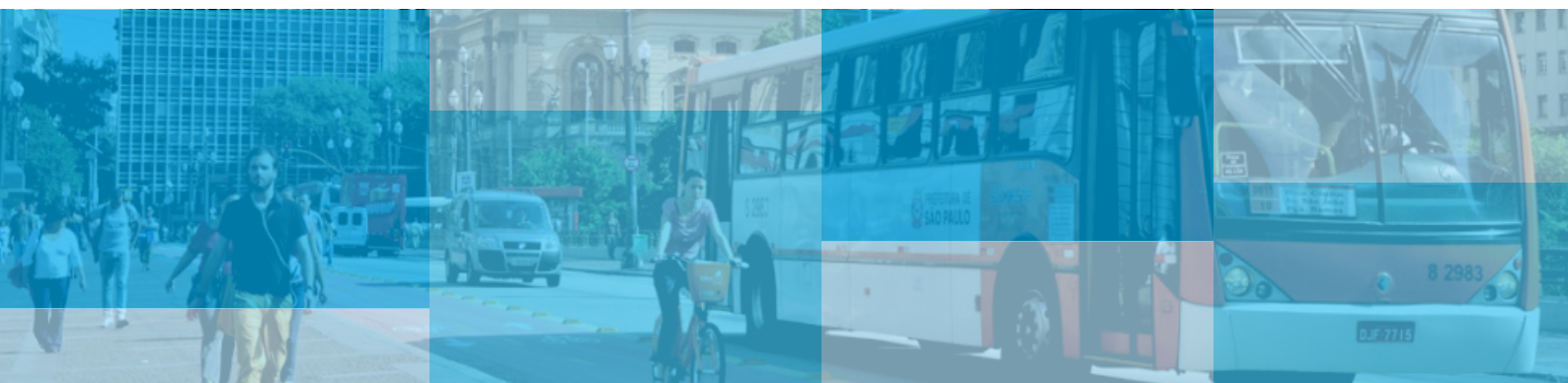
Overall module's aim: To increase the capacity of S-M cities, to implement and monitor the Innovative Transport Schemes (InnoTS) measures throughout policymaking, budgeting, designing and facing the current challenges when implementing these measures.

IN PARTICULAR AIMS AT:

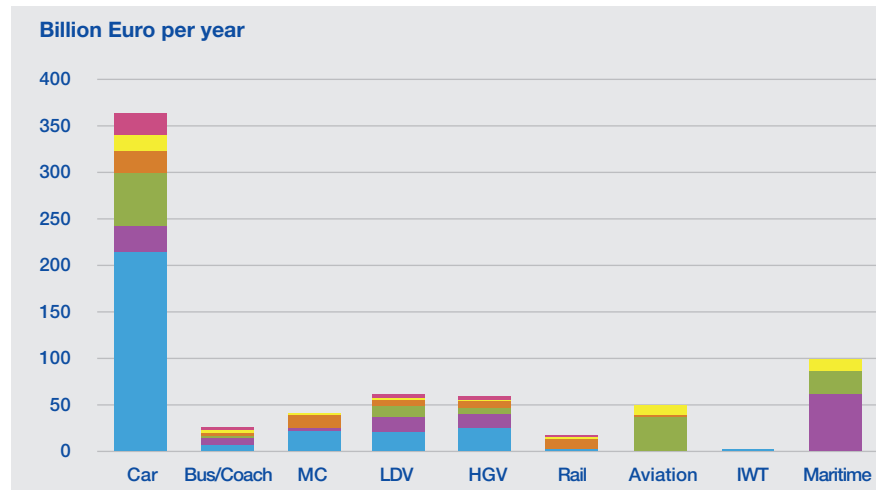
- **Increase the understanding** about the value of InnoTS in our cities, the effects/ cost of lack of urban mobility regulations, the operators and the economy of the city and about the concept and methodology for developing InnoTS measures while being able to recognise or find out the needs of urban freight transport users.
- **Build specific skills** regarding how success of the measures can be ensured
 - By convincing stakeholders and by overcoming financial, legal, administrative and technical barriers

SPECIFICALLY, THE COURSE IS DESIGNED TO:

- **Strengthen cooperation** between LA's staff.
- **Advance local priorities** on InnoTS.
- **Offer** concrete practical **tools** and **guidance** to better implement these Schemes.



Key aspects of the problem

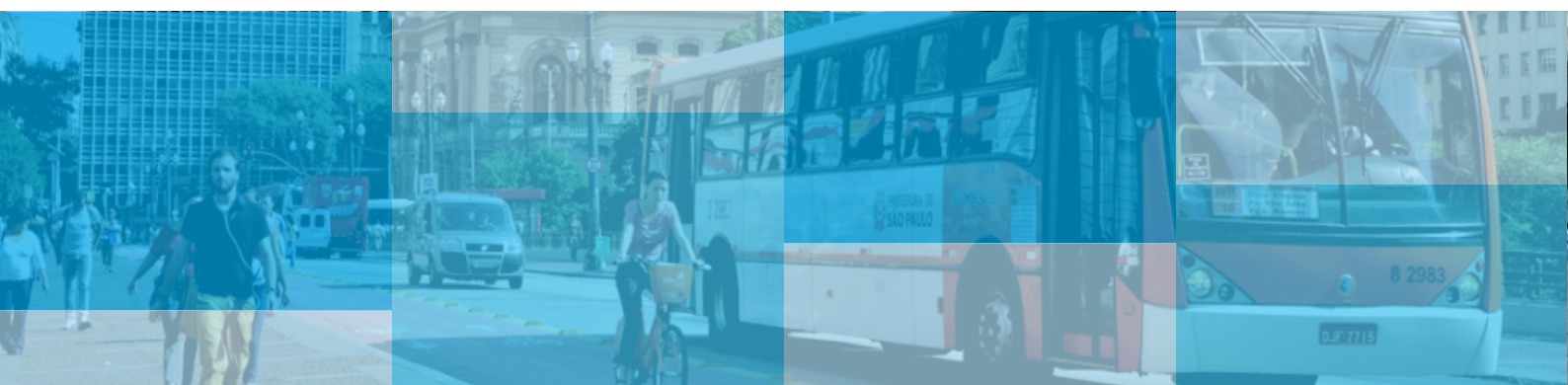


Total external costs per transport mode for EU28 in 2016 [4]

EXTERNAL COST OF TRANSPORT

- **~59%** (€ 425 billion estimated) of total external cost of transport **due** to the use of **Car, Bus/ Coach** and **Motor Cycle** (EU28 in 2016) [1]
- **~27%** of overall external cost in EU28 (2016) stands for **road congestion** (total delay costs € 270 billion estimated) [1]

...while the extent of the **overall external costs of transport**, is estimated at around **€ 1 000 billion** (€ 981 billion) **annually** (almost 7% of the gross domestic product of the 28 EU Member States) through **air pollution, climate, habitat damage, well-to-tank, noise, congestion, accidents**. [2]



HOW TO DETERMINE COSTS

- For retrieving cost estimates for specific countries and traffic situations there are plenty of methodologies and approaches.
- The components (e.g. value of time, cost of fatality) needed for each country-case study, vary in time and also depends on the individual economy of each country.
- The aim is for every interested S-M city, to use some tools and methodologies in order to calculate these costs.

APPROACH	DESCRIPTION
Handbook on External Costs of Transport [3]	Gives guidance on how to determine costs about air quality, accidents etc. (accompanied by excel calculators)
Guidelines to estimate the external marginal accident cost [4]	Report of experts advisors that propose strategy on calculating the accidents cost in transport sector



KEY CONSIDERATIONS

- Shared mobility and mobility as a service aim to reduce external cost of transport, while promoting active mobility, multimodality and new technologies.
- Multiple benefits arise for people individually, society, economy and environment of an urban area.

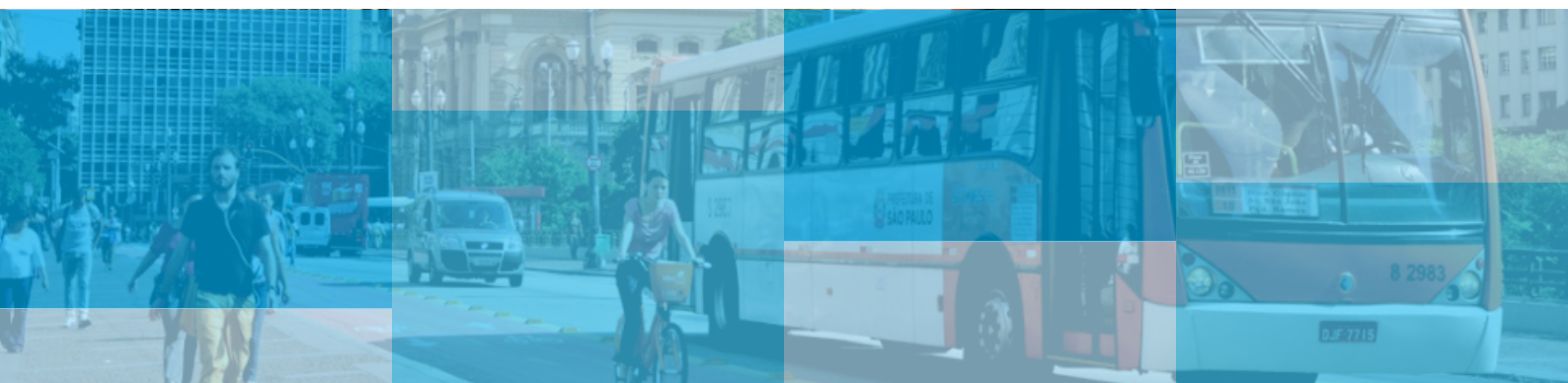


Further Reading

1. Handbook on external costs of transport <https://ec.europa.eu/transport/sites/transport/files/themes/sustainable/studies/doc/2014-handbook-external-costs-transport.pdf>
2. Guidelines to estimate the external marginal accident cost <http://ec.europa.eu/transport/infrastructure/doc/crash-cost.pdf>

References

1. Van Essen, H. (2018). Sustainable Transport Infrastructure Charging and Internalisation of Transport Externalities. [online] Available at: <https://ec.europa.eu/transport/sites/transport/files/2018-year-multimodality-external-costs-ce-delft-preliminary-results.pdf> [Accessed 15 Apr. 2019].
2. Mobility and Transport - European Commission. (2019). From infrastructure costs to health and environmental impacts - European Commission shares first findings on the true costs of EU transport - Mobility and Transport - European Commission. [online] Available at: https://ec.europa.eu/transport/themes/logistics/news/2018-12-17-costs-of-eu-transport_en [Accessed 15 Apr. 2019].
3. Update of the Handbook on External Costs of Transport. (2014). [ebook] European Commission. Available at: <https://ec.europa.eu/transport/sites/transport/files/themes/sustainable/studies/doc/2014-handbook-external-costs-transport.pdf> [Accessed 15 Apr. 2019].
4. Final report of the expert advisors to the high level group on infrastructure changing (Working Group 3). (1999). [ebook] Sweden. Available at: <http://ec.europa.eu/transport/infrastructure/doc/crash-cost.pdf> [Accessed 15 Apr. 2019].





2

Innovative Transport Schemes

This chapter provides a **brief description** and the **key elements** of indicative **Innovative Transport Schemes (InnoTS)** measures .

InnoTS measures aim to reduce negative impacts of urban mobility operations and help overcoming barriers to apply efficient and sustainable urban logistics

Therefore InnoTS focus on:

- Increasing **energy efficiency**, to therefore improve the **sustainability and livability** of cities.
- Improving **reliability of systems**, increasing **customer satisfaction**.
- Increasing **safety and security**, reducing the risk of road injuries and fatalities.

Short description of Innovative Transport Schemes



CAR-SHARING

Car-sharing is a form of transport by which several persons in turn make use of one or more collective cars.

This can be arranged both by the parties mutually and by a car-sharing provider [1].



RIDE-SHARING (CARPOOLING – VANPOOLING)

Ride-sharing is the concept of “offer a ride” on vehicle where seats are available.

It covers various options, the most common is when the owner of a vehicle has a predetermined journey and offers a seat to passengers going in the same direction in exchange for sharing the costs of the journey [2].

In this way, the additional mileage is minimised. Carpooling generally uses participants’ own automobiles [3].



BIKE-SHARING

Bike-sharing schemes can be defined as ‘short-term urban bicycle rental schemes that enable bicycles to be picked up at and returned to any self-service bicycle station, which makes bicycle-sharing ideal for point-to-point trips.

The basic premise of the bike-sharing concept is sustainable transportation and they differ from traditional, mostly leisure-oriented bicycle rental services in many ways. Bike-sharing schemes could be with station-based bike sharing (SBBS) or without docking stations (Free-floating bike sharing (FFBS) [4].

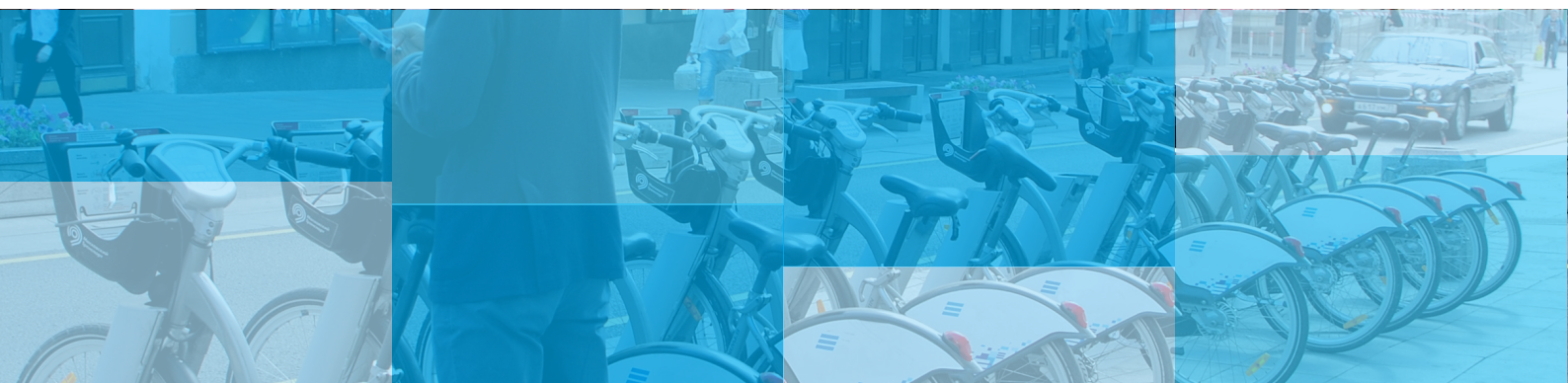


MOBILITY as a SERVICE (MAAS)

MaaS is defined as the integration of various forms of transport services into a single mobility service accessible on demand.

The key concept behind MaaS is to put the users, both travellers, and goods, at the core of transport services, offering them tailor-made mobility solutions based on their individual needs.

This means that, for the first time, easy access to the most appropriate transport mode or service will be included in a bundle of flexible travel service options for end users [5].

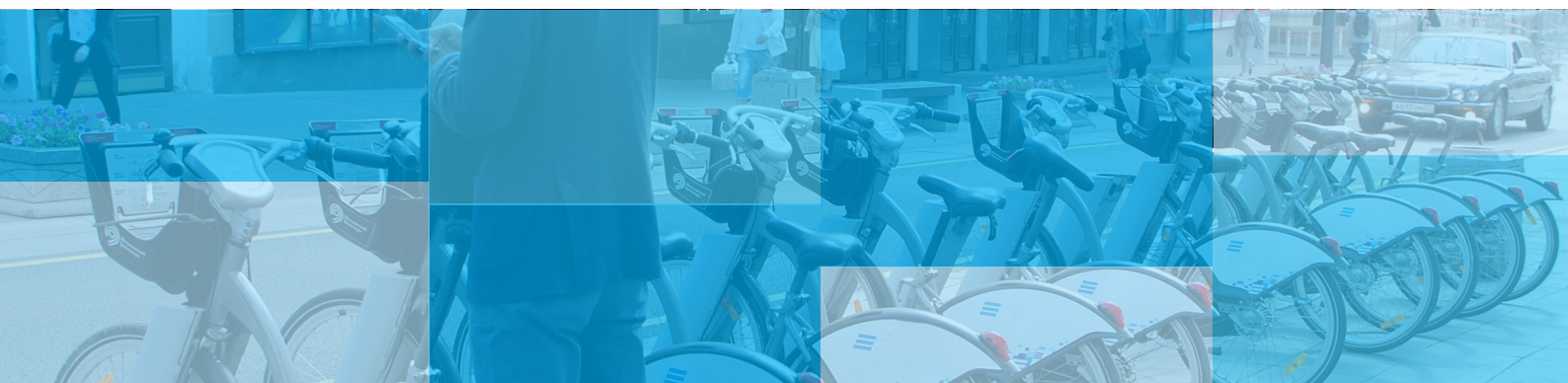


Further Reading

1. Civitas.eu. (2019). CIVITAS Insight 18 - Mobility-as-a-Service: A new transport model | CIVITAS. [online] Available at: <https://civitas.eu/tool-inventory/civitas-insight-18-mobility-service-new-transport-model> [Accessed 8 Apr. 2019].
2. Civitas.eu. (2019). CIVITAS Policy Note: Intelligent Transport Systems and traffic management in urban areas | CIVITAS. [online] Available at: <https://civitas.eu/tool-inventory/civitas-policy-note-intelligent-transport-systems-and-traffic-management-urban-areas> [Accessed 8 Apr. 2019].
3. Civitas.eu. (2019). Mobility as a Service (MaaS) Readiness Level Indicators for local authorities | CIVITAS. [online] Available at: <https://civitas.eu/tool-inventory/mobility-service-maas-readiness-level-indicators-local-authorities> [Accessed 8 Apr. 2019].

References

1. More Options for Energy Efficient Mobility through Car-Sharing (MOMO CAR-SHARING). (2011). [ebook] European Commission. Available at: <https://ec.europa.eu/energy/intelligent/projects/en/projects/momo-car-sharing> [Accessed 28 Mar. 2019].
2. Study on passenger transport by taxi, hire car with driver and ridesharing in the EU. (2016). [online] Brussels: European Commission. Available at: <https://ec.europa.eu/transport/sites/transport/files/2016-09-26-pax-transport-taxi-hirecar-w-driver-ridesharing-final-report.pdf> [Accessed 28 Mar. 2019].
3. Ridesharing Carpooling and Vanpooling. (2018). In: TDM Encyclopedia. Victoria Transport Policy Institute.
4. Bike-sharing as a link to desired destinations. (2016). [ebook] Available at: https://civitas.eu/sites/default/files/civitas_insight_10_bike-sharing_as_a_link_to_desired_destinations.pdf [Accessed 28 Mar. 2019].
5. MAAS-Alliance. (2019). Mobility as a Service Alliance - MAAS-Alliance. [online] Available at: <https://maas-alliance.eu/> [Accessed 28 Mar. 2019].







3

Value for S-M cities (Challenges, Benefits and Beneficiaries)

This chapter presents:

- Some of the **benefits** InnoTS measures bring to the city, how these benefits are linked with **strategic city goals** and how they could be identified in a systematic way with **Social Impact Assessment tool**.
- The wider **added value** of InnoTS measures in a city taking also into account their relevance to local, national and EU strategies.
- The main beneficiaries and stakeholders of the InnoTS and how LAs could convince them to support measures implementation.

Benefits of InnoTS

DIRECT POSITIVE EFFECTS

- Less congestion (by embracing sharing services, such as car-sharing or carpooling) [1].
- Reduced fuel consumption & less environmental pollution by the reduction of the total number of circulating vehicles [2].
- Reduced costs for the user deriving from the lack of private car ownership costs (insurance, service costs, etc.) [3].

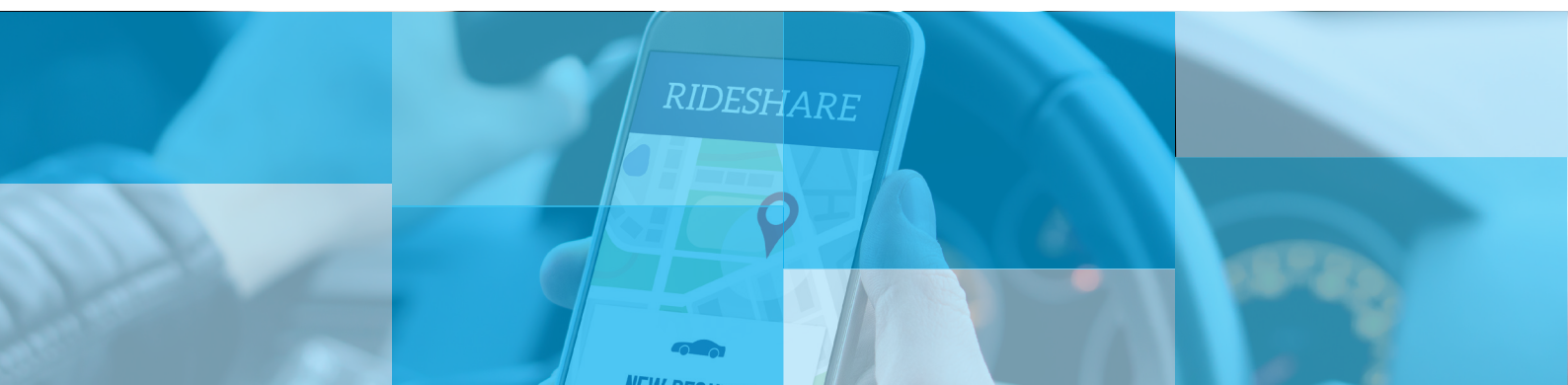
THESE BENEFITS CAN BE ALL TRANSLATED INTO ECONOMIC GROWTH SINCE:

- LAs can benefit from the set up and exploitation of sharing services (e.g. municipal shared bikes fleet).
- Reduced need for infrastructure repair, since the total number of vehicles can be reduced, as a result of the increased take-up of car-pooling services or other InnoTS [1].



- In order to achieve these benefits, while avoiding negative results and reactions, global approach, public discussion and stakeholders collaboration are required.
- Global approach refers also to
 - combination of these schemes with other mobility/transport measures or other technologies in order to achieve optimised performance and provide tailored service.

Example: when implementing car-/bike- sharing systems, it is recommended to be combined with other “smart” mobility measures (for example electric vehicles can be used for car-sharing [4]) or Car Independent Lifestyle measures (for example bike-sharing concept promotes also biking, see reference 5).



