

**AN ACTIVITY IN THE INNOVATION PARTNERSHIP PROGRAM  
– NEXT GENERATION'S TRAVEL AND TRANSPORT**



**COMBINED MOBILITY AS A SERVICE IN SWEDEN**

# ROADMAP

FOR ACTION AREA COMBINED MOBILITY IN SWEDEN TIME PERSPECTIVE:  
2017 – 2027, WITH FOCUS ON 2017 – 2020

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## BACKGROUND



The switch to a more sustainable transport system is a major challenge. Successively expanding and improving public transport as well as improving the conditions for pedestrians and cyclists are the foundations for ensuring socio-economically effective transport provision that is sustainable in the long-term for citizens and business throughout the country. This is not enough, however. New approaches are also required. One such approach is to promote the development of combined mobility.

### WHAT IS COMBINED MOBILITY?

In this roadmap, the term “combined mobility” (CM), also known as Mobility as a Service (MaaS) or integrated mobility, refers to services that combine several different transport-related services or combine transport services with other types of services. CM can be found at various levels. The roadmap has adopted a classification that has been used within Drive Sweden, see figure below. The roadmap’s focus is to promote the development of CM services at levels 2 and 3, i.e. resale and packaging of transport services as integrated solutions, and to prepare for level 4, where policy and instruments are also integrated in the service offer.

<b>MaaS Level 4</b> <b>Integration of policy &amp; control</b>	Incentives and instruments (from the public sector) integrated in agreements and the service. The purpose is to steer towards the city’s/public sector’s objectives. Conditions for resale of the public sector’s services.
<b>MaaS Level 3</b> <b>Integration of agreements</b>	Offer alternatives to car ownership. Subscription or packaged. Responsibility for the entire service. In relation both to customer and transport service provider. Combined payment for all services. Focus on household mobility requirements.
<b>MaaS Level 2</b> <b>Integration of booking/ticket/ payment</b>	Booking of and payment for services integrated in a service/app. No responsibility for the travel services, but for payment. Focus on individual journey A to B.
<b>MaaS Level 1</b> <b>Integration of information</b>	The services integrated at information level (e.g. multi-modal travel planners). Users have agreements and relationships with various transport service providers. Separate payment solutions
<b>MaaS Level 0</b> <b>No integration</b>	Separate mobility services. Users have agreements and relationships with various transport service providers. Separate payment solutions

Adapted according to MaaS level model, Drive Sweden (2016)

### WHY IS A ROADMAP NEEDED TO PROMOTE COMBINED MOBILITY?

The approach from a social perspective is for the combination of several types of transport services to create better opportunities to shape offers that meet citizens’ actual mobility requirements, compared to the situation where the services are offered individually via various channels. More people might e.g. be attracted to public transport and other journeys using shared resources if public transport were supplemented for example with access to hire cars, car sharing, bicycle pools or taxis in easy-to-use, accessible services. This increased attractiveness could thereby result in the introduction leading to a reduction in the need to own and drive privately owned cars, which would be positive for the transport system’s social, economic and environmental sustainabi-

lity. CM also offers an opportunity to identify effective transport systems for less urban areas.

CM entails a new approach in respect of mobility and public transport. Pilots and analyses have shown that the concept might entail a need for public transport’s current organisation and division of roles to be revised, with e.g. closer co-operation between the private and public sectors as a result. Without making any claim to dictate the conditions for this, the roadmap aims to accelerate and facilitate the development of sustainable CM services.

### WHY NOW?

Combined mobility services (CM services) are being realised in part due to general global trends such as urbanisation, digitisation and servicification, and in part due to transport-related trends such as increased costs for conducting and developing public transport, increased focus on sustainable transport and an increasing political desire to reduce the use of cars in and around cities. In addition, self-drive vehicles, which in the longer term are intended to be able to eliminate the driver and thereby drastically alter economies of scale and operating economy, are a potential future catalyst for CM services.

### WHAT HAS BEEN DONE TO DATE?

The initiative for CM services has been taken both in Sweden and internationally. Both in the form of demonstrations, e.g. UbiGo in Gothenburg, SMILE in Vienna, Switchh in Hanover and MaaS Globals in Helsinki<sup>1</sup>, but also in the form of various types of investigations, such as Vitt Papper (White Paper) which has been led by Samtrafiken, regarding how the new types of collaborations can be realised. Västtrafik, SLL, Ruter, Moovia and HSL are just some of the public transport companies that have examined or are examining their roles. In addition to this, Samtrafiken along with its partners have agreed on a common objective in both the short and long term within the ‘Vitt Papper’ project. All in all, these initiatives have demonstrated potential, desire and preparedness, although as yet there are no full-scale implementations from which the social benefits can be obtained.