CORRELATION OF INNO TS WITH CITY STRATEGIC OBJECTIVES [6]

CHALLENGES SOLUTIONS	HEALTH	CONGE- STION	SAFETY & SECURITY	PARTICIPA- TION	STRATEGIC PLANNING	GLOBAL CLIMATE CHANGE
LESS CAR-DEPENDENT MOBILITY OPTIONS						
Car-sharing						
Carpooling						
Walking and cycling						
SUSTAINABLE URBAN MOBILITY PLANS						

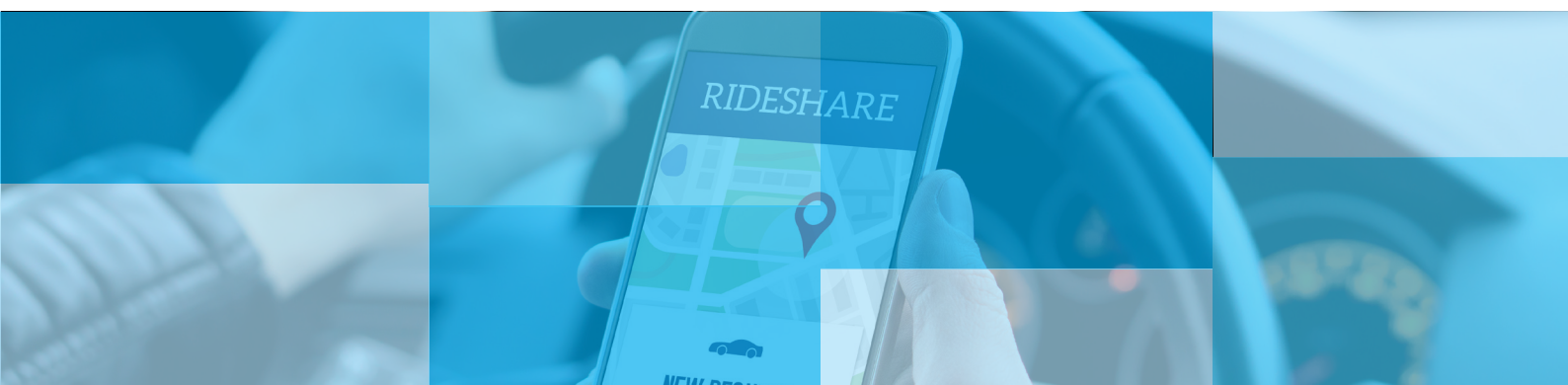
Very strong connection
 Strong connection
 Moderate connection
 Weak/indirect connection

CORRELATION OF INNO TS WITH CITY STRATEGIC OBJECTIVES

CiVITAS-CATALYST explains the impact of different mobility solutions to challenges regarding health, congestion, safety & security, participation, strategic planning and global climate change [7].

As identified by CiVITAS-CATALIST Project some of the most effective measures are the following:

- “Collective passenger transport (new forms of public transport services, access for elderly and disabled passengers, integration of modes)”. [7] → **MaaS component**.
- “Transport telematics (e-ticketing, traffic management and control, travel and passenger information)” [7]. → **MaaS component**.
- “Less car dependent mobility options (car-sharing, carpooling, walking and cycling)” [7]. → **Car-sharing, ride-sharing and bike-sharing as essential measures towards a less car dependent mobility**.



EXAMPLE: COVENTRY STRATEGIC OBJECTIVE [8]

"...the launch of the Midlands Engine, where the 11 Midlands-based LEPs will work together to respond to the Government's economic and political challenges, particularly in:

- Enhancing transport connectivity*
-*

Culture and tourism: *"This will focus on growing the visitor economy, particularly around Coventry's opportunity to become UK Capital of Culture in 2021, and further developing the renowned offer that is "Shakespeare's Stratford". Coventry named UK city of culture 2021 (guardian)"*

"Transport infrastructure and urban centre improvements...will play a crucial role in bringing major sites forward for development and attracting business investment."

..."A key priority is to increase levels of business engagement with the area's world class R&D and innovation asset, and fulfill the area's potential as a test bed for new low carbon products."

Social Impact Assessment tool

Transport measures impact all aspects of societies and human lives and more specifically dense urban centres.



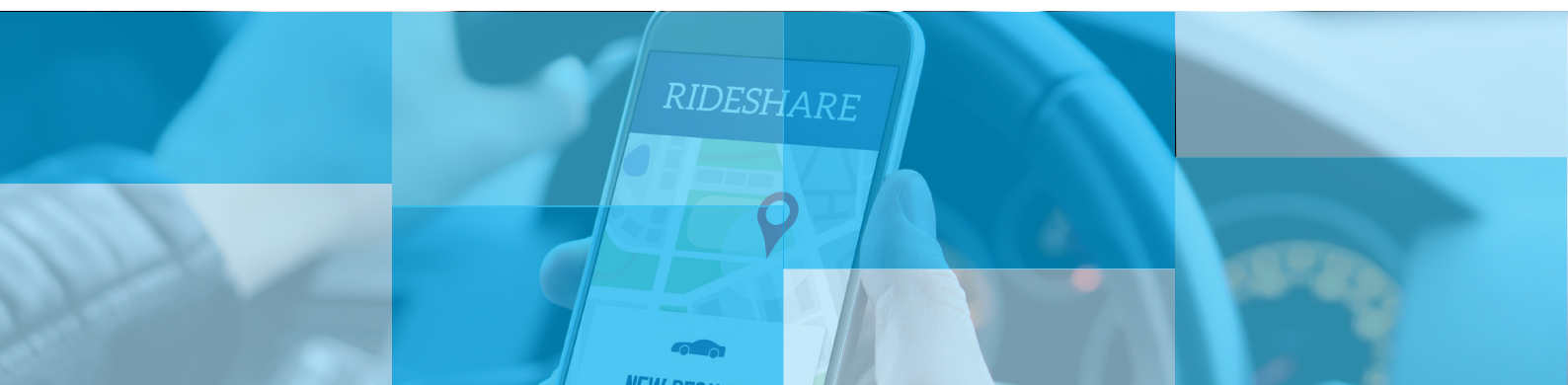
Transport needs to be inclusive, accessible and make a make a positive contribution to quality of life.



Towards sustainable development, impacts assessment methods are needed regarding short and long-term social, health and wellbeing factors.

"Social Impact Assessment is the process of analysing, monitoring and managing the social consequences of development." (Vanclay, 2003)

Issues: Factors, Samples, Social Groups, Data Collection Bias, etc.



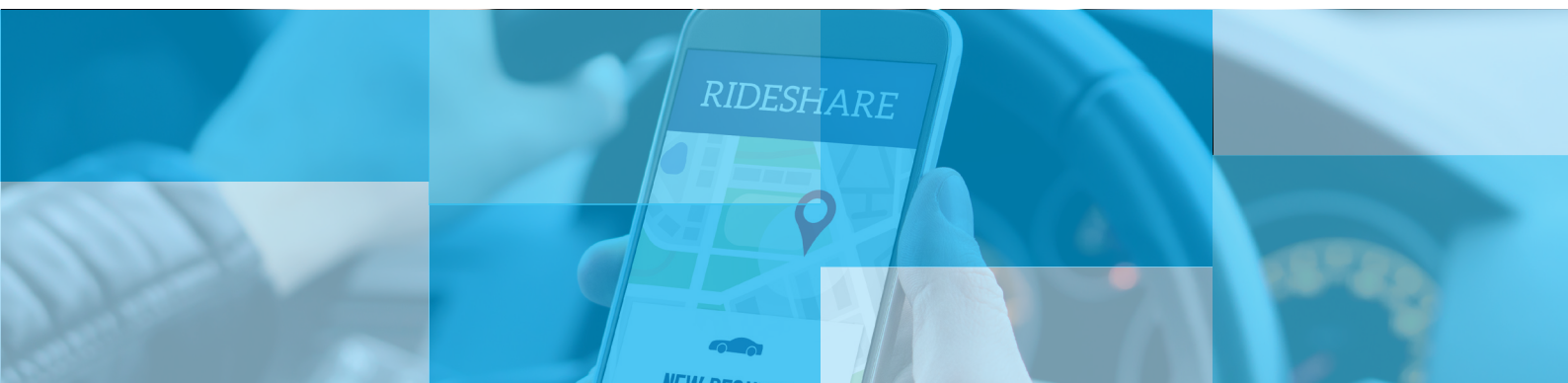
Impact Assessment Dimensions

- **Environmental impact** is defined as “any changes to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation’s environmental aspects”.
- **Economic impacts** are defined in terms of the “effects on the level of economic activity in a given area” (Weisbrod & Weisbrod, 1997).
- **Social impacts** have been defined as the effects which characterize and influence the community’s social and economic wellbeing (Canter et al.1985).

IMPACTS		SUMMARY OF KEY IMPACTS	ASSESSMENT			
			QUANTITATIVE	QUALITATIVE	MONETARY £ NPV	DISTRIBUTIONAL 7 PT SCALE/ VULNERABLE GRP
SOCIAL	Commuting and other users		Value of journey time changes (£) Net journey time changes (£) 0 to 2 min 2 to 5 min > 5 min			
	Reliability impact on Commuting and Other users					
	Physical activity					
	Journey quality					
	Accidents					
	Security					
	Access to services					
	Affordability					
	Severance					
	Option and no-use values					

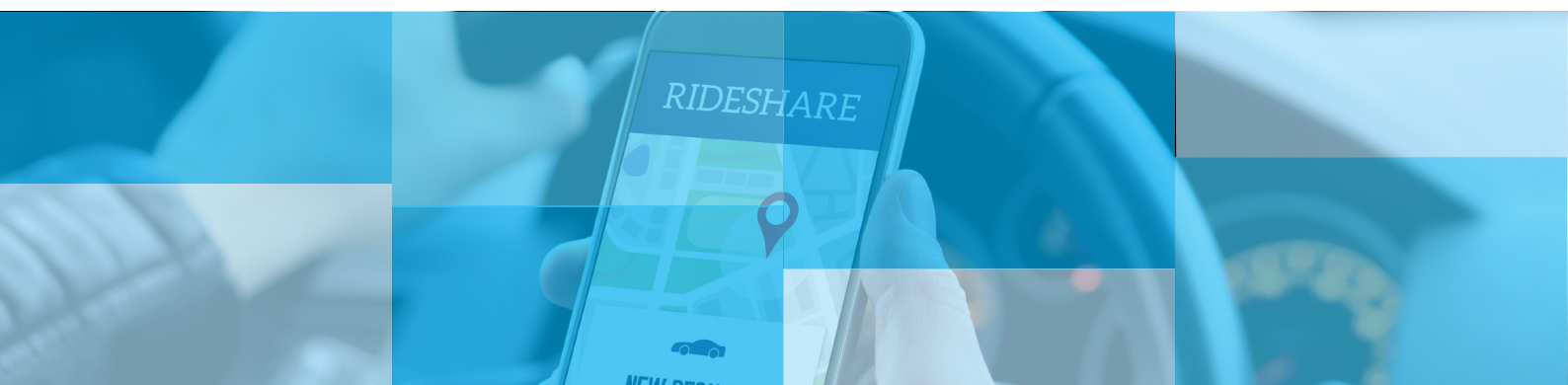
Additionally in methodologies such as **WebTAG a 4th dimension** is integrated separately and includes Health Impacts.

WebTAG is an online tool of the UK Department for Transport’s web-based multimodal guidance on appraising transport projects and proposals.



Overview of factors to be considered by type, source and level of human needs based on SUITS WP7 [9]

SOURCE	THEME	SUB THEME	IMPACT
PROVIDER BASED	Presence of infrastructure	Structurally	Visual quality
			Historical /cultural resources
			Severance/social cohesion
		Temporarily (during construction)	Noise nuisance
			Barriers and diversions
			Uncertainty of construction
	Presence of parked cars		Forced relocation
			Visual quality
	Presence of transport facilities, services and activities (accessibility) (inc. cost and temporal dimension)		Use of space
		Transport facilities	Availability and physical access
		Level of service provided	
		Transportation choice /option values	
		Cultural diversity	
Land use/delivery/opportunity		Access to spatially distributed services and activities	
USER BASED	Traffic (movement of vehicles)	Safety	Accidents
			Averting behavior
			Safety perceptions
		Environment	Public safety (dangerous cargo)
			Noise levels, nuisance
			Soil, air and water quality
	Travel (movement of people)		Intrinsic value, journey quality
			Physical fitness (active travel)
			Security

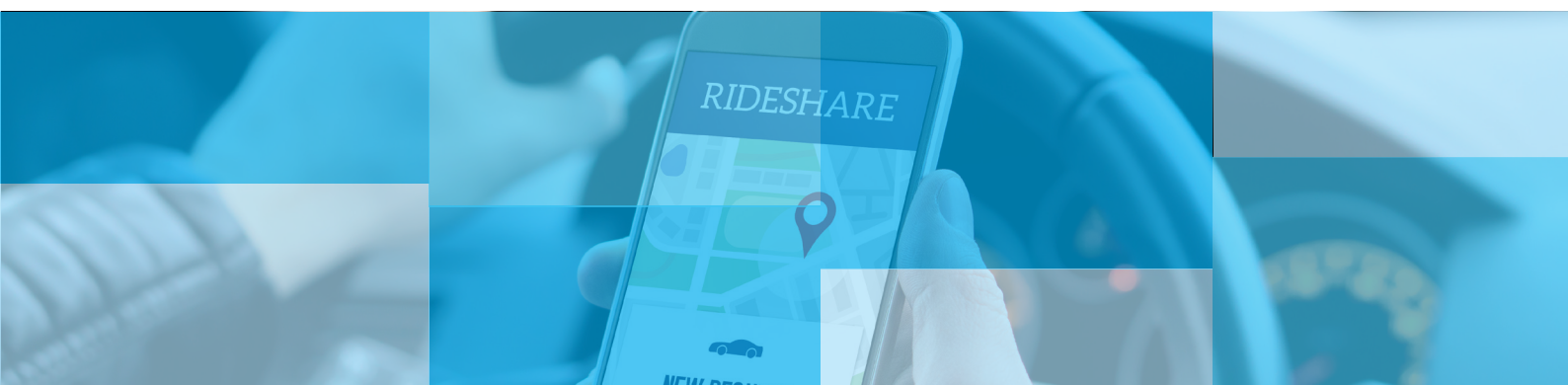


3 VALUE FOR S-M CITIES (Challenges, Benefits and Beneficiaries)

KPIs across economic, social and environmental issues were broken down by individual/user level, business organisation level, and societal level as follows.

(MAASiFiE, D4, 2017)

Level	KPIs	Impact areas		
		Environmental	Economic	Social
Individual /user level	Total number of trips made	x		x
	Modal shift (from car to PT, to sharing, to ...)	x		
	Number of multimodal trips (combining different modes of transport)	x		
	Attitudes towards PT, sharing, etc.	x		
	Perceived accessibility to transport			x
	Total travel cost per individual/household		x	x
Business/ organisational level	Number of customers		x	
	Customer segments (men/women, young/old, ...)		x	x
	Collaboration/partnerships in value chain		x	
	Revenues/turnover		x	
	Data sharing		x	
	Organisational changes		x	
Societal level	Emissions	x		
	Resource efficiency (roads, vehicles, land use, ...)	x	x	
	Citizens accessibility to transport services		x	x
	Modification of vehicle fleet (electrification, automation)	x		
	Legal and policy modifications	x	x	x
Overall positive increase/decrease				
Both positive and negative increase/decrease				
Overall negative increase/decrease				
Not possible to assess				



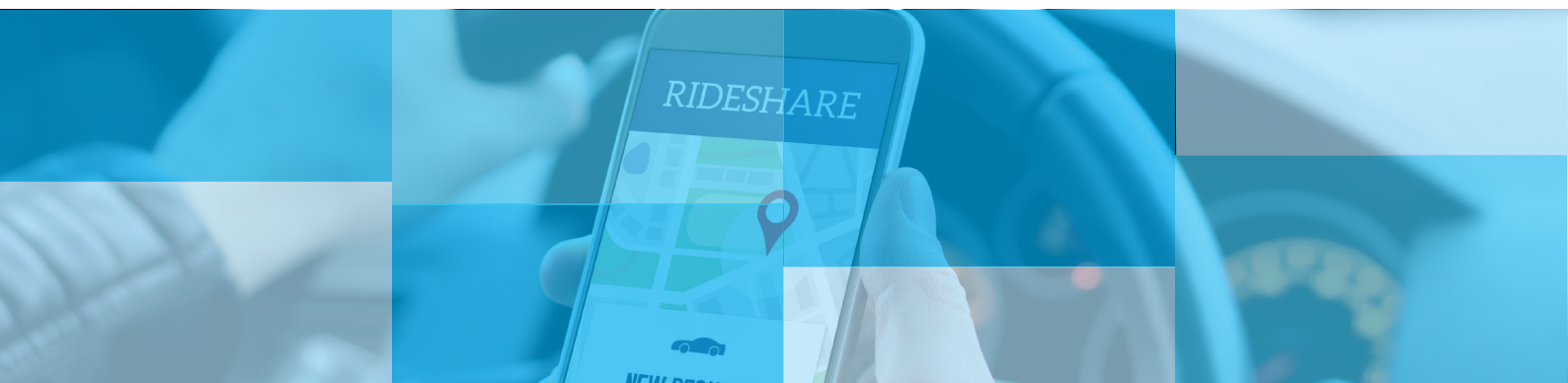
SIA example Kalamaria - Bike sharing scheme [9]

IMPACTS	SUMMARY OF KEY IMPACTS	ASSESSMENT
		QUANTITATIVE/QUALITATIVE
ECONOMIC	Increased economic efficiency, reduction in travel time, income that can be allocated to install another parking area	
SOCIAL	More space and better use of it along with increased awareness of sustainable urban mobility issue	
ENVIRONMENT	Reduction of CO2 emissions and additional pollutant emissions (NOx, PM, lead) as well as improved energy consumption	
HEALTH	Reduction in number of accidents and injuries due to motorised transportation	

Added value: (a) compliance with strategies/regulations (EU, NATIONAL, LOCAL)

Value is added also by the fact that UFT measures is relevant to local, national and EU strategies.

- In a **local** level, InnoTS could contribute to strategies for the economic growth of commercial city centres, the local tourism, and the air pollution strategies, while they are part of SUMP.
- In **national and EU level**, these measures contribute to meeting its environmental, health and climate policy goals (e.g. Green Paper [10], European Strategy on Low-Emission mobility [11], Strategic plan 2016-2020 Move March 2016 [12] etc.)
- **The alignment of InnoTS to these policies as part of SUMP [12] could make S-M cities eligible to receive financial support from EU funds.**
- Further support about alignment of this kind of measures with EU policies is provided by EPPOM “Managing mobility for a better future” tools and CIVITAS cities network [13].



List of EU strategies/regulations

CORRESPONDING DOCUMENT	TOPIC	TYPE OF CONTENT	RELEVANCE TO SUITS	RATING EXPLANATION
1. Green paper [10]	<ul style="list-style-type: none"> • Urban freight transport • New and emerging transport schemes • Car independent lifestyles • New and emerging technologies 	Green Paper	3	The content is not relevant exclusively for small and medium sized cities but can be adopted by any city regardless of size
2. SWD (2016)244 European Strategy on Low-Emission mobility [11]	<ul style="list-style-type: none"> • Urban freight transport • New and emerging transport schemes • Car independent lifestyles • New and emerging technologies 	Staff working document	3	The content is not relevant exclusively for small and medium sized cities but can be adopted by any city regardless of size
3. Strategic plan 2016-2020 Move March 2016 [12]	<ul style="list-style-type: none"> • Safety and security • New and emerging transport schemes • Mobility management • Car independent lifestyles • New and emerging technologies 	Strategic Plan	3	The content is not relevant exclusively for small and medium sized cities but can be adopted by any city regardless of size

Added value: (b) the collaboration of all actors/ stakeholders



Communication, collaboration and coordination between many different stakeholders/actors is needed in many aspects of InnoTS development and implementation process.

These procedures are essential to arrive to an agreement and wide support but **they also give LA the opportunity to:**

- **create a deeper interaction** with them and **facilitate the development of future projects** action plan,
- **make new synergies** and develop **new ideas** and **projects**,
- ensure constant **collaboration in future projects**.

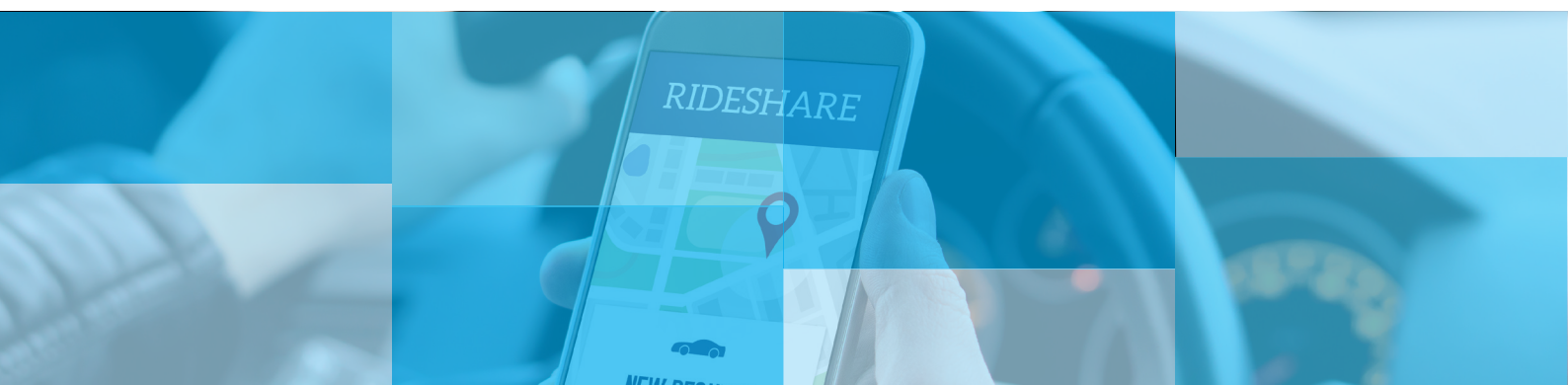
Maximising synergies should be one of the priorities for S-M cities due to the limited available resources (scarcity of technical staff working with LA, limited financial resources etc.)

How to build collaboration/ identify the stakeholders and actors needs

- Targeted interviews to representatives of stakeholders groups in order to inform them about:
 - municipality plans and objectives,
 - the potential benefit for them if supporting the project implementation,
 - the value of their contribution to the project.
- Running survey with questionnaires to stakeholders groups, asking for their perception of problems and solutions, for expressing their needs and restrictions that may hinder their contribution.
- Public consultation and open meetings to be invited all stakeholders in every implementation stage.
- Frequent inspections in the most busy spots of the road network where issues may be arise.
- Tailored approaches to different stakeholders/actors (i.e. customers through questionnaire, shop owners through short interviews, freight operators through short interviews - conversations).

Identification of actors and stakeholders

- The first step towards the formulation of a framework that ensures integration of all actors and stakeholders of a city in urban mobility decision making is to **identify them by producing an extensive list of them**. InnoTS measures implementation can be improved by involving a wide range of stakeholders. Additionally this results in the identification of factors that influence both local authorities and freight-related stakeholders, factors which currently require further investigation.
- **Usual actors and stakeholders for InnoTS measures implementation:**
 - Local authorities,
 - Public Transport Operators,
 - Citizens & Visitors,
 - Non-Governmental Organisations,
 - Private investors
 - Commercial organisations (car /bike/ scooters etc. rental companies)
 - Vehicle manufacturers (car, bike etc.)
 - R & D organisations – IT developers
 - Local business owners



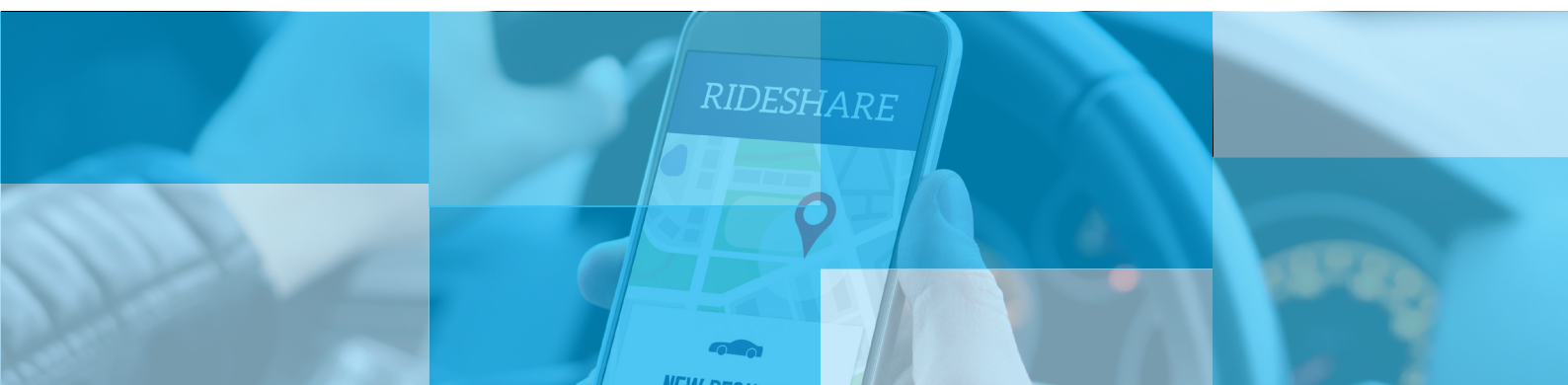
Identification of actors and stakeholders for InnoTS measures based on administrative level

ACTORS AND STAKEHOLDERS	ADMINISTRATIVE LEVEL			
	INTERNATIONAL	NATIONAL	REGIONAL	LOCAL
Commercial organisations	X	X	X	X
IT companies / R& D		X		
Citizens & Visitors				X
Public transport operators		X	X	X
Vehicle manufacturers	X			
Traffic engineers				X
Local Authorities			X	X
Local business owners				X
Private Investors	X	X	X	X
NGOs/CSOs			X	X

Identification of actors and stakeholders per type of InnoTS

[14]

ACTORS AND STAKEHOLDERS	CAR-SHARING	BIKE-SHARING	RIDE-SHARING	MAAS
Commercial organisations (rental car/bike, travel agencies, etc.)	X	X		
IT companies / R& D	X	X	X	X
Citizens & Visitors				
Public transport operators		X		X
Vehicle manufacturers	X			
Traffic engineers				
Local Authorities	X	X	X	X
Local business owners		X		
Private Investors				X
NGOs/CSOs		X	X	



Challenges and Responses for implementation of Ride-sharing ^[15]



'I can't rideshare because I have small children'.

- If those children need dropping and collecting from nursery or school, that's fine. Can that person give someone else a lift to work who lives near to the nursery or school?

'Ride-sharing doesn't suit me because I work shifts'.

- If they work shifts, there are likely to be lots of other people working the same shift that they do not know about. The shift patterns may vary, but suggest they share every other week or whatever they can manage. 20% of journeys registered on the Liftshare network are between the hours of 6pm and 12 midnight.

'I work flexi-time so can't rideshare'.

- Most flexi-time based offices have core hours. Suggest this person matches with a colleague once a week when they could both work an agreed time period for example 10-6 just once a week or once a month.

'Nobody lives near me'.

- They don't know this unless they have searched. Tying into a network with hundreds of thousands of members, the chances are that even if they widen their search, they will find a match. That match may drive past them to get to the destination, or they may be able to pick others up en route to help others out.

'I don't have a car'.

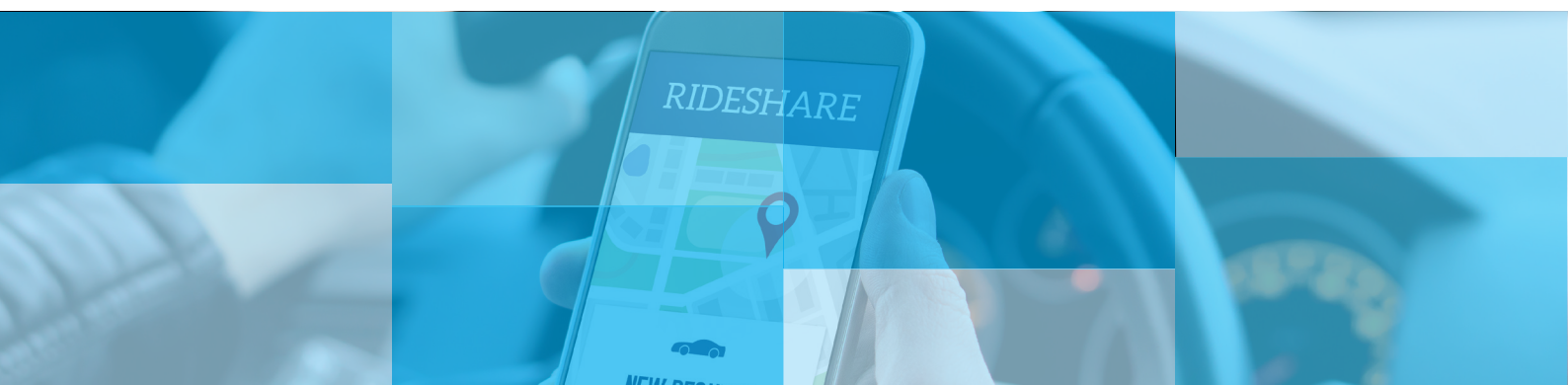
- Ride-sharing isn't just for car owners: for those who don't drive or don't have access to a car, this could be a perfect solution. There is the ability to search for a lift as well as offer a lift to others.

'I need my car during the day'.

- That's fine. Offer a lift to someone travelling to the same start point as you or use a pool car for your business trips during the day. You could share the trip one way, or just share on the days that you know you are in the office all day.

'I share with my partner/spouse'.

- This is great if they do, but they should still be encouraged to register so that you - as an organisation/region - can monitor what is happening stats-wise. If they are bringing one car to work rather than two, they are doing their bit and can still be part of the wider scheme.



‘I don’t like the idea of sharing with a stranger’.

- If you are a restricted group, you have paid for the privilege of only enabling staff to share with other members of staff. This makes the number of strangers they might find as a match much less of an issue. However, suggest they follow the safety tips and trial car-sharing first.

‘I don’t need to rideshare’.

- They may not need to, but they could be helping someone else out if they put themselves on the system. They could be offering a lift to someone who can’t otherwise easily get to work.

Challenges for Car-sharing implementation in smaller cities ^[16]

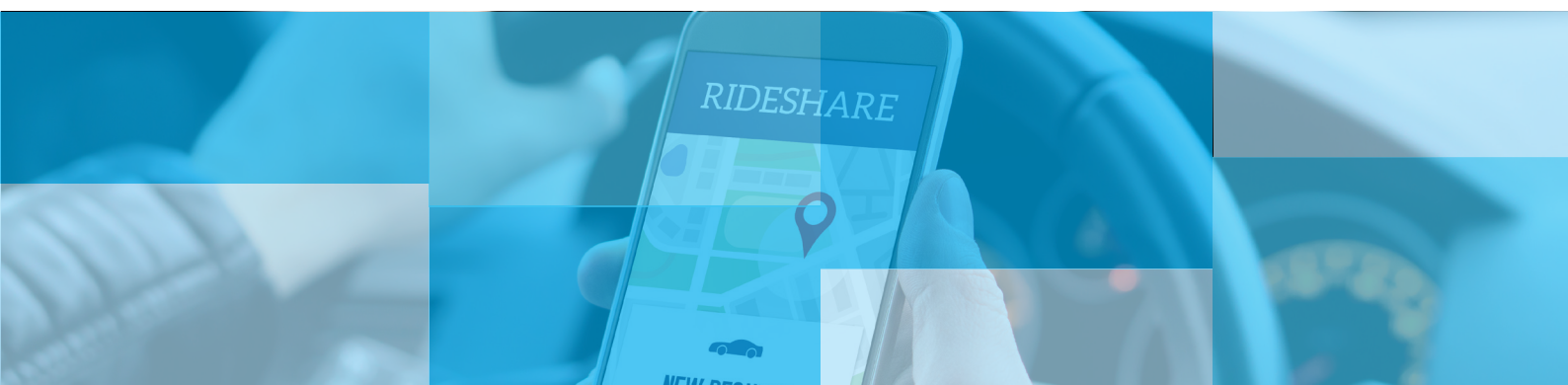
- The concentration of people who are ready to arrange their mobility without private car and share cars with others is lower.
- Therefore the density of potential Car-Sharing users is lower than in bigger cities.
- Fewer Car-sharing vehicles means a lower probability of bookings since various booking requests cannot so easily be shifted among the available cars in times of greatest demand.
- Fewer cars also means it is not economically feasible to employ full-time paid staff.

→ ***In smaller cities that cannot be looked after by professional providers, it must be set up and looked after by a volunteer-run organisation***

- It depends on individual people or a group of like-minded individuals taking on this task.
- Success of such voluntary undertakings depends on the resourcefulness and activity of individual “doers”.
- Nonetheless, successful examples show that Car-Sharing participation in smaller cities and communities can match or even surpass the participation levels in large cities when population size is taken into consideration (e.g. Vaterstetten near Munich in Germany, Albertslund in Denmark, Moorcar in Great Britain, The Swiss example: Mobility Car-sharing).

→ ***The administrations of smaller cities and communities can support the development of local Car-Sharing services through the following measures***

- They can become business customers of the Car-Sharing service and use it for their own work-related travel.



- They can reduce the economic risk in the start-up phase by guaranteeing (possibly for a pre-established period of time) a minimum level of use.
- They can use their communication channels within the community to promote the service.

Challenges & Responses for Bike-sharing implementation [17]

Travel time is one of the most important barriers for cycling and bike-sharing

- Cycling incentives should be personalized and geared to individuals and trips for which the bike is a good alternative in this respect.

Bad weather (precipitation, cold temperatures and windy conditions) is known to have a negative influence on cycling

- Bike-sharing users should be given extra weight in incentives that encourage cycling. Although scientific evidence is scarce, there are indications that health is the single most important reason for travellers to use active modes, i.e. cycling or walking. Several popular apps are now also using health as an incentive to promote cycling.

Inconvenience in using bike-sharing system

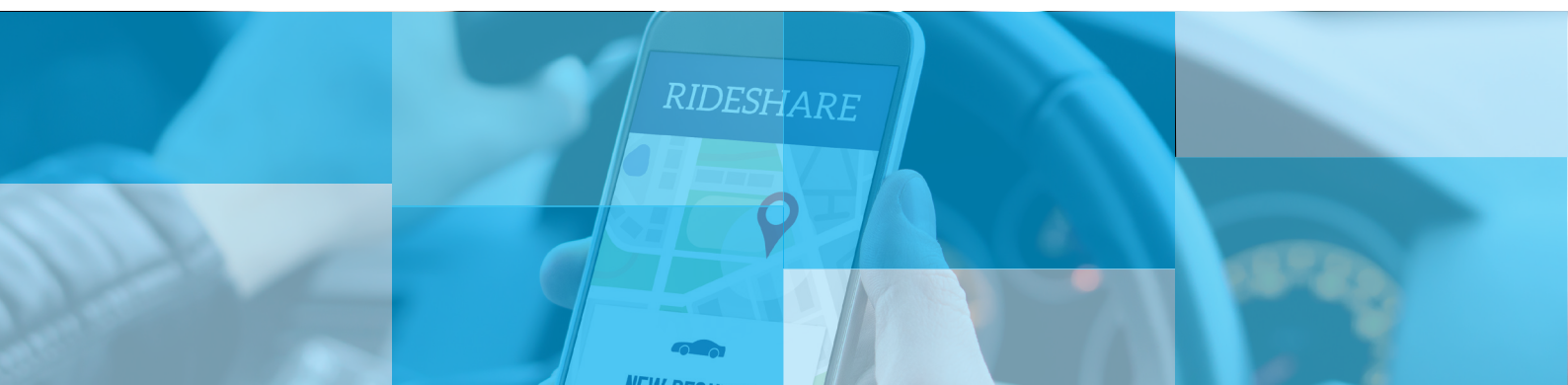
→ *Strategic location of docking stations & integration with public transport or free floating bike-sharing system [18]; [19].*

- There is extensive literature suggesting commuting/work to be a primary trip purpose among users of bike-sharing [18; 19; 20; 21]
- Docking stations should be placed to areas with high jobs density and/or residential density.
- Docking stations should be better integrated with public transport, as well as service suburban locations, beyond the inner areas bordering the CBD.

Inconvenience in using bike-sharing system

→ *Ease of signing up [18]; [19]*

- A complicated and lengthy sing-up process might turn away a lot of potential users.
- A simpler and quicker process (e.g. sing-up with the use of credit car) can support “spontaneity” which bike-sharing users has identified as a crucial element of bike-sharing experience.



Safety: Lack of bicycle infrastructure [18]; [19]**→ Adequate and extensive bicycle infrastructure**

- Lack of bicycle infrastructure is cited as one of the most important barriers in using bike-sharing systems.
- The success of a bike-sharing scheme may depend not just on the availability of public bicycles, but also on the network in which these bikes are intended to operate.
- Recent work examining cycling trends in Sydney and Melbourne have pointed towards the importance of bicycle infrastructure.
- *“Probably the most visible commitment of a city to cycling is a comprehensive system of separated bicycle paths and lanes, providing a reserved right of way to cyclists and sending a clear signal that bicycles belong” [22].*

Challenges & Responses for MaaS implementation

Providing the physical infrastructure: The role of Public Authorities & Regional/Local Actors

One important challenge for creating a well-functioning IMS is **institutional coordination & physical planning** [23]:

Institutional coordination → To integrate information, ticketing, scheduling

Physical planning → To create a seamless travel experience for passengers

Regional and local actors are responsible for implementing these types of measures, often in close collaboration with public transport agencies and operators, and this is an area where public actors at local and regional level could do a lot to enable MaaS [23].

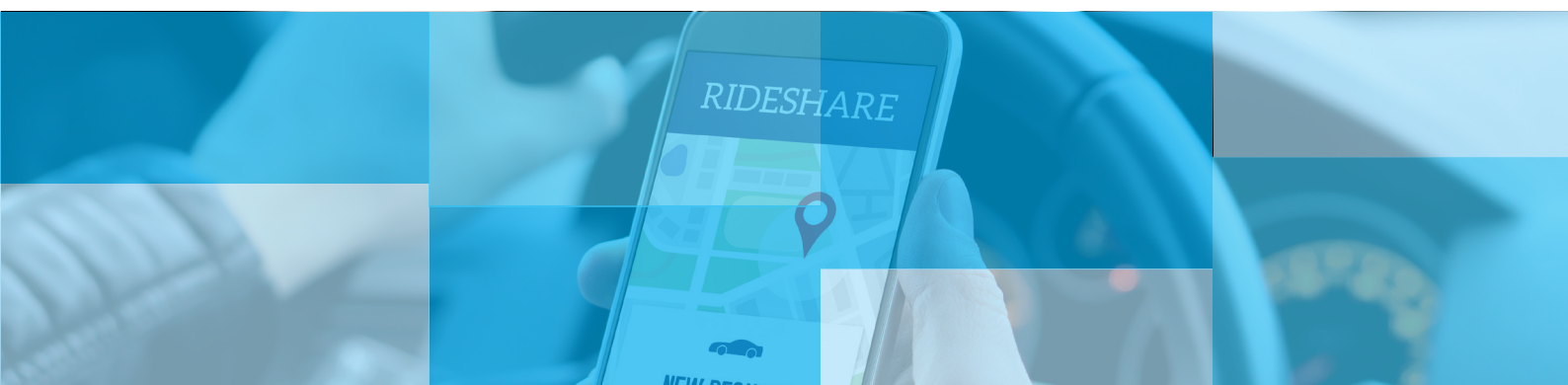
Physical planning:

The necessary infrastructure for bike-, ride- and car-sharing is one important role of public authorities and a crucial step towards development of MaaS [24].

“Seamless intermobility” describes this ideal, distinguishing between the four dimensions [25]:

1. Seamless information
2. Seamless time (reduced waiting times)
3. Seamless space (short distances between modes)
4. Seamless service

Integration of physical infrastructure is an important enabling factor [26].



EXERCISE A

Analyzing benefits and views of stakeholders on Innovative Transport Schemes

Description of exercise

- A) Use sticky notes to fill in the two open Boxes. The first field refers to the benefits of a selected InnoTS. The second field refers to the actors/stakeholders/social groups that will be affected (positively or negatively) by the measure.
- B) On the left column of T-Chart transfer the actors/stakeholders which would present the most negative reactions to the proposed measure. On the right column, transfer the sticky notes so they can be used as convincing arguments to the stakeholders written on the left corner.
(To perform the exercise focusing on specific city, a city map, mobility data and relevant information are distributed to support brainstorming).

Please fill in the following box with the benefits that you believe the Innovative Transport Schemes that you selected can bring to your city.

TEAM NAME

MEASURE TITLE

BENEFITS FOR YOUR CITY:

Please fill in the following box with the actors/stakeholders/social groups that you believe will be negatively or positively affected by the Innovative Transport Schemes that you selected.

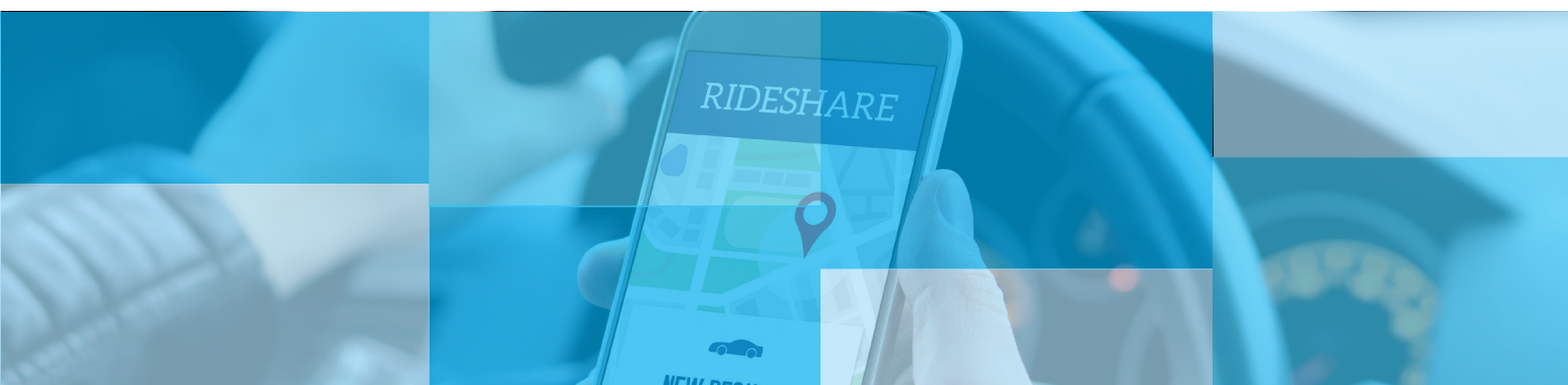
STAKEHOLDERS:

Please fill in the T-chart below, according to the arguments that may be expressed by actors in favour/against the implementation of the InnoTS provided to your group.