### VARIOUS TERMS AND HOW THEY ARE USED IN THE ROADMAP

The term *transport producer* refers to an organisation that offers transport, primarily of people. A few examples include RPTA (see below), taxi companies, hire car companies, bicycle pools, bus companies.

The term *service provider* refers to an organisation that offers CM services at some level.

The abbreviation *RPTA* stands for regional public transport authority, or a company that represents the authority.

The term *public transport* refers to subsidised public transport that has been procured.

The phrase *journeys using shared resources* refers to public transport and other kinds of transport services using shared resources, such as private bus routes, car pools, car sharing, hire bicycles, taxis, etc.

<sup>1</sup> See also Kamargiannu & Matyas (2016) for overviews of CM services



## PURPOSE



The purpose of the roadmap is to support the growth of CM by creating favourable conditions and by reducing barriers to the development and implementation of CM services, which are contributing to the fulfilment of Sweden's transport policy goals.



**COMBINED MOBILITY AS A SERVICE WILL BE  
AN ALTERNATIVE TO PRIVATE OWNERSHIP OF CARS AND  
WILL SUPPORT THE GOALS OF THE CITY AND THE PUBLIC SECTOR**



## IMPACT OBJECTIVES



### THE FOLLOWING EFFECTS SHALL BE ACHIEVED BY 2027

- The potential to select sustainable transport with shared resources as well as walking and cycling has increased<sup>2</sup>
- The market share for transport with shared resources has increased<sup>3</sup>
- Accessibility has been improved within and between Sweden's regions<sup>4</sup>
- Growth within sustainable mobility, combined with innovations, has led to new business.

In addition to these impact objectives, CM services are expected to lead to a reduced number of parking spaces, reduced congestion and consequently better utilisation of the street environment.

# 2027

### DID YOU KNOW THAT?

**AN AVERAGE CAR JOURNEY  
TRANSPORTS 1.5 PEOPLE**

**THE CAR IS STATIONARY ON  
AVERAGE FOR 95% OF THE TIME**

<sup>2</sup> According to Transport Analysis's measurement of transport policy goals

<sup>3</sup> Not at the expense of pedestrians and cyclists

<sup>4</sup> According to Transport Analysis's measurement of transport policy goals

## PERFORMANCE OBJECTIVES



### 2018

18-1	In a number of regions, including at least one metropolitan region, public transport has, in a co-ordinated and customised way, made available a relevant offering for digital 3rd party sales, facilitating the growth of CM services
18-2	At least three CM services are up and running, levels 2 and 3
18-3	An investigation regarding the launch of an amended policy in respect of e.g. mobility as a service benefit and new ticket types

### 2023

23-1	The public transport offering in Sweden is fully available and tailored for 3rd party sales and combined mobility services
23-2	CM services are established in at least three cities and are being run using functioning business models
23-3	The CM concept and its consequences and opportunities have been evaluated and investigated in at least half of Sweden's municipalities
23-4	The potential to purchase CM is generally accepted among travellers
23-5	At least one CM service has been tested in the countryside

### 2028

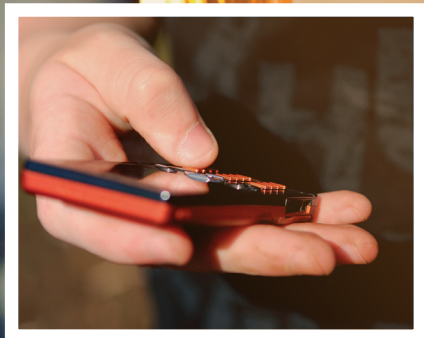
27-1	CM services that include self-drive vehicles are established
27-2	Policies and regulations have been adapted to support sustainable CM
27-3	CM services have facilitated the planning and construction of urban areas with extremely low parking ratios
27-4	Mobility services have replaced "courtesy cars" as the norm for offering to employees

2018

2023

2028

SHARED MOBILITY IS THE NORM





## STRATEGY FOR THE ROADMAP AND CONCEPT FOR IMPLEMENTATION



### STRATEGY

The roadmap proposes overall measures intended to reduce the time until introduction to the market of CM services in Sweden. The roadmap focuses on activities aimed at rectifying barriers, filling gaps in technology, knowledge and policies, as well as stimulating development, if required. It does not claim to be all-inclusive.