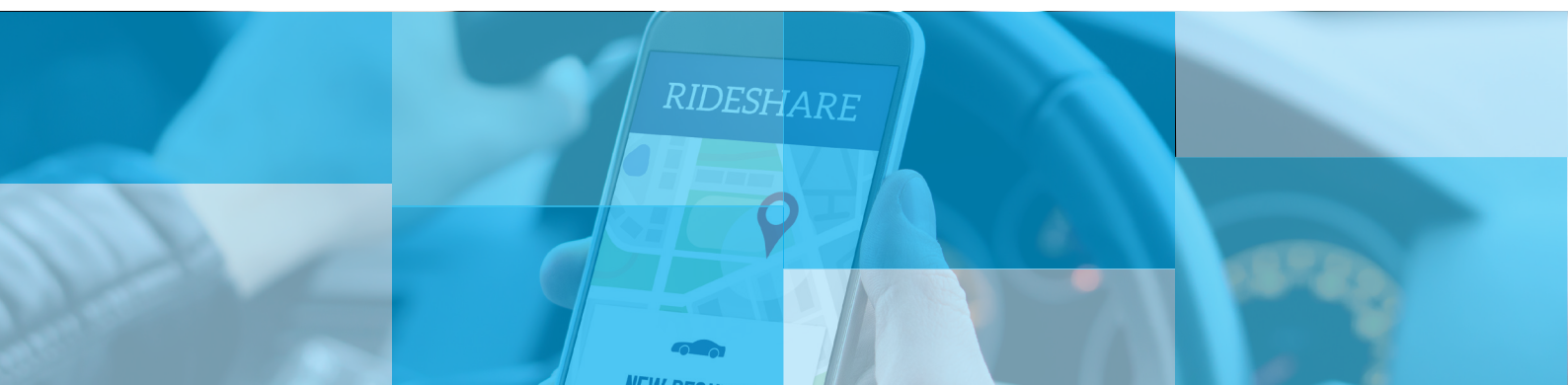
ACTORS	ARGUMENT

References

1. Transportenvironment.org. (2019). Does sharing cars really reduce car use? | Transport & Environment. [online] Available at: <https://www.transportenvironment.org/publications/does-sharing-cars-really-reduce-car-use> [Accessed 28 Mar. 2019].
2. Umweltbundesamt. (2019). Fahrgemeinschaften. [online] Available at: <https://www.umweltbundesamt.de/umwelttipps-fuer-den-alltag/mobilitaet/fahrgemeinschaften#textpart-1> [Accessed 28 Mar. 2019].
3. Barriers to car-sharing. (2012). [ebook] Available at: <http://chums-carpooling.eu/wp-content/uploads/2015/12/barriers-to-car-sharing-v1.pdf> [Accessed 28 Mar. 2019].
4. Carsharing: Evolution, Challenges and Opportunities. (2014). [ebook] Available at: https://www.acea.be/uploads/publications/SAG_Report_-_Car_Sharing.pdf [Accessed 28 Mar. 2019].
5. Civitas.eu. (2019). Car independent lifestyles | CIVITAS. [online] Available at: <https://civitas.eu/measures/car-independent-lifestyles> [Accessed 28 Mar. 2019].
6. Eltis.org. (2016). SUMP Guidelines | Eltis. [online] Available at: <http://www.eltis.org/guidelines/sump-guidelines> [Accessed 28 Mar. 2019].
7. Civitas.eu. (2019). [online] Available at: https://civitas.eu/guide_ebook/index.php%20and%20www.civitas-initiative.eu/docs/2086/CIVITAS_Guide_For_The_Urban_Transport_Professional.pdf [Accessed 28 Mar. 2019].
8. Peace, S. (2017). Response of the Midlands Engine to HM Government's Green Paper. [ebook] Chair, Midlands Engine. Available at: <https://www.midlandsengine.org/wp-content/uploads/2017/04/Response-of-the-Midlands-Engine-to-%E2%80%98Building-our-Industrial-Strategy%E2%80%99.pdf> [Accessed 9 Apr. 2019].
9. Work Package 7, D7.3 Social Impact Assessment Report. (2018). [ebook] Suits Project. Available at: <http://www.suits-project.eu/wp-content/uploads/2018/12/Social-Impact-Assessment-Report.pdf> [Accessed 15 Apr. 2019].
10. Green Paper. A 2030 framework for climate and energy policies. (2013). [ebook] European Commission. Available at: <https://www.ceps.eu/sites/default/files/Vergote.pdf> [Accessed 28 Mar. 2019].
11. Communication from the Commission to the European Parliament, Council, European Economic and Social Committee and Committee of the Regions. (2016). A European Strategy for Low-Emission Mobility. [online] Brussels: EUROPEAN COMMISSION. Available at: <https://ec.europa.eu/transport/sites/transport/files/themes/strategies/news/doc/2016-07-20-decarbonisation/swd%282016%29244.pdf> [Accessed 28 Mar. 2019].



- 12.** Strategic plan 2016-2020 – Mobility and Transport. (2016). [ebook] Available at: https://ec.europa.eu/info/publications/strategic-plan-2016-2020-mobility-and-transport_en [Accessed 28 Mar. 2019].
- 13.** Epomm.eu. (2019). EPOMM :: Home. [online] Available at: <http://www.epomm.eu/> [Accessed 28 Mar. 2019].
- 14.** SUITS CBP “Guidelines to developing bankable projects, new business models and partnerships. Eurokleis s.r.l, Italy (Bellini, F.; Dulckaia, I.). 2018”.eu.
- 15.** Chums-carpooling.eu. (2019). Liftshare Scheme Manager. Barriers to car-sharing.[online] Available at: <http://chums-carpooling.eu/wp-content/uploads/2015/12/barriers-to-car-sharing-v1.pdf> [Accessed 28 Mar. 2019].
- 16.** MOMO Project. Car sharing in small cities. Europa.eu. (2019). [online] Available at: https://ec.europa.eu/energy/intelligent/projects/sites/iee-projects/files/projects/documents/momo_car-sharing_f09_car_sharing_in_small_cities_en.pdf [Accessed 28 Mar. 2019].
- 17.** Empowertoolkit.eu. (2019). Empowering cycling - Empower Toolkit. [online] Available at: <https://empowertoolkit.eu/objective/empowering-active-transport/empowering-cycling/> [Accessed 28 Mar. 2019].
- 18.** Barriers and facilitators to public bicycle scheme use: a qualitative approach. (2012). [ebook] Transport Research. Available at: https://www.academia.edu/12346871/Barriers_and_facilitators_to_public_bicycle_scheme_use_a_qualitative_approach [Accessed 28 Mar. 2019].
- 19.** Fishman, E., et al. Barriers to bikesharing: an analysis from Melbourne and Brisbane. J. Transp. Geogr. (2014)
- 20.** Alta Bike Share (2011). Melbourne bike share survey, Melbourne.
- 21.** Nice Ride Minnesota (2010). Nice Ride Minnesota survey, November 2010. Retrieved 20.06.11
- 22.** Pucher, J., Greaves, S., & Garrard, J. (2010). Cycling down under: A comparative analysis of bicycling trends and policies in Sydney and Melbourne. Journal of Transport Geography, 19(2), 332–345.
- 23.** Koglin, T. (2017). Drivers and Barriers for Integrated Mobility Services. (2017:3 ed.) Lund: K2-Sveriges nationella centrum för forskning och utbildning om kollektivtrafik
- 24.** Franckx, Laurent and Inge Mayeres (2015). Future trends in mobility: challenges for transport planning tolls and related decision-making on mobility product and service development. Deliverable 3.3, MIND-sets project, www.mind-sets.eu.
- 25.** Feng, Cheng-Min (2014). New prospects of transportation mobility. IATSS Research 38:22-26
- 26.** Goodall, Warwick; Tiffany Dovey Fishman; Justine Bornstein and Brett Bonthron (2017). The rise of mobility as a service – Reshaping how urbanities get around. Deloitte Review 20:112-129.





4

Successful Case Studies or Best practices of SUITS cities

This chapter demonstrates

- **two case studies - as best practices - of** InnoTS implementation:

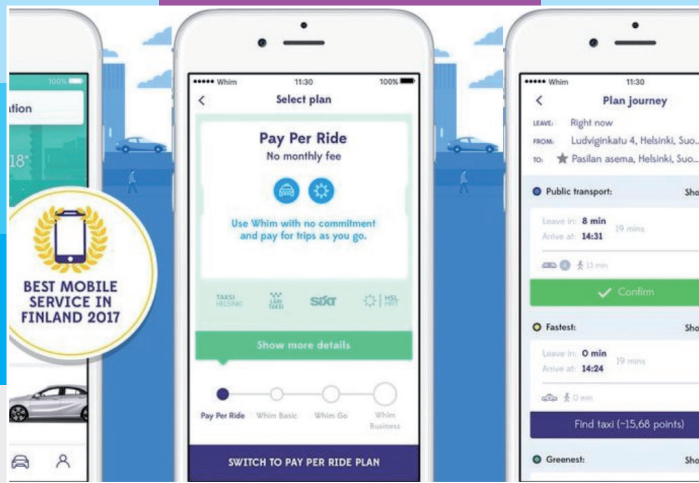
Case Study 1

Helsinki's Mobility as a Service (MaaS)

Case Study 2

Turin's Bike Sharing System (case study from city participating in SUITS project)

- One of the main issues analysed is **the barriers and the drivers** that every city had to deal with when implementing them



Innovative Transport Schemes

Mobility as a Service (Helsinki)

LOCATION

Helsinki, Finland

WHY THIS IS A BEST PRACTICE IN THIS FIELD?

This application has been a breakthrough since it is the first Mobility as a Service application which is currently fully operating in four cities and under development in several more cities at both European and International level.

Due to the preliminary stage of development in MaaS overall comparisons are not able to be conducted currently.

INITIAL PROBLEM AND TARGET GOAL

The need to develop and promote an integrated transport system that allows transferability and flexibility for the passenger created WhimApp, the first complete MaaS application.

MEASURE DESCRIPTION

A MaaS service has been developed and applied in a few European cities as well as Singapore and while the city of Helsinki is the first European city to incorporate a system of MaaS into its transport system in an effort to enhance urban mobility for its citizens, Birmingham and Antwerp are now following its example. With a regional population of 1.4 million, Helsinki has become a global testing site and

due to the accommodation of the MaaS Global which started the Whim app in late 2016 in order to provide such transport services. The Whim application has currently more than 60.000 active users, more than 5.000 of which pay for a subscription on a monthly basis, while its users tend to book more than 1.8 million trips. While the number of users and trips is increasing it still accounts for a small portion of the total trips and travellers in Helsinki's region since in 2017, 375 million trips were conducted through public transport.

Finally, while Whim offers MaaS transport solutions certain problems arise due to the lack of coordination with local transport agency which had not initially integrated Whim's tickets into its own public transport ticketing system. It promised to do so by the end of 2018 which is expected to improve the level of service provided through the app.

SCALABILITY/ REPLICABILITY

MaaS is transferable to cities and networks that offer diverse mobility solutions and provide relative open mobility data.

IMPLEMENTATION REQUIREMENTS

In its current form, implementation does not require resource spending from the cities and the municipalities since the company provides the application at no further cost.

Furthermore the implementation of such a service will create better infrastructure and provision of services at no extra cost. Therefore funding sources are derived from investments directly to the application's developer.

Moreover, regarding the time period needed for implementation, this is approximately 6 months once certain technical, legislative and other prerequisites are met.

The service is provided solely through the mobile application which requires further connection with IT systems of other transport operators that are to be included on it.

INDICATORS TO MEASURE SUCCESS AND FINAL OUTCOME/IMPACT

The scope of a MaaS service is to reduce car dependency but it is still unclear how would a subscription in Whim for example, affect people in terms of vehicles kilometres travelled. Expected benefits for the cities are the reduction on congestions which means less polluting emissions and thus improvement of air quality, public health and economy. At the same time less usage of car leads to lower needs in space for vehicle's operation such as parking which allows cities to investigate further opportunities in city planning.

Social groups mostly benefited through WhimApp are citizens and more specifically travellers. Since Whim increases the usage of PT in Helsinki it consequently reduces usage of private vehicles which

leads to less congestion, lower travel times, etc.

Indicators to measure success/implementation:

PT usage and car usage rates are two considered as indicators that can be used while further in the future with more time under implementation of the service, wider impacts will be identifiable and measurable. More specifically public transport usage in Helsinki rose from 48% to 72% in three months of full implementation while car usage has almost halved within the city from 40% to approximately 20%.

► BARRIERS AND DRIVERS

COOPERATION/ COORDINATION ISSUES

Barrier: Strong needs for cooperation and coordination with both the local authorities, the transport operators and providers as well as the national government.

Drivers: The immediate positive impacts which can act as a driver for authorities to push towards such services.

PROCESS

Barriers: No process is needed from the part of the LAs since the company is responsible for the organization and implementation of the service.

Drivers: The minimum amount of effort needed from cities.

TECHNICAL/DATA RESOURCES

Barriers: The need for technical prerequisites and integration of all available data from transport authorities and operators in order for them to be incorporated in the application and provide the highest level of service possible.

Drivers: Cities with high level of IT systems already up and running are capable of immediate implementation and cities with lower levels can modernize their IT.

STAFF

Drivers: No human resources allocation is needed from Local Authorities.

POLITICAL

Barriers: Local authorities decline their opportunity to provide MaaS and it is unknown whether local transport agencies will lose ridership while users choose alternative services. In addition to that, local transport authorities already providing a high level of service might weaken their brand name eventually.

Drivers: LAs responsible for transportation in areas with lower levels of service can benefit from the overall improvement expected from such an application while at the same time no further cost is needed. This can lead to higher levels of citizen satisfaction towards local politicians.

LEGAL

Barriers: The need for transport operators to share their data openly which in many occasions will lead to strong reactions from them and the fact that legislators have to provide for a third party MaaS service the framework in order to operate without disruptions from already up and running public transit companies.

SOCIETAL

Barriers: Promotion of the measure is not identified as a barrier for the LAs since it is not their responsibility to do so but there is a need for an understanding of the public that this service is under the continuous control of the authorities and can be managed when and if needed. The latter is expected

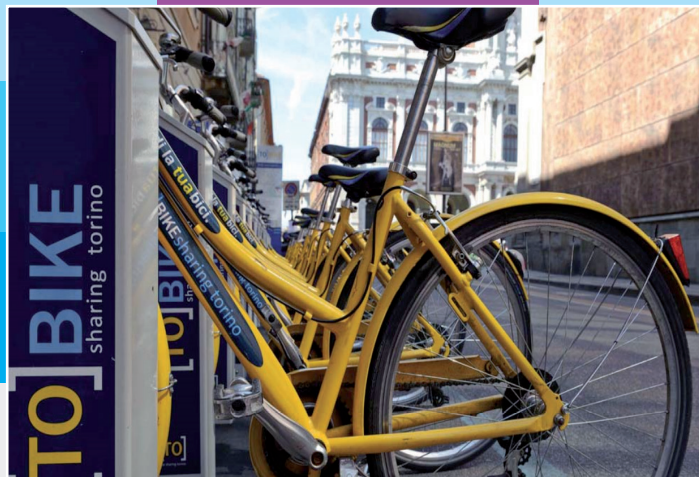
to heavily affect the public's acceptance.

Drivers: People increasingly desire multimodal transport solutions that meet their needs in a sustainable and financially efficient manner regarding MaaS as a major future factor in their daily choices.

FURTHER INFORMATION

<https://whimapp.com/>

<http://www.eltis.org/discover/news/how-helsinki-became-mobility-service-leader>



Innovative Transport Schemes

Bike Sharing System (Turin)

LOCATION

Turin, Italy

▶ WHY THIS IS A BEST PRACTICE IN THIS FIELD?

The introduction and successful implementation of an integrated bike sharing system as a low-priced, low-carbon measure with numerous benefits for the city.

▶ INITIAL PROBLEM AND TARGET GOAL

The high congestion levels especially during peak hours and the limited share of active travel in the city's daily mobility required the integrated promotion of a bike sharing system to enhance the quality of life.

▶ MEASURE DESCRIPTION

The municipality of Turin presented a public announcement allowing the diffusion of free floating bike sharing systems in December, 2017. The operators, answered to this call by proving pilot implementation and trials for a time period of 12 months. Furthermore, public discussions and debates among all involved and affected stakeholders took place in order to evaluate each group's respective feedback with a view on future improvement.

Initially the city accommodated three

free-floating bike sharing systems which covered the whole urban area. With the provision of an IT system and more specifically a smartphone application, people can rent a bike for a desired time period and cycle around the city's designated areas. Additionally, incentives were given to nudge proper use of parking space and in order to avoid public space obstruction. By October, 2018, two bike sharing operators are still active in Turin offering approximately 3.000 bikes and an average of 7.000 bike pickups per day.

▶ SCALABILITY/ REPLICABILITY

Turin's bike-sharing system is an initiative that is replicable in other S-M cities and similar models can be followed in order to achieve environmental sustainability through innovative mobility solutions.

▶ IMPLEMENTATION REQUIREMENTS

The city does not fund such measure since it permits bike sharing operators to run their scheme and compensate the city for each bike they offer. Therefore, the municipality earns 20€ for each bike they accommodate in their city network. Moreover, revenue derived from this measures will be conveyed into a fund that aims to ameliorate and build cycling infrastructure as well as to organise awareness campaigning in order to promote cycling. This

scheme is characterised by Public-Private Partnerships.

▶ INDICATORS TO MEASURE SUCCESS AND FINAL OUTCOME/IMPACT

The bike-sharing system in Turin has led to the creation of a low-carbon fund which aims to finance actions that will eventually result into a cultural change among citizens. Moreover, the beneficiary social groups of a bike sharing system are the citizens and tourists.

Indicators to measure success/ implementation:

The aforementioned bike-sharing system benefits the city mainly through environmental benefits such as the reduction of CO2 and other pollutant emissions as they are produced from motorised vehicles. Environmental enhancement is expected to improve even further in the future when the citizens will develop a cycling culture and the city will be able to accommodate properly their active travel needs.

Moreover, indicators that can present and describe the success of such a measure are:

- Cycling rates
- Emissions reduction

► BARRIERS AND DRIVERS

COOPERATION/COORDINATION ISSUES

Barrier: Due to the involvement of private operators, it can be challenging to interact and coordinate with all involved stakeholders.

Drivers: The operators have shown willingness to cooperate and coordinate with the local authorities building a good framework for the future.

FINANCIAL RECOURCES ISSUES

Drivers: The Bike-sharing operators finance and operate this measure, which further created funding sources for future infrastructure improvement.

PROCESS

Barriers: Lack of national regulation for bike-sharing can delay implementation process.

TECHNICAL/DATA RESOURCES

Barriers: The existing legal framework is lacking to specify regulations regarding the management of data produced by bike-sharing systems.

Drivers: No resource allocation from local authorities is needed.

STAFF

Drivers: A related department working under the municipality of Turin has been developed and has been working on bike-sharing mobility since 2010.

POLITICAL

Barriers: The measure is still under experimentation therefore it is not possible to take stock on the political view of bike-sharing.

Drivers: The environmental benefits derived from such a measure are a

major driver for the current local government of the city.

LEGAL

Barriers: The lack of a complete and clear legislative framework for the implementation and operation of bike-sharing.

SOCIETAL

Barriers: The inappropriate behaviour of groups of users who do not respect the set rules, i.e. parking in private areas and pavements. Such behaviour can result into mobility obstruction of other citizens and more specifically vulnerable groups such as disabled people.

Drivers: The citizens that use the bike-sharing system express service satisfaction since it provides low-cost mobility solutions with no additional problems.

FURTHER INFORMATION

<http://www.comune.torino.it/trasporti/archivio-news/si-amplia-lofferta-per-chi-sceglie-la-bici-per-muo.html>

<https://drive.google.com/>



Further Reading

1. Civitas.eu. (2019). CARAVEL | CIVITAS. [online] Available at: <https://civitas.eu/content/caravel> [Accessed 28 Mar. 2019].
2. MAAS Global <https://maas.global/>
3. Whim Applications <https://whimapp.com>

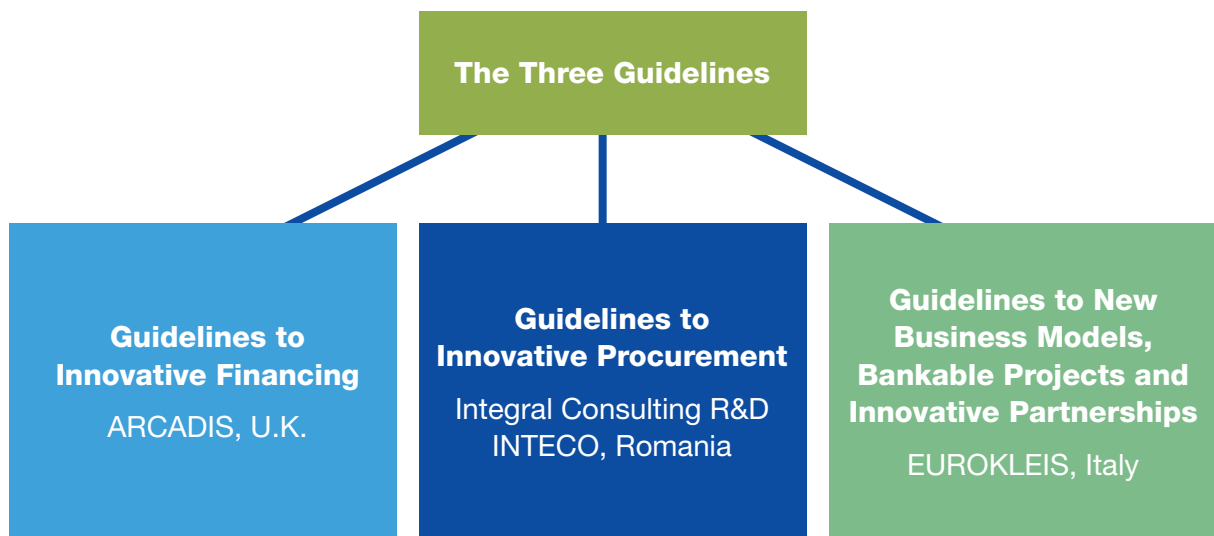


5 Innovative financing, procurement, partnership

This chapter provides some key points about:

- The available **tools** developed within SUITS project in order to **support LAs of S-M cities** to deal with these issues.
- The available **innovative financing mechanisms** which could be used for InnoTS measures implementation. A selection of the most relative to InnoTS measures is made.
- The **recommended steps** for **innovative procurement procedures** which respond to the current needs for implementing mobility measures in general and could be applied to InnoTS measures as well.
- The probable **partnerships** that might **facilitate** the **implementation**.

SUITS TOOLS supportive to LAs for Innovative financing, procurement and partnerships: Three Guidelines



Objective of the three Guidelines

Objective: Enhancing the capacities of local authorities and stakeholders through innovative procurement procedures, innovative financing methods, and new business models and partnerships, in support of sustainable mobility development.



What can you expect to find in the Guidelines?

- Presentation of how different transport measures are currently procured and financed, as well as the business models and partnerships used.
- Overview of existing gaps in current knowledge and organisational capacity to implement sustainable transport measures.
- Presentation of new, innovative financing methods, procurement procedures, business models and partnerships which could be used to enhance the capacity of Local Authorities and stakeholders to implement sustainable transport measures.
- Case studies and examples of where and how these methods and procedures have been successfully applied.
- Steps to use these methods and procedures.

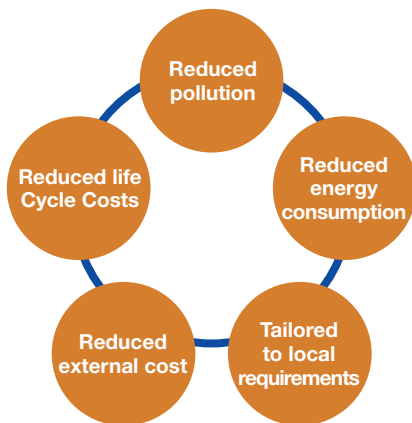
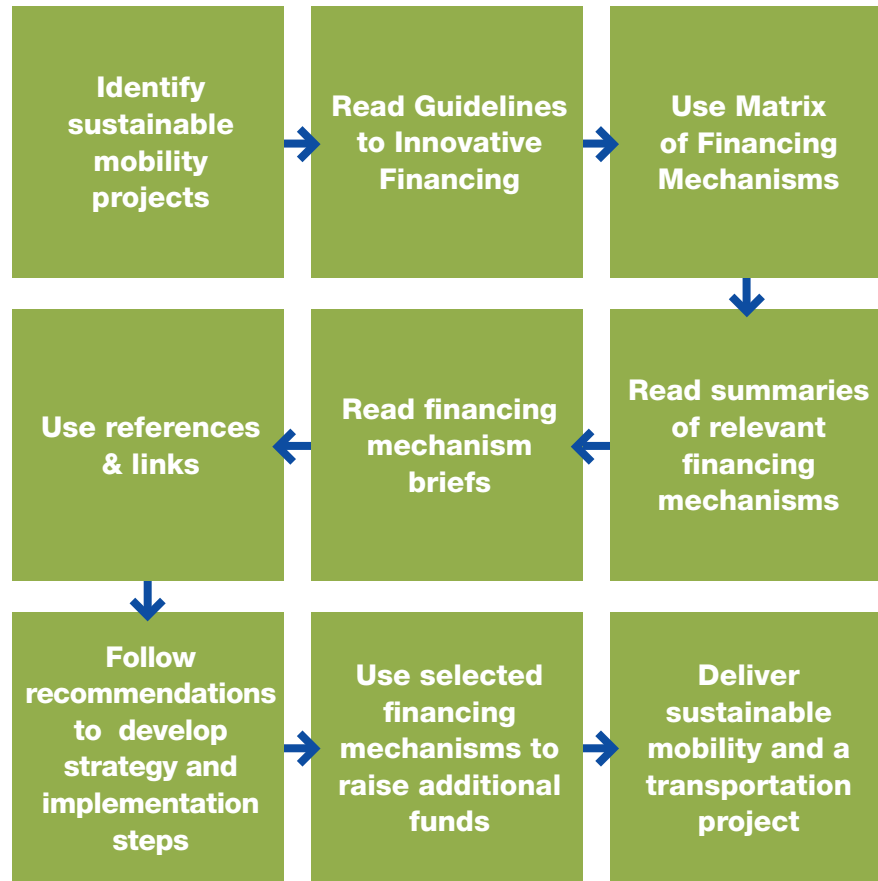
How to make the best use of the Guidelines

Tips for Implementation:

- The 3 Guidelines are complementary to one another and should be used together.
- Local Authorities should set up a team to take control of the implementation of the Guidelines within their organisation. The purpose of this team would be to:
 - 1) Read the Guidelines.
 - 2) Decide on the types of sustainable mobility measures in which they want to implement within the local area.
 - 3) Identify the innovative procedures and methods which are most suitable to each sustainable mobility measure identified, as well as to the local economic, political and social situation.
 - 4) Use the selected procedures and measures.
 - 5) Evaluate the success of the use of the innovative procedures and measures
- Communicate with the authors of the Guidelines. The authors will provide support to the Local Authorities/ other stakeholders to clarify the information in the Guidelines at their request.



Guidelines to Innovative Financing ^[1]



Guidelines to Innovative Procurement ^[2]

EU Public Procurement Reform

Underlying principle: “Public procurement must become levers through which the Contracting Authorities can obtain the biggest long-term advantages for the society, generating business opportunities, economic growth, jobs, enhanced sustainable mobility, higher life quality.”

Contract Award Criteria



Guidelines to New Business Models, Bankable Projects and Innovative Partnerships

SET GOALS

1.
2.
3.



THE KEY OBJECTIVES:

- Provide the knowledge of innovative business models in urban mobility services including sharing mobility, integrated mobility and MaaS.
- Address the main partnership schemes in the field and introduce the new ones.
- Enhance the capacity of creating fundable projects providing the guidance for feasibility analysis.
- Identify: evolving commercially viable business strategies, new forms of partnership and important aspects to prepare bankable documents.
- Improve the administrative and organizational capacity of the urban mobility authorities of S-M cities.

RECOMMENDATIONS:

NEW FORMS OF PARTNERSHIP

- Creation of solid institutional mechanism addressing specific sector policies.
- Integrated approach of financial, technical and business planning.
- Development of efficient project management regarding the business idea and contractual forms.
- Successful implementation depends on recognition of partner's objectives.
- iPPPs require careful consideration of control and management systems through project agreements.

INNOVATIVE BUSINESS MODELS

- The business model innovation foresees the top-down approach. The top management should support and provide the resources for new business opportunity.
- Constant monitoring of market tendencies.
- Constant monitoring technological innovation.
- Consulting the business model analogies and learning from best practices.
- Searching for new investment opportunities for project development.

BANKABLE PROJECT

- Provide the research on different investment programs and financial opportunities.
- Allocate the human resources to develop the bankable documents.
- Ensure that all the necessary feasibility studies are included in the document.



Innovative financing mechanisms

- Congestion Charge
- **Municipal Green Bonds**
- **Crowdsourcing**
- Stamp Duty Land Tax (SDLT)
- Lottery Funding
- Voluntary Capture
- HGV Charging Schemes
- Work Place Parking Levy (WPL)
- Community Infrastructure Levy (CIL)
- **Advertising, Sponsorship and Naming Rights**
- **Collaborating with other cities, research consortia and private companies**
- Citizen Cooperatives
- Emission Trading
- Planning Obligations / Developer Contributions
- Tax Increment Financing
- Sales Tax
- Toll Roads
- **Selling Expertise and Technical Know-how**

Several innovative financing mechanisms can be applied directly to InnoTS with (check the ones in boxes above). All detailed description are available in the Guidelines [1].



Key points of financing mechanisms more relevant to InnoTS ^[1]

VOLUNTARY CAPTURE	
DESCRIPTION	Voluntary capture is a deal or partnership between developers or property owners and a local authority, where the developers or property owners offer a voluntary contribution towards the costs of a public infrastructure project
METHODS	An irregular income source which encourages community participation in the development of urban space, creating a sense of ownership and increasing social capital
BENEFITS	Voluntary capture can often create substantial additional revenue and creates incentives for local authorities and transport agencies to make sure the benefits of the project will be realised in practice

MUNICIPAL GREEN BONDS	
DESCRIPTION	It is a financing mechanism that allows institutional investments for projects mainly with environmental benefits such climate change mitigation and resilience but it also attractive to other types of projects that promote sustainability, meaning that social and governance related beneficial projects are also eligible for funding through it
METHODS	Aims into attracting investors to invest in sustainable mobility projects and even the residents and members of communities to participate in such processes
BENEFITS	Can lead to additional benefits for the local communities but Municipal Green Bonds as a mechanism, require standardization and more information from the part of local authorities and national governments in order to achieve promotion and fully exploit its capabilities

SELLING EXPERTISE AND TECHNICAL KNOW-HOW	
DESCRIPTION	Cities, local authorities or public administrations, can exploit their ability to sell their expertise and technical know-how for profit
METHODS	Includes selling a form of collaborative knowledge and sharing it for economic profit or in some cases for free
BENEFITS	Increase attractiveness and name recognition or to disseminate good practices in areas of interest
COMMENTS	Can be applied across all sectors of interest



5 INNOVATIVE FINANCING, PROCUREMENT, PARTNERSHIP

→ Key points of financing mechanisms more relevant to InnoTS

COLLABORATING WITH OTHER CITIES, RESEARCH CONSORTIA AND PRIVATE COMPANIES	
DESCRIPTION	This requires the formulation of a partnership between local authorities, universities, companies and NGO's which makes use of each partner's expertise
METHODS	Cities provide specific data while on the same time they offer demo and pilot sites while they also provide support to other partners
BENEFITS	These projects offer to cities benefits from investments into its infrastructure and capacity building programs along with the benefits derived from pilot projects while on the same time additional funding may be available
COMMENTS	Efforts require political will in order to eliminate constraints and willingness to participate and create a learning network which will eventually enhance innovation and applied research throughout the city

ADVERTISING, SPONSORSHIP AND NAMING RIGHTS	
DESCRIPTION	Local authorities can create additional revenues through receiving payments for advertising on public assets, sponsorships and selling or leasing naming rights from various businesses and organisations which must be in line with the guidelines for acceptable content and local policy and legislation
METHODS	
BENEFITS	Successful mechanism and while the revenues are small compared to the total budget costs of each projects, still remain significant
COMMENTS	The amounts received through such mechanisms are dependent on the local market and the total amount of exposure in terms of time

CROWDSOURCING/ FUNDING	
DESCRIPTION	Alternative finance model that uses micro-financing in order to fund projects with high social impact. Nowadays LAs are making greater use of such platforms in order to support and co-fund developmental projects
METHODS	Usually initiated by locals (who develop ideas and promote them through internet-based platforms where financial transparency is ensured)
BENEFITS	Such a mechanism is used mainly for small-scale projects with relatively immediate positive social impacts and is considered a tool for further public engagement while on the same time promotes innovation through non debt-based projects
COMMENTS	Requires further research and actions such as legal adjustments in order to be designed and operated appropriately, whereas future exploitation of its capabilities is needed



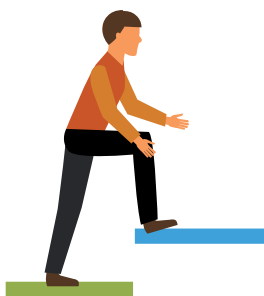
Innovative procurement considerations

- European research projects completed after 2004, pointed out innovative aspects to public procurement as well as other criteria which fueled the need for reform in public procurement in sectors such as Transport, Mobility, Energy, Innovation which are all rapidly evolving and determine sustainable development.
- New Directives were produced along with the introduction of laws and regulation of all Member States, in compliance with the changes. The new legal framework contributes to enhancing the efficiency of the public procurement system and foresees more intelligent norms and a larger number of electronic procedures while making it easier for SMEs to participate.
- This can support decision makers at the level of municipalities to identify the range of possible actions and steps necessary to implement the most adequate mobility related measures.
- Still, governance in urban mobility is facing major difficulties among which are the lack of financing and multi-annual long-range budgets, elections, the lack of knowledge / acceptance of certain measures by the population etc. Such changes are instrumental to developing competitive strategies in the field of sustainable urban mobility while allowing public administrations to become more efficient and flexible in relation to the communities' needs.

Detailed description is available in the Guidelines [2]

Innovative procurement steps [2]

- 1) Select, employ, train, educate procurement management team.
- 2) Learn about legal framework, of the legislative changes, and specific regulations for various situations and procedures.
- 3) Develop an annual and multi-annual procurement plan.
- 4) Develop an evaluation plan and performance indicators.
- 5) Enhance the exchange of knowledge between public authority and suppliers;
- 6) Organise centralised public procurement procedures across local / regional / cross-border public authorities having the same requirements.
- 7) Promote public - private partnerships and the collaboration with the industry.
- 9) Use public financing for research and innovation in a strategic way in order to improve challenge impacts of public procurement.



- 10) Use the new 'Innovation Action' and 'Pre-Commercial Procurement' instruments to encourage cities and the innovation community to collaborate.
- 11) Understand and raise awareness to the importance of innovative procurement and prepare their application.
- 12) Develop a long-term procurement strategy.

Innovative Public Private Partnerships [3]

IPPP is a new form of partnership where the main actors are:

- public and private organisations,
- civil society organisations (CSOs),
- non-governmental organisation (NGO),
- communities.

These new forms of collaboration enable to identify the opportunities for the design and implementation of the long-term strategies for partnership.

Each actor of the iPPPs has its important role in the alliance.

Innovative Public Private Partnerships

Probable roles allocation [3]

- **State organisations** are usually in charge of the drawing up, financing and implementation of policies and programmes.
- **Public organisations** are usually defined as an important actor who not only has a key roles of supervising, creating incentives and regulatory frameworks, but also developing new opportunities and governance mechanisms to enable the sustainable long-lasting collaboration with the private sector and other forms of organization, in order to optimize outcomes, impact and sustainability.
- **Private sector** has a significant role in the partnership. It contributes to bring the investment and expertise in the alliance having its business for-profit orientation.

Detailed description is available in the Guidelines [3]



- **NGOs, CSOs or communities** may bring their expertise and vision of transport and mobility sector. Establishing an iPPP requires strengthening the capacities of all the actors involved.

Benefits of iPPP for mobility local authorities:

- Addressing market needs and tendencies.
- Transferring localized institutional knowledge to the public and private organisations.
- Creation a collective awareness of the innovative solutions created by the alliance.
- Elaboration of the social standards and clarification schemes.
- Enhancement of the possibility of the project to obtain the investments by involving the mobility communities in the consortium.
- If the project addresses green or climate finance, mobility communities' participation may bring innovation and an ethical approach to investments.
- The CSOs or NGOs may gain the social relevance and influence and builds capacity for policy monitoring.

R&D Partnerships are strategic partnerships between businesses and organizations capable to develop a new product or service (or improve an old one) and other actors who are economically interested in the development of such innovations.

Type of R&D partnerships:

- R&D-Public partnership.
- R&D-Private partnership.
- R&D-PPP.

Benefits of the R&D partnerships for mobility local authorities

- Possibility to develop new product or service, improve the current one or to innovate operations, monitor market requirements and trends.
- Help public or private organisations to advance their business.
- Research and development costs and the risks sharing associated with the investment of time, money and other resources.
- R&D partner may help to assess the market or test the prototype.
- R&D partner provides monitoring of the project results.
- The involvement of the R&D partner may provide an added value in searching of investments due to the expertise that this partner can provide.
- Practical recommendations for developing successful collaboration between: mobility communities and PPP R&D and other mobility partners are described in Guidelines [3]

Detailed description is available in the Guidelines [3]



Example of CSO involvement in the transport projects:

The CSO was involved in the improvement of the public transport in Germany in Rhine-Main-Area. The Rhein-Main-Verkehrsverbund (RMV) transport association established a passenger advisory board that were represented by individuals and CSO. The advisory board organise meetings four times a year, and has already initiated concrete improvements [5]

Example of the R&D institutions involvement in the transport projects

Frankfurt RheinMain, major transport authorities and operators, including partners from industry and consultancy, and supported by the Hessen State Government. Namely, ZIV institute was founded at the Darmstadt University of Technology. [6]

Following tables give an overview of costs to be considered when implementing InnoTS while proposing investment schemes (funding mechanisms) specific to car-sharing, ride-sharing, bike-sharing and MaaS [1]

OVERVIEW OF FINANCIAL ASPECTS FOR CAR SHARING [3]	
COSTS	<ul style="list-style-type: none"> • Car fleet leasing • Vehicle insurance and maintenance • Software development • Operational costs • Marketing costs
TYPES OF INVESTMENT	<ul style="list-style-type: none"> • Public funding: federal, state, and local funds • Private funding: grants from private foundations, private gifts and donations, and private sector investment • Sponsorship and advertising • Crowdfunding • Private Public Partnership • EU funding

OVERVIEW OF FINANCIAL ASPECTS FOR RIDE-SHARING [3]	
COSTS	<ul style="list-style-type: none"> • Development of software and its maintenance • Operational costs • Marketing activities
TYPES OF INVESTMENT	<ul style="list-style-type: none"> • Public funding: federal, state, and local funds • Private funding: grants from private foundations, private gifts and donations, and private sector investment • Crowdfunding • Sponsorship and advertising



OVERVIEW OF FINANCIAL ASPECTS FOR BIKE SHARING [3]

COSTS	<ul style="list-style-type: none"> • Purchase of the equipment (bicycles and stations, if station - based) • Replacement parts and station siting • Development of the software • Ongoing operating and advertisement • Costs for equipment insurance and personnel costs
TYPES OF INVESTMENT	<ul style="list-style-type: none"> • Public funding: federal, state, and local funds • Private funding: grants from private foundations, private gifts and donations, and private sector investment • PPP • Sponsorship and advertising • Crowdfunding • EU funding

OVERVIEW OF FINANCIAL ASPECTS FOR MAAS (MULTIMODAL JOURNEY) [3]

COSTS	<ul style="list-style-type: none"> • Development and maintenance of static data feed of transit data and maintenance of regional feeds by regional transit authorities. • Marketing and sales cost such as events and trips in order to get agreement on data collection with multiple organizations • System cost using Cloud services. • Analytic tools for BIG DATA. • Marketing, Design, IT Systems and software development
TYPES OF INVESTMENT	<ul style="list-style-type: none"> • Public funding: federal, state, and local funds. • Private funding: grants from private foundations, private gifts and donations, and private sector investment. • Sponsorship and advertising. • PPP. • EU funding



EXERCISE B

Matching funding mechanisms and partnership schemes with the InnoTS implementation components

Description of exercise

One flipchart with two lists. At the first list, participants write down components they think are required in order to introduce a specific Innovative Transport Scheme, that is allocated to the group. The second list contains funding mechanisms - partnership schemes of the design/implementation process of the InnoTS.

Scheme components:

a) infrastructure/facilities/equipment (i.e. research consortia, voluntary capture, b) software (i.e. research consortia, selling expertise), c) operation (crowd sourcing, advertising), d) maintenance (crowd sourcing, collaborating).

Please fill in the T-chart below, while corresponding scheme components with funding mechanism and partnership scheme.

TEAM NAME

SCHEME COMPONENTS	FUNDING MECHANISM & PARTNERSHIP SCHEME

Further Reading

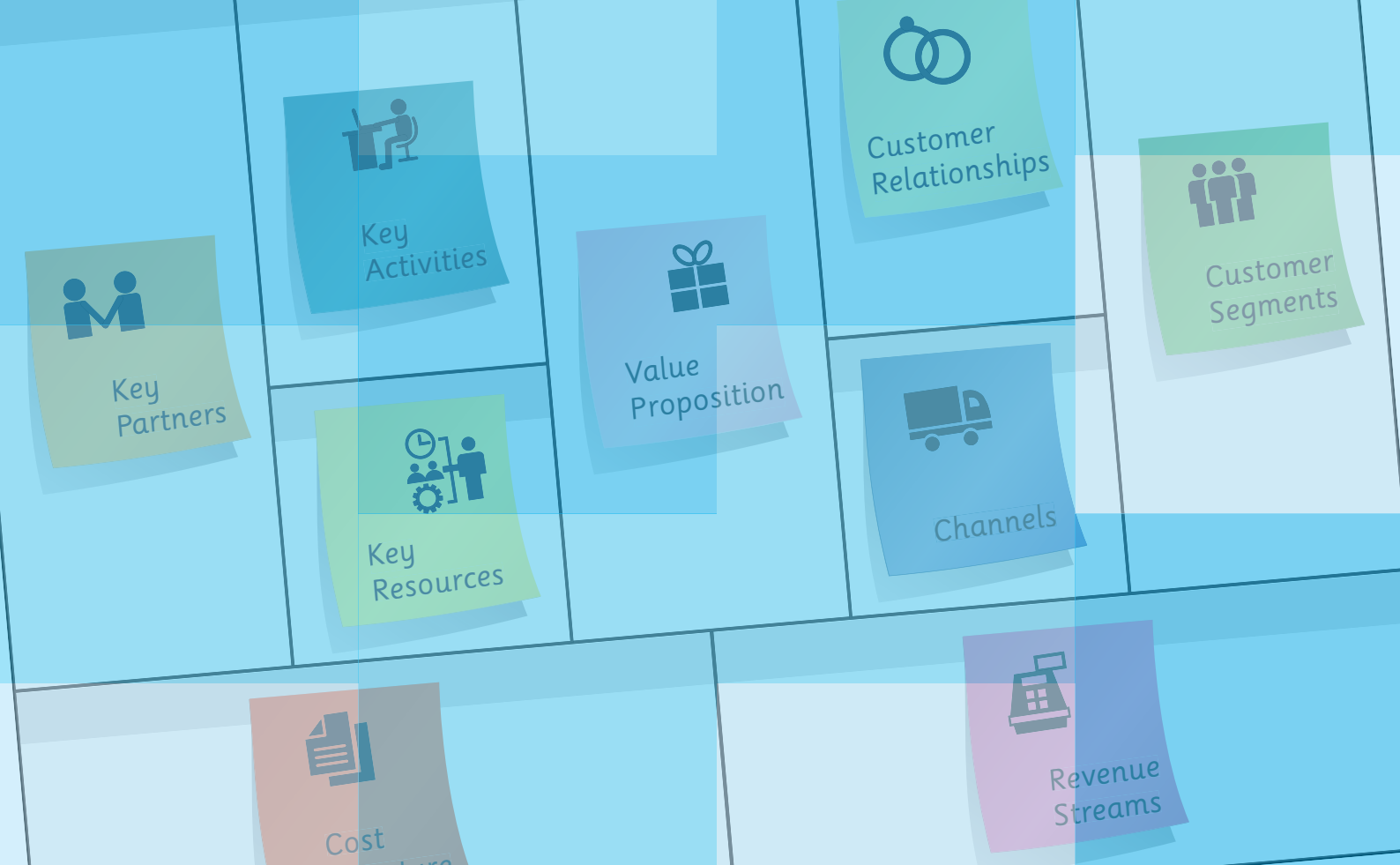
1. SUITS E-learning course on financing, procurement and business models for sustainable urban transport www.nuacampus.org/elearning/
2. Civitas tool inventory. Application area: Financing, procurement, legal aspects, measure implementation - https://civitas.eu/tool-inventory?f%5B0%5D=field_application_area%3A927

References

1. Content.filemaker.com. (2019). Workplace Innovation Report | FileMaker, Inc., An Apple Subsidiary. [online] Available at: https://content.filemaker.com/workplace-innovation-report-first-edition-EN?CID=7010H00000279gf&utm_source=Google&utm_medium=cpc&utm_campaign=WIP%20PPC%20Campaign&utm_term=WIP%20Report&gclid=Cj0KCQjw4fhkBRDcARIsACV58_E_VO_FHW8txmcgdpt3J4fc2pGRK6Qei3rF3sKPEmLmWlf7j_eDIb8aAvoLEALw_wcB [Accessed 28 Mar. 2019].
2. SUITS CBP: “Guidelines to Innovative Procurement” Integral Consulting R&D (INTECO), Romania, 2018
3. SUITS CBP: “Guidelines to New Business Models, Bankable Projects and Innovative Partnerships”, EUROKLEIS, Italy, 2018







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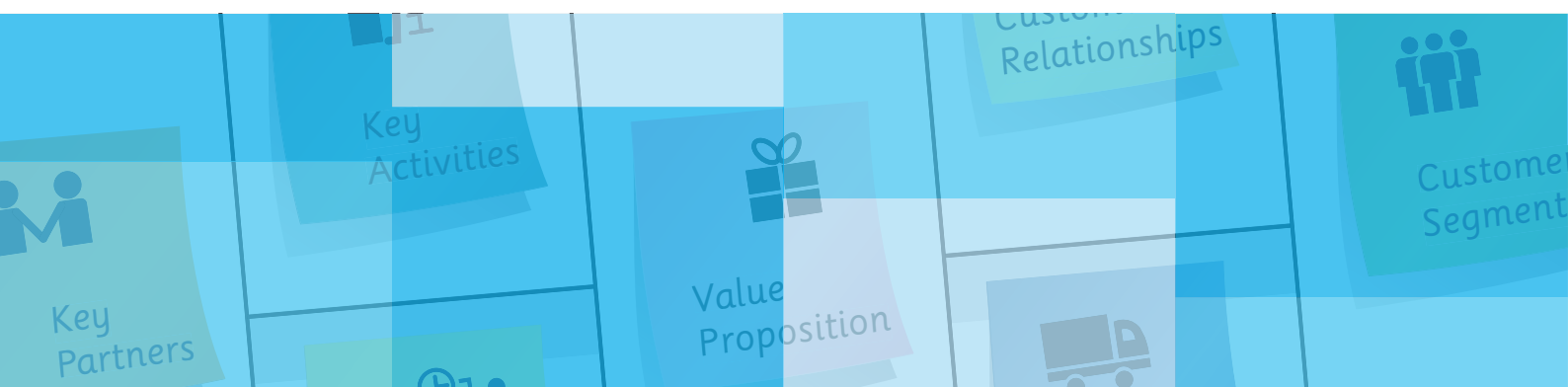
Business Model Canvases

This chapter introduces:










- The **Business Model** Canvas **approach**.
- Some Business Model Canvas **examples** of **innovative mobility schemes**.
- An **exercise** that consists of filling in a **Business Model Canvas**.