In order to achieve long-term effects from CM services, the roadmap has been developed with a view to 2028, and is divided into three periods, see Roadmap (pages 8-19). It should however be viewed as a living document. The demand for and social effects of CM services are far from clarified, which is why it is important, at every stage, to evaluate the consequences and continually update the plan accordingly.

### RELEVANT ONGOING ACTIVITIES

The activities that are described in the roadmap do not necessarily require national funding in order to be implemented. The majority of the activities have already been initiated and are ongoing, and in some cases they have already been financed. However, there are other activities that may be included as an important part of the roadmap, and where co-ordination is required. An ongoing initiative of this type could benefit from the roadmap's planned objectives and milestones, and it might be important to know at an early stage which variables and effects are expected to emerge from these.

We have identified a number of activities that have a bearing on this roadmap:

- Samtrafiken's project 'Biljett- och Betallösningar' ('Ticket and Payment solutions'); the project was concluded at the end of 2016 and is expected e.g. to supply a standard agreed among RPTAs regarding how digital tickets can be issued and validated
- Samtrafiken's project 'Vitt papper' ('White Paper'); The project was concluded at the end of 2016 and has supplied data regarding how Sweden's public transport can relate to CM and how digital tickets can be made available to selling parties
- Under the leadership of Samtrafiken, the Forum for Transport Innovation is conducting the project 'Kraftsamling öppna trafik-data' ('Pooling efforts open traffic data'), which defines all data volumes (incl. ticket APIs) that will uniformly be opened up to third-party developers. Completed during spring 2017
- Västtrafik's ongoing assignments and work regarding developing a delivery model for CM
- SLL's strategy for CM that was processed by the Traffic & Public Transport Committee on 31.01.2017
- K2's project 'Hållbara tjänsteresor' ('Sustainable business travel'), which will develop solutions for how new, smart and combined mobility solutions can be formulated so that an in-

creased proportion of the companies' travel takes place using public transport, walking and cycling, or gives incentives for travel-free meetings

- The Horizon 2020 project 'iMove', where the Swedish players Ubigo, RISE Viktoria and Västtrafik are among the partners, and where Gothenburg is one of 4 cities in which the project will be conducted with pilots for CM services
- The EU project 'Civitas Eccentric', where Swedish players such as the City of Stockholm, Felxxidrive, Ubigo and GoMore are testing mobility concepts in Stockholm (Hammarby Sjöstad)
- The projects 'Dencity' (Lindholmen Science Park) and 'EC2B' (Trivector), which focus on mobility as part of the accommodation
- Swedish Incubators & Science Parks' (SISP) innovation competition 'Challenge from Sweden', which is being conducted with the aim of stimulating the development of new CM services.
- Research programmes and projects such as SAMS (KTH), IRIMS (K2) & MaaSif (Chalmers)

The roadmap for CM in Sweden presupposes co-operation and co-ordination with the above initiatives and projects, and these can very well correspond to some of the highlighted activities in the roadmap, wholly or in part.

## Concept for implementation

During the initial period, up to the end of 2020, the proposed activities are more definite, and for this reason we propose in the roadmap that a project should be launched to co-ordinate and implement these activities more tangibly. As a result, a project has been launched – Roadmap ([www.kompis.me](http://www.kompis.me)) – in order to co-ordinate these activities.

# 2020



## ROADMAP – THREE PERIODS, FIVE AREAS



### THE ROADMAP HAS BEEN SPLIT INTO THREE PERIODS WITH THE FOLLOWING AREAS OF FOCUS

#### PERIOD 1: 2017–2018

The focus is on laying the foundations for CM services and on putting in place the required definitions, policies, regulations, agreements and technology. The majority of pilots and implementations of CM services are also being conducted during this period, both with and without start-up stimuli.

#### PERIOD 2: 2019–2023

The focus is both on supporting upscaling and on developing new and improving existing services. New technology (such as self-drive vehicles) is opening up new opportunities, and regulations, legislation and policies need to be challenged. There will be a certain amount of consolidation as the area matures.