Business model canvas [1], [2]










- A conceptual tool that enables to develop a business model in easy and creative way.
- Comprises the objects, concepts and their relationships, expressing the underlying business logic.
- It is structured in nine (9) building blocks with a set of questions to assess the model and support the user in its creation.
- The blocks can be grouped by the area of ontology, namely: product, customer, infrastructure and finance:
 - Product (block 2) presents the value proposition of the business, namely, the products and services that company deliver to the market.
 - Blocks 1, 3 and 4 describe customer engagement, identifying the targeted audience, the demands, how customers perceive the value, and what type of relationship the company establishing with each segment of clients.
 - Block 6 and 8 present the infrastructure management describing the functions of logistics and production, and define the relationships between key partners and the organisation.
 - Financial area (blocks 5 and 9) considers information regarding the sustainability of the company, cost structure, and how the company will earn revenues.











A BUSINESS MODEL CANVAS TEMPLATE. EACH ONE OF ITS 9 BLOCKS "REPLIES" TO SPECIFIC QUESTIONS [3]

KEY PARTNERS  <p>Who are your key partners? Who are your key suppliers? Which key resources are we acquiring from our key partners? Which key activities do our key partners perform?</p>	KEY ACTIVITIES  <p>Which key activities do our value propositions require? Our distribution channels? Customer relationships? Revenue streams?</p>	VALUE PROPOSITION  <p>What value do we deliver to our customers? Which of our customer's problems are we helping to solve? What bundles of products and services are we offering to each customer segment? Which customer needs are we satisfying?</p>	CUSTOMER RELATIONSHIPS  <p>Which type of relationship does each of our customer segments expect us to establish and maintain with them? Which ones have we established? How are they integrated with the rest of our business model? How costly are they?</p>	CUSTOMER SEGMENTS  <p>For whom are we creating value? Who are our most important customers?</p>
KEY RESOURCES  <p>What key resources do our value propositions require? Our distribution channels? Customer relationships? Revenue streams?</p>	CHANNELS  <p>Through which channels do our customers want to be reached? How are we reaching them now? How are our channels integrated? Which ones work best? Which ones are most cost efficient? How are they integrating with the customer routines?</p>			
COST STRUCTURE  <p>What are the most important costs inherent in our business model? Which key resources are the most expensive? Which key activities are the most expensive?</p>	REVENUE STREAMS  <p>For what value are our customer really willing to pay? For what do they currently pay? How are they currently paying? How much would they prefer to pay? How much does each revenue stream contributing to overall revenues?</p>			

EXAMPLE OF BUSINESS MODEL CANVAS FOR RIDE-SHARING (CAR-POOLING, VAN-POOLING) [4],[5]

 KEY PARTNERS	<p>Ridesharing reduces the number of car trips by increasing the occupancy rate of passenger cars. This happens because a person with his own car takes other people on a ride. Carpools are organized privately or gathered in ridesharing portals on the Internet. Ridesharing can be a successful measure when a high people regularly share the same destination (for example, their workplace) and when the city is characterized by quarters with a high population density. Employers benefit, as they have to providing parking space. They can also support the formation of ridesharing by facilitating car pools in-house. There are also smartphone apps that facilitate to form carpools. Therefore the key actors involved in such projects are Local municipal organisations, NGOs, private organisations, software developers, Civil Society Organisations.</p>
 KEY ACTIVITIES	<p>Businesses and local governments are generally not the operators of ridesharing platforms. However, they can support the formation of carpooling by their employees, as shown in the key partners section. In addition to carpools, they can for example reserve parking spaces for ridesharing or offer them for free, while the other car parks of the employees are managed. Or companies can run competitions that reward carpools that replace most car journeys.</p>
 VALUE PROPOSITION	<p>The value propositions of ridesharing are that it is a convenient way to get around, provides a way to save money (e.g. gas, car-service), contributes to the reduction of CO2 emissions, reduces the stress of driving by sharing, makes roads safer through fewer cars.</p>
 CUSTOMER RELATIONSHIPS	<p>For the permanent use of online-based ridesharing, a one-off registration is usually required. In the private organization of ridesharing, the determination of the conditions of use must be negotiated individually.</p>
 CUSTOMER SEGMENTS	<p>Ridesharing is aimed primarily at individuals using private cars for their private mobility, in particular for leisure mobility or mobility on the way to work. It can be assumed that the potential of ridesharing for journeys with other purposes is rather small.</p>
 CHANNELS	<p>The application of online-based ridesharing is carried out via the common communication channels. These are conventional advertisements such as advertisements in print media, billboards and advertising posters. In addition, an intensive application of the offers on the various online channels takes place.</p>
 KEY RESOURCES	<p>The organization of carpooling or the development of corresponding platforms require more coordination and organization than, for example, the simple use of bus and train. This only requires ticket and timetable. For example, supra-regional and nationwide ride-sharing centers are a suitable option, especially for supra-regional ride requests. There are numerous online platforms that offer easy online booking, targeted riders and secure payment methods. For recreational activities in the vicinity, for example, offers the possibility of carpooling in the circle of friends and acquaintances. As mentioned earlier, employers can support car pooling through in-house brokerage, reserved parking and other perks. Interregional Internet platforms also often offer an option for the formation of regular carpools.</p>
 COST STRUCTURE	<p>Costs for the provision of the offer arise for the provider of commercially operated platforms through the provision and maintenance of the platform as well as through the administrative effort. Privately organized ridesharing incur costs through the operation of the vehicle.</p>
 REVENUE STREAMS	<p>The providers of commercial platforms offer two generally equally pursued ways to generate revenue. On the one hand, these are revenues from the brokerage of journeys, for example in the form of commissions or through the placement of advertising on the corresponding Internet sites.</p>

EXAMPLE OF BUSINESS MODEL CANVAS FOR CAR-SHARING [4],[5]

 KEY PARTNERS	Urban passenger transport will increasingly be characterised by intermodal and multimodal use of different modes of transport: bike sharing, pedelecs, public transport and various forms of sharing mobility, i.e. car sharing and pooling, ride sharing and taxi mediation. It is therefore crucial to connect these offers physically and organisationally. In addition to the (private) operators of station-based and free floating systems, the municipality is a key player, as the public sector has to take care of public space for car sharing stations and develops the local mass transit plan. Public transport operators have to be involved as well to ensure seamless operations.
 KEY ACTIVITIES	As municipalities are generally not the operators of a car-sharing service, it usually requires a private-sector operator. If a new offer is to be implemented where there is no car-sharing offer yet, the identification of suitable areas for the construction of the stations is a central issue. These areas can be on private land as well as in public spaces (if the legislation of the respective country makes this possible). Car-sharing operators have to acquire the rights of use for these areas, to procure vehicles and to set up a booking system.
 VALUE PROPOSITION	Car Sharing provides an individual transport service that is “shared”. It’s user-friendly, sustainable and low-cost. Using Car Sharing systems contribute in reducing the number of vehicles and traffic pollution, while offering various economic benefits: no need to pay for car insurance, registration, parking fees, refuelling and car maintenance.
 CUSTOMER RELATIONSHIPS	A registration is required for both station-bound and free floating car sharing systems, a mostly unique registration ID of the user. Currently, there are various booking options: Many providers offer a one-time registration with driver’s license and ID and payments by direct debit. Other providers allow online booking and payment by credit card. The booking procedure depends, among other things, on whether it is a station-based or non-station-based offer. For station-based car sharing, cars usually have to be booked in advance. Customers can find car sharing stations through the website or app of the provider. Some car-sharing providers also offer booking via a telephone hotline. For free floating or station-independent car sharing, customers must inform themselves before departure about free vehicles and their respective locations. Customers can inquire by phone, on the Internet or by smartphone, where they can find the provider’s vehicles. Many vendors provide their customers with free apps that locate and book the a close-by car.
 CUSTOMER SEGMENTS	The car sharing market has been growing for two decades and is now aims at all target groups. That is, car sharing may complement the mobility needs of individuals without a private car, it may be used by companies to provide (parts of) a business fleet, or by tourists. Usually, companies or municipal administrations without an own fleet are important clients.
 CHANNELS	
The application of car sharing offers differs in many areas from the application of other products and services. As a rule, the usual communication options are used. These are conventional advertisements such as billboards and advertising posters. Buses and trains go with outdoor advertising and in the public transport vehicles are used by the car-sharing providers advertising space. This is usually the case when there is a cooperation between the car sharing provider and the public transport company. But the vehicles of the car-sharing fleet itself are also used for outdoor advertising. The vehicles are often printed conspicuously with the logo of the provider and thus ensure the appropriate attention in the public space.	
 REVENUE STREAMS	
The mentioned expenses are primarily offset by revenues from customers. An additional income may be to offer the vehicle as advertising space.	
 COST STRUCTURE	
The main cost components are vehicle procurement, taxes and insurance, the maintenance of the vehicles and the (human) resources to provide the offer. The latter are costs for customer care, booking, billing or disposition.	

EXAMPLE OF BUSINESS MODEL CANVAS FOR BIKE-SHARING [4],[5]

KEY PARTNERS	KEY ACTIVITIES	VALUE PROPOSITION	CUSTOMER RELATIONSHIPS	CUSTOMER SEGMENTS
In the future, especially in cities, passenger transport will be much more influenced by the intermodal and multimodal use of different modes of transport: Bike sharing, pedelecs, public transport and various forms of car sharing will together constitute a transport service that is used depending on the specific situation. It is therefore of central importance to link these offers with each other in organizational, tariff and infrastructural terms. In addition to the operators of station-bound and non-stationed bike sharing offerings, the key players are the public transport companies, car sharing providers and providers of other innovative mobility services aimed at turning away from private car use. Municipalities are also relevant actors and should be involved in the provision of the offer, as they are responsible for providing the necessary space for these stations in public areas.	As municipalities are usually not the owners of a bike sharing service, other players are needed to provide and operate bike sharing services. This can, for example, be a private operator (comparable to most car-sharing offers), and many bike-sharing offers are also operated by transport companies active in the city and the region. Worth mentioning here are, for example, the established in many major German cities bike sharing offer of Deutsche Bahn or the bike sharing offer of the Cologne public transport. The procedure for implementing a bike sharing service is comparable in many areas to the implementation of a car sharing service. If a new offer is to be implemented where there is not yet a bike sharing offer, then the identification of suitable areas for the construction of the stations is one of the central steps. These areas can be on private land as well as in public spaces (if the legislation of the respective country makes this possible). The next step is to acquire the rights of use for these areas, to purchase bicycles and to set up the booking system. In parallel with these activities, an application for the future offer can already be made.	The value proposition of bikesharing is that it enables users to take short point-to-point trips using a fleet of public bikes distributed throughout a community, can bridge some of the gaps in existing transportation networks, is convenient because it is available wherever it is needed and because it is a means of transport which must not be waited for, which allows to get around quickly, is a fun activity and contributes to health, it is operational every day 24h, free from constraints linked to routes, timetables and waits, it guarantees convenience and flexibility.	For station-bound as well as station-independent bike sharing, a mostly one-off registration of users with the provider is required. Currently, there are various booking options in use. The booking procedure may vary in terms of whether it is a station-bound or a barely-operated (bike sharing) non-stationed offer. Customers can find bike sharing stations or (in the case of non-stationary offers) bicycles in their vicinity via the website or an app of the provider.	Bike sharing is aimed at different user groups. Depending on the location of the offer and the function of the offer and the service area of the offer, this can be, for example, students or visitors to a city. The bike sharing offer in Usedom on the German Baltic coast, for example, primarily addresses tourist traffic.
CHANNELS				
The application of bike sharing offers in many areas hardly differs from the advertising of other products and services. In most cases the usual communication options are used. These are conventional advertisements such as billboards and advertising posters. Buses and trains use outdoor advertising, and the bikes themselves are also used as advertising space by bike-sharing providers. The vehicles are often printed conspicuously with the logo of the provider and thus ensure the appropriate attention in the public space.				
COST STRUCTURE			REVENUE STREAMS	
Bike sharing is aimed at different user groups. Depending on the location of the offer and the function or the dominant use of the service area of the offer, this can be, for example, students or visitors to a city. The bike sharing offer in Usedom on the German Baltic coast, for example, primarily addresses tourist traffic.			The above expenses are primarily offset by revenue from customers of the offer. However, there is also the possibility of generating additional financial income by leasing the bicycles as moving advertising space.	

EXAMPLE OF BUSINESS MODEL CANVAS FOR MOBILITY AS A SERVICE (MAAS) [4],[5]

KEY PARTNERS	KEY ACTIVITIES	VALUE PROPOSITION	CUSTOMER RELATIONSHIPS	CUSTOMER SEGMENTS
<p>The basic idea behind the concept of MaaS - Mobility as a service is to offer mobility solutions geared to the specific needs of people. This includes easy access to the most appropriate means of transport or to the mobility service. MaaS is the integration of various forms of transport services into a single on-demand mobility service. To best serve a customer's specific mobility needs, a MaaS operator offers a variety of transportation options, whether public transport, driving, car or bicycle sharing, taxi or rental car / leasing, or a combination thereof. For customers, MaaS offers the advantage of booking the offer by using a single application to access a mobility service with a single payment transaction instead of multiple ticketing and payment transactions. The goal of MaaS is to combine the large number of innovative new mobility services such as bike sharing, carpooling or carsharing in an organizational and collectively agreed way and to combine these various offers for the user into a seamless pathway through integrated booking and payment functions for all parts of the entire journey.</p>	<p>On the one hand, MaaS aims to link existing but possibly still jointly bookable mobility offers for easier use. Therefore, the most important work steps are the addressing of the involved actors and their extraction for a cooperation. Once this is done then the technical requirements for easy booking and use of the deals in combination are to be created. Since MaaS aims to use several offers in combination through one booking and one payment transaction, the providers of the tenders should develop a methodology for the equitable distribution of revenue (comparable to the distribution of revenue within a transport network between the transport operators involved). MaaS can, however, also pursue the goal of developing further innovative mobility services that can bridge existing gaps in the pathway.</p>	<p>For the user: 1) more travel choices tailored to his needs, 2) cost savings, 3) convenience (ease of access to, payment for mobility), 3) flexibility (route choice, time of travel & choosing share rides or not). For Transit agency: 1) addresses gaps in the conventional transit network (first-last mile connections, suburban areas), 2) redundancy and reliability. For government: 1) possible reductions in vehicle ownership (positive impacts on environment and congestion), 2) Improves urban connectivity (first-last mile connections & suburban areas) & social equity (better access for all), 3) reduces demand for parking space.</p>	<p>Registration for a service that integrates multiple separate mobility services is likely to be identical to registering with car sharing or bike sharing providers or providers of other mobility services. It is assumed that a one-time registration of users with the provider is required. For the payment of the service used, various optional options are also conceivable. This can be, for example, direct debit payments or credit card payments.</p>	<p>MaaS is aimed at all people, groups and institutions with mobility needs. Elderly people may face difficulties using new technologies regarding to MaaS.</p>
<p>KEY RESOURCES</p> <p>One of the key resources required for MaaS is the existence of an economically viable business model. Since the design of the individual mobility offers integrated in MaaS remains the responsibility of the respective operators, knowledge of the implementation of booking systems and the technical linkage for the planning of the pathway chain are necessary above all.</p>			<p>CHANNELS</p> <p>The application of MaaS is in many areas identical to the application of the individual MaaS mobility services. MaaS usually uses the usual communication options. These are classic advertisements such as advertising posters and advertising posters. Buses and trains travel with outdoor advertising, bike sharing and car sharing providers use their vehicles as advertising space.</p>	
<p>COST STRUCTURE</p> <p>Costs for the provision of the service are created by providers of mobility services integrated into the overall system, such as car sharing companies, bike sharing companies or municipal transport companies, in each case by the provision and operation of their offers. These can be costs for the procurement of the vehicles, taxes and insurances, the maintenance of the vehicles and the administrative or organizational and personnel expenses for the provision of the offer, such as costs for customer care, booking, billing or disposition. Of course, for integrated carriers, the costs of providing the service must also be mentioned.</p>			<p>REVENUE STREAMS</p> <p>The above expenses are primarily offset by revenue from customers of the offer. However, there is also the possibility of generating additional financial income by leasing the vehicle space as advertising space.</p>	

EXERCISE C

Business Model Canvas

Description of exercise

One business model canvas, which participants should fill in according to the scheme that they have been allocated with.

TEAM NAME

MEASURE TITLE

BUSINESS MODEL CANVAS

KEY PARTNERS

KEY ACTIVITIES

VALUE
PROPOSITION

CUSTOMER
RELATIONSHIPS

CUSTOMER
SEGMENTS

KEY RESOURCES

CHANNELS

COST STRUCTURE

REVENUE STREAMS



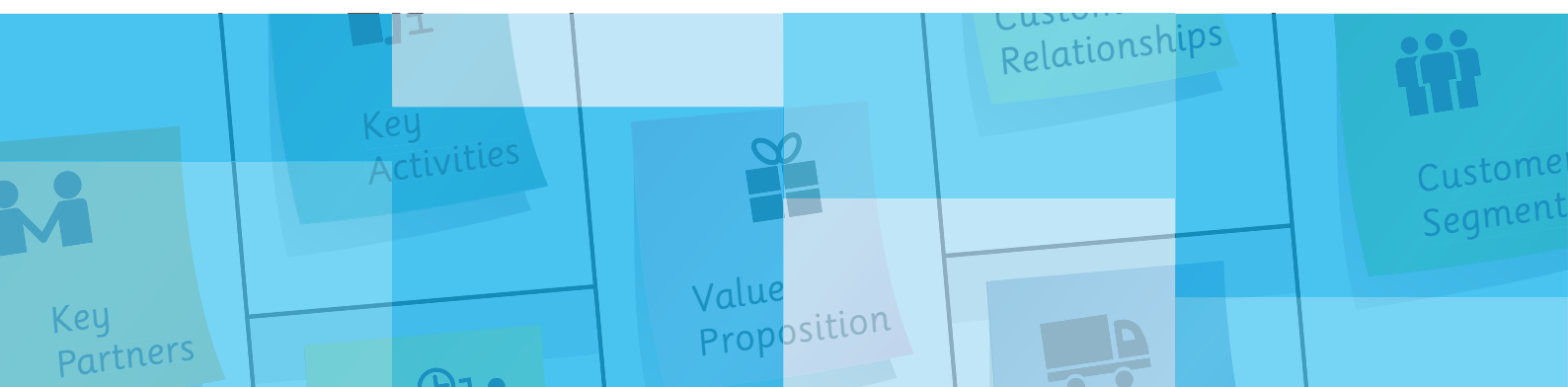
Further Reading

1. Business Model Canvas Explained. (2016). [video] Directed by E. Capaldi. <https://www.youtube.com/watch?v=RPdV0CLFmQw>.
2. Liftshare. (2019). Liftshare.com, part of the UK's largest car-sharing network. [online] Available at: <https://liftshare.com/uk> [Accessed 8 Apr. 2019].
3. Garnsey, R. (2019). Community Carpooling Association - Membership. [online] Communitycarpooling.com.au. Available at: http://www.communitycarpooling.com.au/value_proposition.php [Accessed 8 Apr. 2019].
7. Uenlue, D. (2019). Business Model Canvas Uber. [online] Innovation Tactics. Available at: <https://www.innovationtactics.com/business-model-canvas-uber/> [Accessed 8 Apr. 2019].
8. Romamobilita.it. (2019). Car Sharing Roma | Roma Servizi per la Mobilità. [online] Available at: <https://romamobilita.it/en/carsharing> [Accessed 8 Apr. 2019].
9. Matthes, M., 2016. Adaptation Model for Corporate Car Sharing in the Car Rental Industry (Thesis). Helsinki: Helsinki Metropolia University of Applied Sciences.
10. <http://www.tobike.it/default.aspx>
11. Arup; MaRS Discovery District, 2018. Mobility-as-a-Service. The value proposition for the public and our urban systems. [Online] [Accessed 15 9 2018].
12. MAAS-Alliance. (2019). Mobility as a Service Alliance - MAAS-Alliance. [online] Available at: <https://maas-alliance.eu> [Accessed 8 Apr. 2019].
13. Fahrradverleih, n. and Fahrradverleih, n. (2019). nextbike | Germany's biggest Bike Rental. [online] Nextbike.de. Available at: <https://www.nextbike.de/en/> [Accessed 8 Apr. 2019].