#### PERIOD 3: 2024–2028

Various levels of CM services have been established and form a natural part of the offering of services for mobility. The market here is beginning to be consolidated and the services and companies that can really deliver value to travellers will survive. We have a “solid business” and a good balance between public and private sector players. Attitudes and standards have changed, and it is now natural for journeys to utilise some form of shared resources in the first instance. Legislation, taxes and policies have identified ways of allowing commercial services that have been shown to be able to drive transport towards sustainability. Travellers can now participate in the “production” of shared travel themselves by sharing their own vehicles, their own journeys, without negative tax effects. The courtesy car norm has started to be replaced by the “mobility package norm” as an employment benefit, as the tax legislation has been adapted.

### ROADMAP - COMBINED MOBILITY AS A SERVICE IN SWEDEN

	Lay the foundations	Establishment	Change
<b>1. Business &amp; tickets</b>	1a. Make RPTA's offering available 1b. Develop & adapt RPTA's offering 1c. Pooling efforts open data RPTA	Standard for roaming between services Investigate additional needs in order to support development	Mobility as an occupational benefit is the norm
<b>2. Legislation &amp; policy</b>	2a. Investigation of subsidies and occupational benefits 2b. Demonstration under altered policy conditions	Overview of legislation for sharing services Overview of tax legislation & occupational benefits	Legislation is adapted to promote sharing economy & mobility services
<b>3. Pilot &amp; implementation</b>	3a. Implementations in metropolitan regions 3b. Pilot projects in metropolitan regions 3c. Pilot projects in sparsely populated regions	Implementation of CM outside the metropolitan areas Pilots with integration in relation to policies	Pilots with autonomous vehicles
<b>4. Impact &amp; consequence</b>	4a. Analyses of travellers and their preferences 4b. Development of framework and methods for impact analysis	Impact analyses	Shared travel is the norm
<b>0. Co-ordination &amp; co-operation</b>	0a. Project management 0b. Collaboration meetings		
	2018	2020	2023
			2028

2017–2018  
2019–2023  
2024–2028



## Process management & collaboration

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## PROCESS MANAGEMENT AND ESTABLISHMENT OF COLLABORATION PLATFORM

### WHY?

The activities and “process stages” that have been proposed in this roadmap will simply remain a series of wishes unless these activities are co-ordinated and followed up in a structured and transparent way.

CM is based on new types of collaborations between both public and private sector players, both during development as well as marketing and operation. In order to create these ties, it is essential to have co-operation, understanding and trust. Such things do not appear out of thin air. Informal yet recurring meetings have been one of the keys to the development of CM in Finland. An open discussion forum with regular meetings for interested parties should therefore be established, with the aim of promoting a climate of co-operation, the transfer of knowledge and transparency. This work package includes in the first instance identifying existing forums in order to continue the dialogue and collaboration in respect of CM issues. If such forums do not exist at present, new ones may need to be launched.

### OBJECTIVE!

- **Initiation and co-ordination of activities during the period 2017–2020, as well as management and continual revision of the roadmap**
- **Identification and establishment of a collaboration forum for players within the ecosystem for CM**
- **Implement activities in order to spread knowledge about CM and the services that are covered in the roadmap. This includes e.g. various types of campaigns for the offers that have been developed**



2017–2020





## Business & Tickets

## CREATE THE CONDITIONS IN ORDER TO MAKE RPTA'S OFFERING AVAILABLE FOR 3RD PARTY SALES

Within this area, we have gathered activities whose purpose is to create a business platform that facilitates the growth of CM services which, from a customer/traveller perspective, are simple, attractive and reliable, both to buy and in terms of their execution. This includes both technical and contractual perspectives. The activities are intended to create the conditions for service providers to develop a long-term deal and to support the public transport offering becoming part of CM services in a reliable manner

and without having to compromise on the potential to steer towards sustainable travel. Regulations, access and standards are all important components in this. By access we are referring to more or less co-ordinated access to traffic producers' offerings, as well as access to other relevant, high-quality data sources. By standards we are referring for example to data interfaces, name standards, information requirements for validation and regulations for implementation and compliance.

### WHY?

Sweden's three metropolitan regions are important for the establishment and development of CM services in Sweden. For this reason, a key activity in the roadmap is for the public transport offering in these regions to be made available for 3rd party sales.

Another precondition for CM services is that transport producers also make quality-assured and reliable public transport data available (e.g. real-time data about ongoing traffic and disruptions, routes, stops and stations) via an open, combined interface. This work should be carried out in conjunction with the project 'Kraftsamling öppna trafikdata' ('Pooling efforts open data'), which is being led by Samtrafiken.

### OBJECTIVE!

- **Make available public sector producers' offerings so that they can be searched for, combined, sold, distributed, validated and offset in accordance with the industry standard (Tickets and the Payment standard). This includes co-ordinating a common set of regulations between the selling and producing parties. Functionality is gradually made available and developed in close dialogue with the players involved, both in order to minimise social costs and to minimise the time to market and maximise the adaptation of the purpose**
- **As a minimum, the public transport offering in Sweden's three metropolitan regions must be accessible for 3rd party sales**

## DEVELOP AND ADAPT RPTA'S OFFERING FOR CM SERVICES

### WHY?

Service providers' potential to create attractive offers is limited to the opportunities for packaging that the constituent parts offer. As the regional public transport offering is expected to constitute the backbone in the majority of the CM services, it is extremely important for the RPTAs to listen to the service providers' wishes and to adapt their offering as much as possible. The 24-hour tickets that Västtrafik made available during the Go:Smart demonstration is an example of the importance of this issue and the potential gains to be made. These made UbiGo's business model possible, and were appreciated more than anything else by the test pilots.

### OBJECTIVE!

- **Investigate whether new types of offers and tickets can be created and made available with the aim of extending the potential for service providers to develop business models and offers**

## ACTIVITIES AFTER 2020

After 2020, this area will include activities in order to:

### INVESTIGATE ADDITIONAL NEEDS FOR SUPPORT FROM RPTA

This could e.g. entail a requirement for standardisation of access to private transport producers' offerings, and in that case support this (note that support for making other producers' offerings available can be found under the area Implementations & pilots).

### DEVELOPMENT OF STANDARDS FOR ROAMING BETWEEN CM SERVICES

In other words, that users of CM can utilise other CM services friction-free when travelling over e.g. regional or national borders.

After the establishment of the roadmap, an additional sub-area has been added to the roadmap – 'Kraftsamling Öppen data i kollektivtrafiken' ('Pooling efforts open data in public transport').



## Legislation & Policy



## INVESTIGATION OF SUBSIDIES AND SERVICE BENEFITS IN RELATION TO CM SERVICES

Within this area, we have gathered activities that adapt legislation and policies to the new types of services that are being developed in the field of CM. This includes tax legislation issues for the sharing economy, views of earnings that have arisen due to shared resources, views of mobility insurance versus courtesy cars within employment benefits, as well as issues such as parking ratio, granting of street space and infrastructure for pool cars, and not

least the role of public transport and cities in relation to private service providers. A number of activities are already in progress at government level, such as investigating the role of taxis and work regarding definitions for pool cars. These issues are still present in the roadmap in order to show the importance of this for future upscaling of CM services.

### WHY?

Tax reductions, parking benefits and congestion taxes are currently included in the standard that courtesy cars constitute. There is currently no way of offering subsidised mobility services in the same way to employees. A corporate market for CM services could create a foundation for these services, so that they can also be distributed to larger customer groups in the private sector. In the same way as the company car benefits have supported the (Swedish) automotive industry for many years with a stable customer base, the establishment of the mobility service market can be encouraged with this type of change.

CM services are expected to lead to public transport being offered in new ways, and in the longer term to also lead to private players being able to offer services, which at present are traditionally carried out by RPTAs, in a more cost-effective, sustainable and accessible manner. In order to support this development, the use of tax funds needs to be studied and investigated. One aspect of this is also to understand the role that public transport will play in future mobility.

### OBJECTIVE!

- Investigating the matter of mobility services as an employment benefit, similar to company cars
- Research and development of knowledge regarding how subsidies and tax funds can be used in combination with CM services in order to achieve the transport policy goals

## DEMONSTRATION OF CM SERVICES UNDER ALTERED POLICY CONDITIONS

### WHY?

Several types of policies influence the attractiveness and areas of application of CM services. Examples include, but are not limited to, the regulations for company cars, business travel and parking ratios. With the aim of investigating how policy changes have been able to influence the potential for and consequences of CM services, a demonstration of CM services under altered policy conditions is proposed.

### OBJECTIVE!

- Demonstration of and build-up of knowledge regarding CM services under altered policy conditions. Conducted in collaboration with the planned national platform for policy lab. This will focus on the potential to test mobility as a service benefit under realistic conditions.