References

1. Teece, D. (2010). Business Models, Business Strategy and Innovation. Long Range Planning. 43. 172-194. 10.1016/j.lrp.2009.07.003. 2. Chesbrough, H. & S. Rosenbloom, R. (2002).
2. The Role of the Business Model in Capturing Value from Innovation: Evidence from Xerox Corporation's Technology Spin-Off Companies. Industrial and Corporate Change. 11. 10.1093/icc/11.3.529.
3. Österwalder, A., & Pigneur, Y. (2010). Business model generation: A handbook for visionaries, game changers, and challengers. Hoboken, New Jersey: John Wiley & Sons Inc.
4. CBP "Guidelines to developing bankable projects, new business models and partnerships. Eurokleis s.r.l, Italy (Bellini, F.; Dulckaia, I.). 2018"
5. AG, S. (2019). Strategyzer | Business Model Canvas. [online] Strategyzer.com. Available at: <https://www.strategyzer.com/canvas/business-model-canvas> [Accessed 8 Apr. 2019].





7 Process and implementation aspects

In this chapter, following issues are analyzed:

- actions to be considered **for implementation**
- **data requirements** for implementation and **data gathering methods**
- evaluation indicators (**Key performance indicators**)

1. Actions to be considered as guidelines for implementation

IMPLEMENTATION ASPECTS FOR RIDE-SHARING [1]	
CITY SIZE	<ul style="list-style-type: none"> • Not specific needs
GUIDELINES FOR IMPLEMENTATION	<ul style="list-style-type: none"> • Selection of the most suitable funding opportunities • Selection of the best contractors including the software developers • Ensure to provide a good advertisement campaign to promote the services

IMPLEMENTATION ASPECTS FOR CAR-SHARING [1]	
CITY SIZE	<ul style="list-style-type: none"> • Preferably from 100.000 habitants
GUIDELINES FOR IMPLEMENTATION	<ul style="list-style-type: none"> • Select suitable financing mechanism • Local authorities should provide the car-sharing companies with the parking permission that enables car sharing members to leave the vehicles anywhere within the city • Choose suitable software developer that will provide an app to realize the car-sharing services • Choose how to gain the revenue. Is it a subscription or pay-as-you-go model? • Organise a marketing strategy to raise the awareness about the project

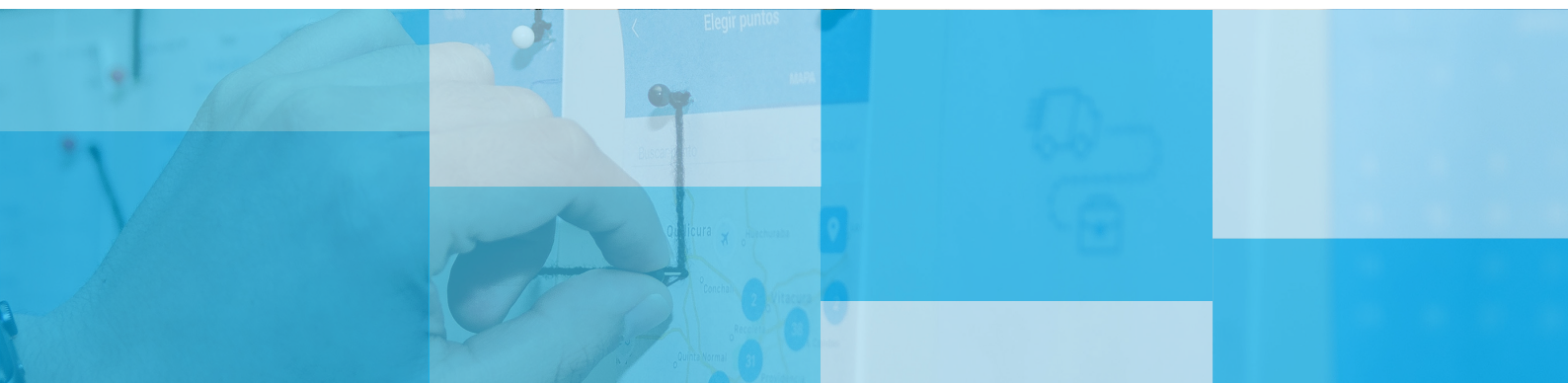
IMPLEMENTATION ASPECTS FOR BIKE-SHARING [1]	
CITY SIZE	<ul style="list-style-type: none"> • Starting from 100.000 habitants
GUIDELINES FOR IMPLEMENTATION	<ul style="list-style-type: none"> • Selection of the most suitable funding tool. Local authorities may provide grants for the project realisation • Local authorities provide the regulation program including establishing bicycle safety, fleet deployment, permitted areas for bicycle parking, and additional measures to efficient and effective deployment of bikesharing project in the city • Local authorities should provide the infrastructure such as cycling paths • Provide a policy dialogue between public and private sectors • Choose an IT developer for bike-sharing software production and maintenance • In order to raise awareness about the services it is important to organise an effective marketing campaign



IMPLEMENTATION ASPECTS FOR MAAS [1]	
CITY SIZE	<ul style="list-style-type: none"> No specific number of inhabitants, BUT requirement for the existence at least of an urban public transport (i.e. bus) and an additional public transport network or service (i.e. bike network, car-sharing etc.)
GUIDELINES FOR IMPLEMENTATION	<ul style="list-style-type: none"> Create a network of necessary stakeholders to provide a multi-modal transportation solution such as: transportation operators, local authorities, IT developers, traffic managers etc. Multi-modal transportation planning should integrate institutions, networks, stations, user information, and fare payment systems Local authorities should consider the transportation improvement options, including improvements to various modes, and mobility management strategies Local authorities should consider the impacts such as long-term and nonmonetary that Multi-Modal journey mode may provide Special attention should be given to the quality of mobility options available to people who are physically or economically disadvantaged

2. Required data sets and data collection methods - correlation with KPIs

TYPE OF DATA FOR IMPLEMENTATION	FOR WHICH KIND OF MEASURE	DATA COLLECTION TOOL [2]	USEFUL DATA ALSO FOR EVALUATION
Real time traffic data	All	<ul style="list-style-type: none"> Traffic Detector Systems Sensors Floating Car Data (FCD) 	X
Number of population living within walking distance of public transport or shared mobility system	All	<ul style="list-style-type: none"> Statistical data from government ArcMap GIS 	X
Area covered/served by public transport with regard to overall urban area	All	<ul style="list-style-type: none"> Data collection from public transport operators 	X
Number of parking slots	Car-sharing, car-pooling, MaaS	<ul style="list-style-type: none"> Passengers' transport data collection through parking surveys 	X
Number of public bikes	Bike-sharing, MaaS	<ul style="list-style-type: none"> Passengers' transport data collection through surveys 	X



7 PROCESS AND IMPLEMENTATION ASPECTS

→ 2. Required data sets and data collection methods - correlation with KPIs

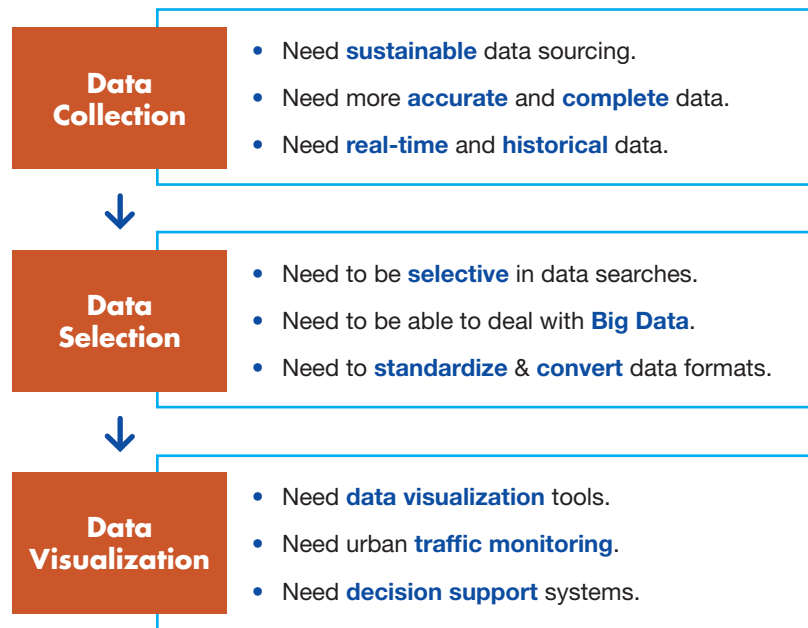
TYPE OF DATA FOR IMPLEMENTATION	FOR WHICH KIND OF MEASURE	DATA COLLECTION TOOL [2]	IS IT ALSO FOR EVALUATION
CO2 emissions saved by the substitution of conventional vehicles	All	• Data collection from environmental research	
Specific passengers' data (i.e. number of users of public bike service)	All	• Public transport operators' statistics	X
Number of public transport stops and public transport stations	All	• Public transport operators' statistics	X

DETAILED DESCRIPTION OF DATA COLLECTION METHODS [2]	
METHOD	DESCRIPTION
THE URBAN MOBILITY ANALYSIS PLATFORM TO HARVEST CAR SHARING DATA (UMAP)	By analysing the data, they highlighted different aspects related to the system utilization, how people use these services, where they typically go, when, for how long the rental last, how users move in the city in different periods of the day, and what are the users' driving habits
IN-VEHICLE NAVIGATION SYSTEMS BASED ON GPS DEVICES	GPS works by providing information on exact location. GPS tracking system, may be placed in a vehicle, on a cell phone, or on special GPS devices, which can either be a fixed or portable unit. It can also track the movement of a vehicle or person. So, for example, a GPS tracking system can be used by a company to monitor the route and progress of a delivery truck or to monitor high-valued assets in transit
FLOATING CAR DATA (FCD)	It collects real-time traffic data by locating some vehicles via mobile phones or GPS over the entire road network. The vehicle is equipped with mobile phone or GPS which acts as a sensor for the road network. Data generated by the equipped vehicles as a sample is used to assess the overall traffic condition. Some data such as car location, speed and direction of travel are sent anonymously to a central processing centre. After being collected and extracted, useful information (e.g. status of traffic, alternative routes) can be redistributed to the drivers on the road
BLUETOOTH ENABLED DEVICES	Consists of a Bluetooth device that scans for other Bluetooth-enabled device within its radio proximity, and then stores or forwards the data for future analysis and use. Bluetooth sensors can be used to collect OD data. These sensors use MAC address detection and matching to determine the travel origin and destination of individual drivers (or pedestrians). The combination of Bluetooth and Wi-Fi detections also improves the sample size of the data, which is an important factor in OD studies. Bluetooth sensors can provide estimates of travel speeds and time, providing the information needed to extract a reasonable approximation of traffic presence, density, and flows
WI-FI DETECTION	Wi-Fi technology allows the collection of traffic information and can visualize and analyse results to better manage traffic flows, basing the decision on the knowledge of traffic performance and their response to measures establishment
CROWDSOURCING DATA	Process through which an entity (individual or organization) requests specific resources from a group of people. These entities use the internet, social media applications and specially built platforms to elicit and receive the knowledge, goods or services they are looking for. This allows them to collect information or resources with a wide spectrum of sources



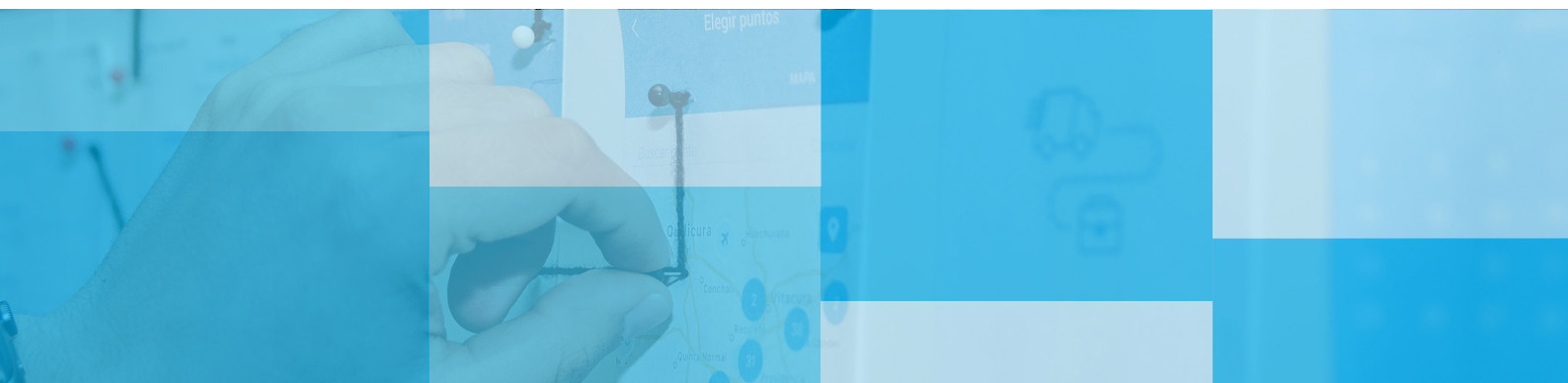
→ 2. Required data sets and data collection methods - correlation with KPIs

CONSIDERATIONS FOR DATA MANAGEMENT IN GENERAL



3. Evaluation indicators (KPIs)

- Indicators are one of most important parameter of implementation and evaluation process.
- Key performance indicators (KPI) consist of the main tool of assessing impact of the implemented technologies.
- The following table consist of some indicative KPI's concerning the implementation and the assessment of the InnoTS (for finding out more indicators follow the References section).*



KEY PERFORMANCE INDICATORS [3] [4] [5] [6]		
KEY PERFORMANCE INDICATOR	DESCRIPTION	SOURCE
ACCESS TO MOBILITY SERVICES	(1) Share of population with appropriate access to mobility services. (2) Percentage of population living within walking distance of public transport (stop or station) or shared mobility (car or bike) system	The World Business Council for Sustainable Development
MOBILITY SPACE USAGE	(1) Proportion of land use, taken by all city transport modes, including direct and indirect uses. (2) Square meters of direct and indirect mobility space usage per capita	The World Business Council for Sustainable Development
EMISSIONS OF GREENHOUSE GASES	(1) Well-to-wheels GHG emissions by all city passenger and freight transport modes. (2) Tonne CO2 equivalent well-to-wheel emissions by urban transport per annum per capita.	The World Business Council for Sustainable Development
OPPORTUNITY FOR ACTIVE MOBILITY	(1) Options and infrastructure for active mobility, which refers to the use of the soft modes, namely walking and cycling. (2) The length of roads and streets with sidewalks and bike lanes and 30 km/h (20 mph) zones and pedestrian zones related to total length of city road network (excluding motorways)	The World Business Council for Sustainable Development
ANNUALISED INDEX OF CYCLING TRIPS		West Yorkshire, Local Transport Plan 2011-2026. England
BIKE PARKING PROVISION	Number of parking slots per inhabitant	European Mobility Plans
OFFER OF PUBLIC BIKES	Number of public bikes per inhabitant	European Mobility Plans
PUBLIC BIKE SERVICE USERS - NUMBER OF INHABITANTS RATIO	Number of users of public bike service per inhabitant	European Mobility Plans
PEDESTRIAN DENSITY IN SPECIFIC PEDESTRIAN AREAS	Number of Pedestrians per square kilometer in specific pedestrian areas	European Mobility Plans
BIKE TRAFFIC VOLUME	The volume of traffic generated by bikes	European Mobility Plans
LENGTH OF TRANSPORT INFRASTRUCTURES	km of bike lanes, km of pedestrian streets, km of PT lines, etc.	European Mobility Plans
NUMBER OF PT STOPS (INCLUDING PUBLIC BIKES)	The sum of public transport stops and public bicycle stations	European Mobility Plans
ACCESSIBILITY TO PUBLIC BIKES SERVICES	Number of bikes per inhabitant, Average distance to public bike station	European Mobility Plans



References

1. CBP “Guidelines to developing bankable projects, new business models and partnerships. Eurokleis s.r.l, Italy (Bellini, F.; Dulckaia, I.). 2018”
2. CBP: Research and gap analysis on data collection and analysis methods: “Data collection and analysis tools for integrated measures”. Mireia Calvo, Noelia Martín, José Á. Rodríguez (ITENE). 2017
3. Ciociola, Alessandro & Cocca, Michele & Giordano, Danilo & Mellia, Marco & Morichetta, Andrea & Putina, Andrian & Salutari, Flavia. (2017). UMAP: Urban mobility analysis platform to harvest car sharing data. 1-8. 10.1109/UIC-ATC.2017.8397566.
4. The World Business Council for Sustainable Development
5. West Yorkshire Local Transport Plan 2011-2026 (LTP3)
6. Eltis.org. (2016). SUMP Guidelines | Eltis. [online] Available at: <http://www.eltis.org/guidelines/sump-guidelines> [Accessed 28 Mar. 2019].







8

Available tools and guidelines

- **Guidelines and tools to support the design and implementation of such measures are numerous.** However, this chapter aims to provide **the ones most correlated to S-M cities instead of being generic.** The provided rating of the relevance to SUITS objectives supports prioritization of these tools.

AVAILABLE ONLINE TOOLS SUPPORTING THE IMPLEMENTATION OF MEASURES

Tool name	Format	Source /Link	Usefulness for S-M cities and Importance in SUITS project	Rating of relevance [1-5]	Rating explanation
CIVITAS ECCENTRIC TOOL: MAAS READINESS LEVEL INDICATORS FOR LOCAL AUTHORITIES	PDF document (report)	CIVITAS network project http://civitas.eu/news/maas-readiness-level-indicators-local-authorities-launched	It is a self-assessment tool about readiness for MaaS in a city, which could also be applied in small cities and in suburbs	5	The tool can be entirely applied in a small city. However, it is specifically dedicated for small and medium sized cities
MOMO	PDF documents	Intelligent Energy Europe (IEE) project: https://ec.europa.eu/energy/intelligent/projects/en/projects/momo-car-sharing	Momo provides resources in the form of PDF document (factsheets), hints and contact details of good practice examples for car-sharing systems in smaller cities. It also provides detailed guidelines for municipalities and governments regarding the establishment and implementation of different car-sharing schemes. Car-Sharing is also possible in smaller cities	5	The project is largely focused on small towns and the carpooling systems in them.
CHUMS	Webinars/ PDF document/ Site Appraisal Tool (XLSM File)	EU Intelligent Energy Europe http://chums-carpooling.eu/	EU project about carpooling that contains Webinars/PDF documents & Site Appraisal Tool. Webinars: That present the advantages of “sharing” than “owning” cars PDF Documents: There are several publications derived from this project regarding different aspects of carpooling and findings from the project’s case studies. Site Appraisal Tool: This tool enables quick assessment of a candidate site’s suitability for carpooling and indicates (in a very general manner), the likely impacts of introducing the CHUMS measures as well as identifying supporting measures which are most likely to maximize the impact of CHUMS. It can be used irrespective of the city’s size.	4-5	The tool can be entirely applied in a small city. However, it is specifically dedicated for small and medium sized cities.
EMPOWER	PDF document/presentation, apps	EU Project https://empowertoolkit.eu/	Empower provides relevant background for all cities that want to stimulate a mode change to more active transport and public transport. This could be beginner and advanced cities.	3	The participating good practice cities are larger than S-M cities. But a number of the measures implemented in the good-practice-cities are also suitable for smaller cities if adapted accordingly.



AVAILABLE ONLINE TOOLS SUPPORTING THE IMPLEMENTATION OF MEASURES

Tool name	Format	Source /Link	Usefulness for S-M cities and Importance in SUITS project	Rating of relevance [1-5]	Rating explanation
TRAVELSPIRIT TOOL: OPENNESS INDEX FOR MOBILITY AS A SERVICE	PDF document (whitepaper)	Project of the TravelSpirit Foundation http://travelspirit.foundation/news/travelspirit-launches-a-new-tool-to-measure-the-openness-of-a-citys-transport-system/	A simple and practical tool to help those developing MaaS systems understand their current position and their potential for developing an open MaaS model. It can be used irrespective of the city's size.	3	The tool can be applied in S-M cities. The tool was applied to the Transport for West Midlands MaaS project as a demonstrative case-study.
CIVITAS CARAVEL	PDF document/presentations	CIVITAS network project http://civitas.eu/content/caravel	Rather great number of measures, some of them could be repeated in S-M cities. Burgos could be classified as S-M city, so its measures could be seen as a good example: collective mobility services, car pooling scheme for workers	2-3	Topics considered in this Module are mainly developed in the cities of the project that cannot be classified as S-M, but useful hints coming from Burgos (S-M city)
GROWSMARTER	PDF document (factsheets) and hints and contact details of good practice examples	EU Project http://www.grow-smarter.eu/solutions	Grow Smarter provides relevant background for all cities that want to stimulate city uptake of 'smart solutions'. It provides 4 Smart City solutions regarding Sustainable Urban Mobility along with relevant case studies	2-3	The participating good practice cities are larger than S-M cities. But a number of the measures implemented in the good-practice-cities are also suitable for smaller cities if adapted accordingly



CHUMS

- This tool establishes **the current carpooling status**, estimates the potential impact of introducing CHUMS and identifies the supporting measures which are most likely to maximise the impact of CHUMS
- The following tables refer to the example of Kalamaria municipality

Carpool standing / culture in your country					tick if yes
1	Government policies encourage municipalities or employers to include carpooling in travel/mobility plans				<input type="checkbox"/>
2	Government policies provide some form of financial support to companies which introduce carpooling				<input type="checkbox"/>
3	Government policies provide some form of financial support to individuals who carpool (e.g. tax relief)				<input type="checkbox"/>
4	A nationwide carpooling service provider is active in your country offering carpool journeys for commuter trips				<input checked="" type="checkbox"/>
5	There is an awareness of environmental impacts of car driving and a desire to minimise this where possible				<input checked="" type="checkbox"/>
6	People generally view car ownership as a measure of success and are reluctant to dilute this by carpooling				<input type="checkbox"/>

Carpool status in your city/region					tick if yes
1	Regional or citywide public (open) schemes are provided by the transport authority/municipality				<input type="checkbox"/>
2	There is a Regional or citywide commercial service provider offering public carpooling				<input type="checkbox"/>
3	Availability of dedicated (closed) carpool schemes to employment sites	It is very common <input type="radio"/>	At several sites <input type="radio"/>	At a few sites only <input type="radio"/>	N/A <input type="radio"/>
3	Overall, what best describes the carpooling schemes in operation	Established (>5 years) <input type="radio"/>	Maturing (2-5 years) <input type="radio"/>	Young (< 2 years) <input checked="" type="radio"/>	N/A <input type="radio"/>
4	Carpooling has been tried in the past but no carpool schemes currently operate				<input checked="" type="checkbox"/>
5	Carpooling has never been available				<input type="checkbox"/>

Support for carpooling from municipality / transport authority		tick if yes
1	Do specific carpooling actions appear in municipality mobility plans (SUMP) and/or regional transport plans ?	<input type="checkbox"/>
2	Does the municipality/transport authority employ dedicated staff tasked with developing carpooling ?	<input type="checkbox"/>
3	Does the municipality/transport authority support carpooling through infrastructure measures ?	<input type="checkbox"/>
4	Does the municipality/transport authority support carpooling through financial incentives ?	<input type="checkbox"/>



CIVITAS ECCENTRIC tool: MaaS Readiness Level Indicators for local authorities

- Offers a new approach to understand how local authorities can speed up the process of MaaS in their local context.
- It works as a discussion tool and a check list to develop measures in the local authorities (part of the CIVITAS ECCENTRIC project).

The MaaS readiness level indicators give a **cross-sectoral view** on how prepared each local authority is for the change and **what sort of decisions** it has already made **regarding transportation** and how these support the implementation of the new transport services.

Strategic readiness - to promote, support and incentivise MaaS

STRATEGIC FOCUS

LEVEL	LEVEL INDICATORS
1	The local authority has no measure taken to explicitly support MaaS development in the city
2	The local authority is involved in measures to support the development of mobility services together with the service-providers and/or incentives are used for creating the MaaS
3	The local authority has a plan/strategy/policies to explicitly support the development of MaaS in the local context.
4	The local authority has local funding to support the change (project or continuous funding)
5	The local authority has a named person to be in charge of MaaS development. The local authority develops MaaS systematically

PARKING POLICY

LEVEL	LEVEL INDICATORS
1	The local authority does not have a parking policy
2	The local authority has a parking policy, but it does not explicitly support the shared use of vehicles and/or transport on demand
3	Politicians are ready to change parking policy on critical areas in the local authority or they are ready to take measures to reduce private motoring/car ownership
4	The local authority is active in supporting new business models by adapting parking standards for (new) residential developments (reducing the area of parking space, allocating parking spaces for shared cars/transport on demand and enabling new mobility services for residents)
5	The parking policy supports shared cars by offering priorities/cheaper parking/ parking zones for shared vehicles and parking permits are easy to acquire

8 AVAILABLE TOOLS AND GUIDELINES

→ Strategic readiness - to promote, support and incentivise MaaS

TRAVELLING GUIDELINES FOR THE STAFF AND POLITICIANS

LEVEL	LEVEL INDICATORS
1	Internal travelling guidelines for staff and politicians of the local authority do not prioritize sustainable mobility
2	Internal travelling guidelines prioritize sustainable mobility, but are not monitored by the local authority
3	Internal travelling guidelines prioritize sustainable mobility and travel patterns are monitored and reported annually by the local authority
4	Internal travel instructions prioritize the sustainable mobility, travel patterns are monitored annually by the local authority and there is a clear plan to reduce the use of private cars on work travel and to promote the use of shared mobility
5	Internal travelling instructions prioritize sustainable mobility, travel patterns are monitored annually, the use of private cars on work travel has declined during the past 3 yrs

USE OF SHARED MOBILITY WITHIN THE LOCAL ADMINISTRATION

LEVEL	LEVEL INDICATORS
1	The local authority is not using shared mobility services itself
2	The local authority offers shared cars/bikes etc. for the use of its staff and politicians, but it is limited to a small number of employees
3	The local authority offers shared cars or bikes for the use of the majority of staff and politicians
4	The local authority uses shared mobility services offered by several service providers
5	The local authority uses shared mobility services offered by several service providers, not limited to working hours only

SHARED ECONOMY - AVAILABILITY AND MARKET PENETRATION OF SHARED AND COMBINED TRAVEL OPTIONS

LEVEL	LEVEL INDICATORS
1	There are no companies offering shared vehicles in the local authority
2	There are pilots/campaigns/incentives taking place in the local authority regarding shared mobility options
3	There are different kind of shared mobility opportunities offered by companies available for citizens
4	There are more than five different kinds of MaaS operators providing combined mobility within the local authority covering the following modes: public transport, shared vehicles, shared bikes, ride sharing, rental cars, taxis, rental boats etc.
5	Regular service providers (grocery stores, theatres, estate developers and housing companies etc.) work together with MaaS operators and offer package deals to their customers

PUBLIC TRANSPORT (PT)

LEVEL	LEVEL INDICATORS
1	Customers can buy local PT tickets only via PT service providers' own channels, which differ from each other
2	Customers can buy the tickets to PT through several sales channels offered by third parties
3	The public transport authority (PTA) is actively connecting with other MaaS operators/transport providers in the area and they have plans to offer package deals to customers. (bicycle/car sharing, car-pooling, taxis etc.)
4	The PTA already offers multimodal package deals with other MaaS operators to customers
5	Hotels, theatres, shopping malls etc. regular service providers offer several service packages combining PTA with their own services



8 AVAILABLE TOOLS AND GUIDELINES

→ Strategic readiness - to promote, support and incentivise MaaS

INTEGRATION PLATFORM

LEVEL	LEVEL INDICATORS
1	The local authority has not opened data gathered from public transportation operation
2	PTA and the local authority have opened data/standardized information gathered so that third parties can use it to create new apps and services
3	Third parties already use open data and provide mobile applications (with information about one mode of transport or more than one, real time information, information about other services, official public transport applications etc.)
4	The local authorities are promoting and facilitating a cooperation between different providers by any means (technical exchange platform, standardizations, etc.).
5	Third parties work together to sell their MaaS services by using the same apps as other private and/ or public MaaS operators. The app may be provided by the PTA or a private service operator.

VISIBILITY - HOW OBVIOUS AND EASY TO GET ARE THE SHARED MOBILITY OFFERS TO THE CITIZENS

LEVEL	LEVEL INDICATORS
1	Customers can find multimodal (min. 2 modes of transport) traveller information.
2	Customers have several channels from which they can find multimodal traveller information.
3	Customers get visuals or see campaigns on sustainable mobility options/MaaS services while travelling in the city.
4	Customers can change their means of transport easily in several places within the local authority (min 4 transport means in one place).
5	Customers have found MaaS services and their usage has increased within the last year

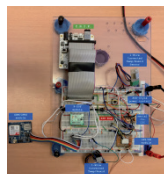
Data collection tools

SUITS Pilot Demo
In Kalamaria



• Crowdsourcing.

Crowdsourcing using conventional GPS trackers & IoT telecom services.



• Multi-GNSS + INS tracker.

Advanced, multi-GNSS + INS tracker prototype for urban vehicle tracking.



• Vehicle navigation.

Collaborative, crowdsourced navigation system adapted for in-vehicle multimedia consoles.

Data selection tools

• S-DARE SELECTION TOOLS

- GPX format (converter).
- GPX file anonymisation / pseudonymisation.
- Insertion of GPX file metadata into a Geospatial DB.
- Geo-selection of GPX trace datasets.



DaRe.SUITS-project.eu/tools



S-DaRe Tools (by )

• PP4TM SYSTEM

Scalable, data homogenisation funnel and fast query processing engine over big transport data.



SUITS Tool: The PP4TM System



GPX file is a GPS data saved in the GPS Exchange format, an open standard that can be freely used by GPS programs. It contains longitude and latitude location data, which includes waypoints, routes, and tracks. GPX files are saved in XML format that allows GPS data to be more easily imported and read by multiple programs and web services.



S-DaRe: SUITS' Data Repository

The SUITS consortium is enabled to deposit all project data in a (private, so far) **Data Repository**, setup and maintained by **SBOING**, who will take measures to make it possible for third parties to access, mine, exploit, reproduce and disseminate - free of charge - the following:

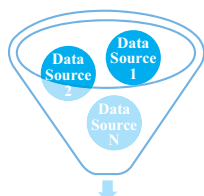
DaRe.SUITS-project.eu/tools

- The data, including associated metadata, needed to validate the results presented in scientific publications.
- Collected data during the project, after anonymization and including associated metadata, as specified in the DMP.
- Generated data during the project, including associated metadata, as specified in the Consortium Agreement and in the DMP.
- Public project reports and public deliverables.
- All dissemination-related material (all that is public).

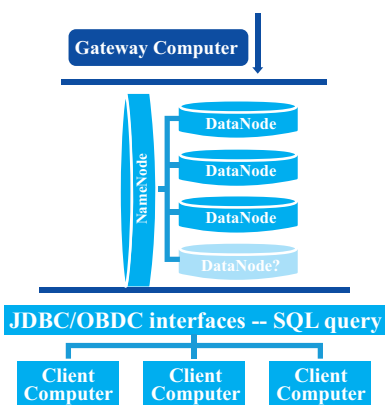


SBOING's Repository:

- Hosted in Germany (@Hetzner.de), 3TB+, SFTP accessible (+more).
- (Mirrored in LOGDRILL's (local) Data centre).



Secure Data Forwarding (SQL, SysLog, Flume, etc.)



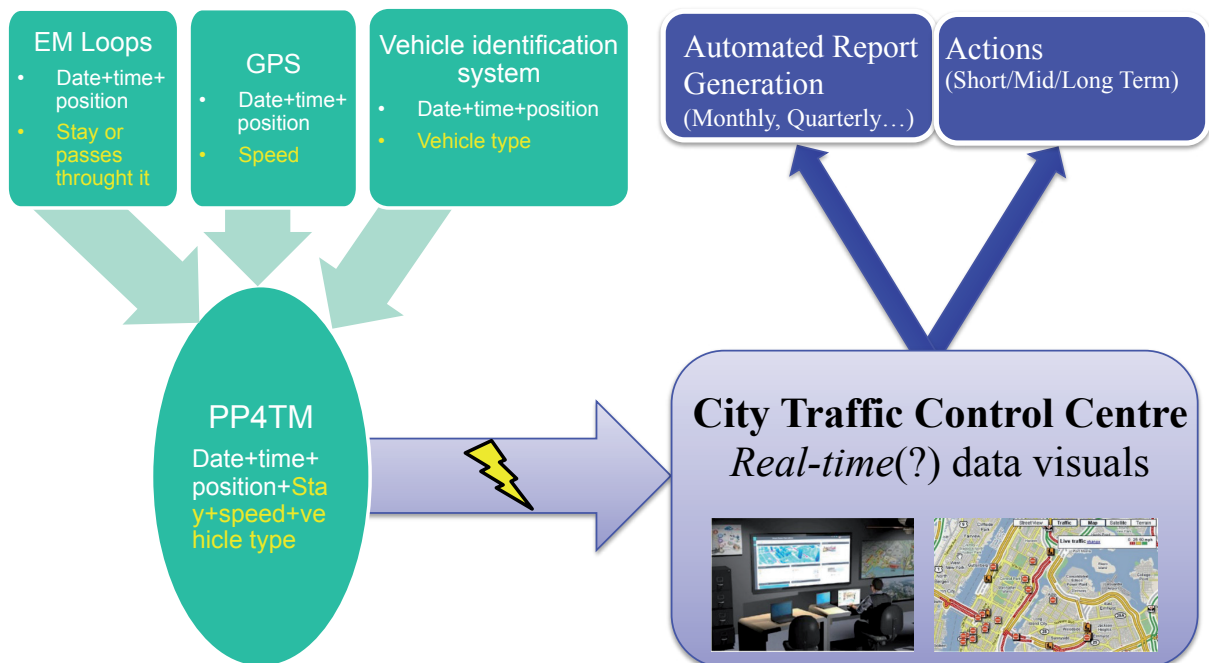
PP4TM: SUITS database for big data

Fast and robust analytic database solution for civil traffic research and development purposes.

- Convert any data sources and formats (including historical) to common data format at once.
- Store lots of data (Big Data) and access them very quickly.
- Very easy and cheap to expand the storage capacity in runtime.
- Easy to connect to any visualization tools.
- Quickly serve your visualization needs.

How to use PP4TM

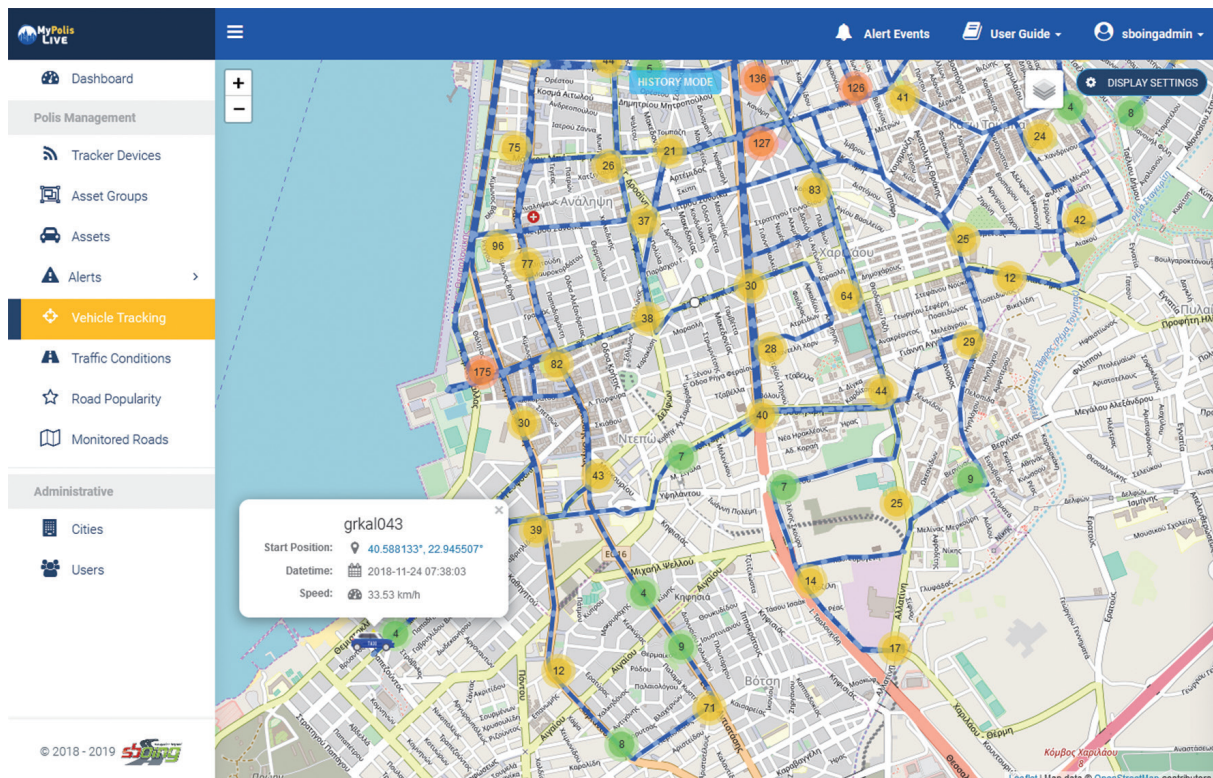
- 1) Create a table in PP4TM, will contain all of your data (common data format).
- 2) Use PP4TM to convert different data sources to „common data format”.
- 3) Store all of your data in PP4TM.
- 4) Connect your favorite visualization tools to PP4TM (example MS Power BI free)
- 5) Analyze your data instantly (find a correlations in different type and source of data).
- 6) Expand your data to real-time (use step 2 continuously).
- 7) Use the live visualization (step 5 with refreshing).



Data visualisation tools

- **MyPolisLive.net**

A platform for real-time vehicle tracking and traffic monitoring for urban traffic management.



<https://www.mypolislive.net/>

EXERCISE D

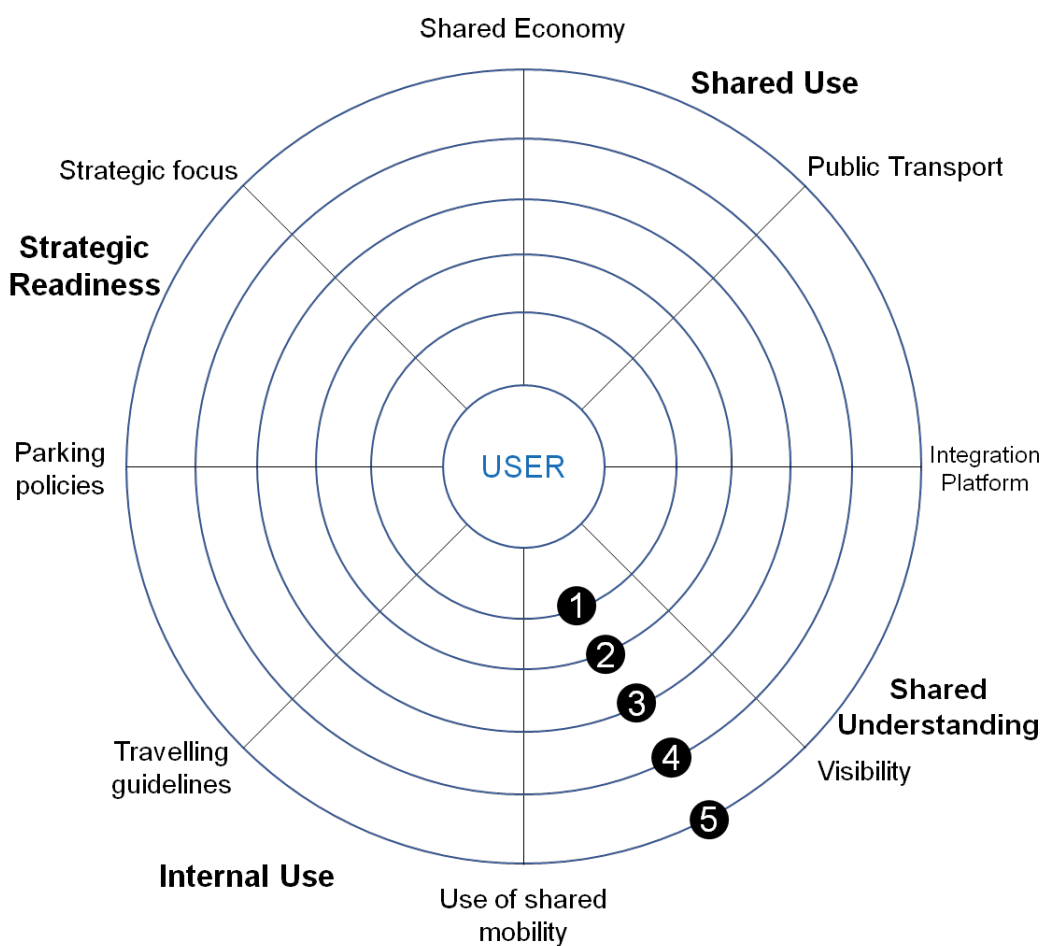
Mobility as a Service readiness level

Description of exercise

One spider diagram, which participants use in order to transfer the score results from the CIVITAS EC-CENTRIC tool. 8 fields (open boxes) which participants use to fill in the descriptive results of the CIVITAS ECCENTRIC tool.

Please use the spider diagram below, to transfer the results from the CIVITAS ECCENTRIC tool for your city.

TEAM NAME



Please fill the following boxes with the results from the CIVITAS ECCENTRIC tool for your city.

STRATEGIC READINESS

STRATEGIC FOCUS

PARKING POLICY

INTERNAL USE

TRAVELLING
GUIDELINES

USE OF SHARED
MOBILITY

SHARED USE

SHARED ECONOMY

PUBLIC TRANSPORT

SHARED UNDERSTANDING

INTEGRATION
PLATFORM

VISIBILITY

Further Reading

CIVITAS Urban Mobility Tool Inventory <http://civitas.eu/tool-inventory>

CIVITAS ECCENTRIC tool. MaaS Readiness Level Indicators for local authorities

- PDF Document: MaaS Readiness Level Indicators for local authorities

MOMO

- Overview of MOMO outcomes (PDF Doc)
- MOMO Guideline for municipalities and governments (PDF Doc)

CHUMS

- Webinars
- Publications/Case Studies (PDF Documents)
- Site Appraisal Tool (XLSM File)

EMPOWER

- Empower Project
- Empower Toolkit
- Empowering a change to Active Transport
- Empowering public transport
- Empowering a change to shared transport
- Designing positive incentives
- Using ICT Tools
- Business Models
- Evaluation methodology

TravelSpirit tool: Openness Index for Mobility as a Service

- Website: TravelSpirit tool: Openness Index for Mobility as a Service
- MaaS Maturity Index
- PDF Document: TravelSpirit Index of Openness for Mobility as a Service
- PDF Document: TravelSpirit Index of Openness West Midlands Case Study
- PDF Document: MaaS dictionary by MaaSLab-UCL

CIVITAS CARAVEL

- Website: CIVITAS CARAVEL
- PDF Doc: Measure Result - Setting up a car-pooling scheme for workers in Burgos
- PDF Doc: Measure Result - BICIBUR City bike scheme in Burgos

GROWSMARTER

- Website: GROWSMARTER
- PDF Doc: GrowSmarter Smart solutions mapping
- PDF Document: Car sharing



References

1. Civitas.eu. (2019). MaaS Readiness Level Indicators for local authorities launched | CIVITAS. [online] Available at: <https://civitas.eu/news/maas-readiness-level-indicators-local-authorities-launched> [Accessed 8 Apr. 2019].
2. CHUMS project. (2019). Frontpage - CHUMS project. [online] Available at: <http://chums-carpooling.eu/> [Accessed 8 Apr. 2019].
3. Intelligent Energy Europe. (2019). More Options for Energy Efficient Mobility through Car-Sharing - Intelligent Energy Europe - European Commission. [online] Available at: <https://ec.europa.eu/energy/intelligent/projects/en/projects/momo-car-sharing> [Accessed 8 Apr. 2019].
4. Empowertoolkit.eu. (2019). Empower Toolkit. [online] Available at: <https://empowertoolkit.eu/> [Accessed 8 Apr. 2019].
5. Travelspirit Foundation. (2019). Home » Travelspirit Foundation. [online] Available at: <https://travelspirit.foundation/> [Accessed 8 Apr. 2019].
6. Civitas.eu. (2019). CARAVEL | CIVITAS. [online] Available at: <http://civitas.eu/content/caravel> [Accessed 8 Apr. 2019].
7. Grow-smarter.eu. (2019). Grow Smarter: Solutions. [online] Available at: <http://www.grow-smarter.eu/solutions/> [Accessed 8 Apr. 2019].



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