## ACTIVITIES AFTER 2020

### OVERVIEW OF THE TAXATION OF BENEFITS

The work that is carried out in these areas during the first period, along with the knowledge that has been amassed through the pilots that have been implemented, generate knowledge to provide an overview of both the taxation of benefits for mobility as well as the taxation of income from sharing services.

### TESTING NEW TYPES OF OFFERING

The pilots and early implementations of CM services in period 1 have led to RPTAs jointly reviewing the contractual and business forms that can be entered into with selling parties. More flexible types of ticket products, which correspond more closely to the demands of customers in the shared mobility world, are being developed either in RPTA standard offerings or as separate agreements with selling parties. Ways in which this can be performed without compromising on subsidy principles, and where this is conducted transparently and fairly, will now be assessed.

### DEVELOPMENT OF ADAPTED LEGISLATION AND REGULATIONS

During the third period there is political consensus that legislation and regulations will allow services that contribute to society's transport goals. New international service providers are becoming established and are adapting to the Swedish regulations that are based on transparency as regards effects and policy integration in services, so that society, through these private mobility services, can influence behaviour and effects even if services are commercial.



## Implementations & Pilots

## LIVE IMPLEMENTATIONS OF CM SERVICES IN METROPOLITAN REGIONS

Previous pilots, simulations and analyses show that CM services can have considerable potential to create social benefit. However, there is still a lack of empirical experience as a result of the shortage of large-scale demonstrations and implementations with actual users as well as the actual use of actual services in actual contexts (including business models). Only when this takes place can live

analyses supplement theoretical predictions. Support is required both for the implementation of services that are (more or less) available at present, as well as pilots or “living labs” in order to further develop the services and try out new concepts. To ensure the build-up of knowledge, data that is generated in part-funded implementations and pilots should be made available for research analysis.

### WHY?

CM services that combine traditional public transport with other types of personal transport services for unit sales or packaged offers for inhabitants in metropolitan regions have, until now, been the central issue in the discussions regarding CM. For this reason, the level of maturity is also highest within CM services of this type (i.e. levels 2 and 3) in respect of e.g. organisation, business model and technology (if not currently mature). The work group’s assessment is that the sector in Sweden is ready for live implementations within this area. A possible national incentive is to highlight start-up support for both selling parties and producers.

### OBJECTIVE!

- **Promote the establishment of at least one CM service level 2 or 3 in each of the metropolitan regions. This assumes implementation according to work package 1A**

## PILOT IMPLEMENTATIONS OF CM SERVICES IN METROPOLITAN REGIONS

The purpose of this work package is to support innovation, development and testing of new CM services, with the focus on the metropolitan regions. In addition to the types of offers mentioned in work package 3A, the packaging of personal transport services and “other”, and in different ways, also has the potential to expand the market share for travellers with shared resources. There are also several types of integrations that could facilitate

more sustainable occasional journeys. These types of CM services have not yet achieved the same degree of maturity, however. An investment in a demonstration of such solutions is therefore proposed. This work package must be co-ordinated with other ongoing activities, such as Drive Sweden’s Test Site Stockholm (TSS) and the Swedish Energy Agency’s launch of fossil-free mobility as a service (Challenge from Sweden).

### WHY?

The development of CM services for the metropolitan regions is of interest from several perspectives. These include the fact that the business potential for CM services is greatest in these regions as they are relatively densely populated, and the congestion problems mean that there is a considerable need to reduce private motoring. In addition, a large proportion of the population live in these areas and it is also in these areas where population growth is expected to be greatest.

### OBJECTIVE!

- **Establishment of “living labs in urban environment”. These should encourage and investigate alternatives including, although not limited to 1) integration with services for the transport of smaller goods (e.g. food products or waste), 2) better establishment of transport solutions with the physical planning around housing and tenant-right associations (e.g. through the establishment of delivery stations or mobility hubs), 3) involvement of other types of transport methods (e.g. bicycles, electric bicycles)**

## ACTIVITIES AFTER 2020

### PILOT IMPLEMENTATIONS IN NON-METROPOLITAN AREAS

The conditions for rolling out CM services in smaller towns and in the countryside differ from those in the larger towns and cities, as both the range of transport services to integrate and the base of potential customers are smaller. This is leading e.g. to a demand for a different arrangement as regards the offer and the business model for selling parties. The need for public investment may be greater, with better availability of shared travel as the primary motive. Knowledge about the possibilities and effects is limited, however.

### PILOT PROJECT WITH SELF-DRIVE VEHICLES

Self-drive vehicles have the potential to act as a lever for shared mobility and CM services, as they could drastically alter the operating economy for transport producers.

### PILOT PROJECT WITH CM SERVICES AS POLICY TOOLS

Pilot project for CM services in level 4, in order to demonstrate and test how policies and instruments can be integrated in CM services.

After the establishment of the roadmap, an additional sub-area has been added  
– Pilot projects, Pilot projects in sparsely populated regions.





## Effects & Consequences

## ANALYSIS OF TRAVELLER PREFERENCES AND TRAVELLER BEHAVIOURS

CM services are as yet a relatively untested, theoretical concept. Evaluation and analysis of the initiatives that arise will be necessary in order to guide and accelerate developments. Aspects that need to be evaluated include business models, technical standards, judicial aspects and consequences for e.g. society, the environment

and traveller behaviour. Area 4 will therefore be carried out in close co-operation with other areas, in particular area 3: Implementations & pilots. Evaluation and the building up of knowledge take place primarily in the research projects that have already been established.

### WHY?

A transition to CM from current travel patterns will require major changes, both for individuals and society. In order better to understand what both impedes and attracts individuals to new travel behaviours, it is necessary, together with selected traveller groups, to test out new services with various combinations of mobility, as well as to initiate the dissemination of knowledge about what the new mobility can entail. Individuals tend to stick to habits and norms, which should be studied in particular in connection with various combinations of mobility services. In this activity, our hypothesis is that entirely new norms and habits regarding mobility will have been established in the mobility area by 2028.

### OBJECTIVE!

- **Research and the build-up of knowledge regarding estimating and predicting traveller requirements, how this knowledge can be used to develop and improve CM services. This will be carried out in conjunction with the pilots, and the results from this work package will be tested in the pilots. This activity is financed in existing research platforms. Knowledge about traveller preferences is gathered e.g. from ongoing collaboration projects looking at travel habit surveys.**

## DEVELOPMENT OF FRAMEWORK AND METHODS FOR IMPACT ANALYSIS

### WHY?

In order to understand and monitor that the CM services being developed do actually lead to the fulfilment of the transport policy goals, a framework is required for evaluation and following up. A database/knowledge base containing the combined knowledge from several different pilots and implementations will strengthen such analyses. This work package should ideally be implemented in harmony with other ongoing research projects in the field, such as SAMS, MaaSifie and IRIMS.

### OBJECTIVE!

- **Definition of framework and KPIs in order to measure effects, including environmental, economic and social sustainability, as well as analysis of how these effects are achieved. A database/knowledge base within CM is being created and managed here. In this knowledge base, data is gathered from the various pilots and demonstrations. The data must be available for research.**

## ACTIVITIES AFTER 2020

### IMPACT EVALUATION

Evaluation of the effects of implementations and pilots. Also continued administration of the knowledge base.

### DISSEMINATION OF INFORMATION

Dissemination of information to the public regarding CM services. A plan for this is being drawn up by the collaboration platform during the period 2017–2020.


## ORGANISATION



The roadmap is intended to co-ordinate, stimulate and monitor the realisation of the roadmap's first period (2017–2020), as well as to lay the foundations for the ongoing work thereafter.

The roadmap will be developed and managed in a separate project in co-operation with relevant organisations. Even though

the introductory activities focus in particular on the metropolitan areas, a national perspective is essential. It is also important to make use of and act as a catalyst for the ongoing work in e.g. Västra Götaland and Skåne provinces, as well as in less populated regions.



# 2017–2020

## NEXT STEP



The execution of the roadmap has commenced during the spring of 2017 and the content of the work packages has been specified in the majority of the ongoing initiatives by e.g. Vinnova, the Swedish Energy Agency, Samtrafiken and the Swedish Transport Administration. Ongoing work aimed at establishing and further refining the roadmap is being conducted in collaboration with these organisations.

The working group that has drawn up the roadmap comprises:

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**THE ROADMAP FOR COMBINED MOBILITY AS A SERVICE  
HAS BEEN DRAWN UP AT THE REQUEST  
OF THE GOVERNMENT'S INNOVATION PARTNERSHIP PROGRAMME,  
NEXT GENERATION'S TRAVEL AND TRANSPORT**