CIVITAS
Sustainable and smart mobility for all

Recommendations for better urban policy making

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CIVITAS ELEVATE
Sustainable and smart mobility for all

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Abstract

This publication presents policy recommendations coming from practical CIVITAS experiences, with the final aim to improve policy making and policy planning in the future and support future CIVITAS-type actions. The recommendations are formulated at two levels, i) on local level, for policy makers and practitioners in cities and regions across Europe, and ii) on EU level, to inform the policy making by the Commission and the European Institutions. The deliverable relates to Task 7.5.

Project Partners

Organisation	Country	Abbreviation
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DTV Consultants	NL	DTV
ICLEI European Secretariat	DE	ICLEI
INOVA+ Innovation Services	PT	INOVA+
Breda University of Applied Sciences	NL	BUAS
TRT Trasporti e Territorio	IT	TRT

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Executive Summary

These CIVITAS recommendations for better urban policy making are aimed at providing guidance targeted on the one hand to local planning authorities and practitioners in cities and regions across Europe, and on the other hand to the European Commission and other EU institutions. The recommendations build on the lessons learned from 35 Innovation Action and Research and Innovation Action projects funded under the CIVITAS Initiative over the past 10 years, as well as 3 Policy Support Groups and the CIVITAS ELEVATE support to evaluation within the Evaluation Coordination Group. They also build on the concept of SUMP, as outlined by the European Commission's Urban Mobility Package[1] and described in detail in the European SUMP Guidelines 2.0 (second edition)[2].

While this is not a complete description of what cities are recommended to do, since CIVITAS projects do not cover all possible challenges of EU cities in the different urban contexts, these recommendations represent a strong contribution from cities, to cities, but also to regions. The recommendations range from the importance of having a city vision and integrated mobility planning, to prioritising walking and cycling, aiming for Vision Zero in road safety, making public transport attractive and sustainable, but also limiting freight transport in urban areas and seeing micromobility as part of the solution. It is also crucial to create a shift towards gender and equality, enable effective multi-level governance, target and innovate mobility funding, and optimise data strategies both at local and national level. This document also reflects the needs of cities to receive support from the national and European level. A range of crucial elements should be planned and organised at these levels to provide a coherent and more efficient framework supporting cities in implementing urban mobility and building capacity. Recommendations at EU level to inform policy making are clustered around the topics of governance, planning, innovation and new technologies.

Finally, this document highlights that effectiveness in measuring urban mobility measure impacts, as well as understanding their implementation process, is crucial to achieving CIVITAS' objectives. Recommendations from projects are proposed to improve the CIVITAS Evaluation Framework (CEF), including the need for more simplification and flexibility in the evaluation process. Evaluation indicators should be easy to use and be developed through an open and participative process. They should include social impacts as well as new mobility concepts. Aligning CIVITAS indicators with the new SUMI[3] indicators (currently under revision) and the Climate Neutral and Smart Cities Mission[4] objectives also appears as a key approach for future CIVITAS projects. Overall, local authorities and future CIVITAS-type actions should adapt to the new objectives and scope of the Horizon Europe Programme, as well as establish synergies with the projects being developed under the EU Mission's Climate Neutral and Smart Cities and other relevant initiatives.

1 Annex 1 of COM (2013) 91
[2] Rupprecht Consult (editor), Guidelines for Developing and Implementing a Sustainable Urban Mobility Plan, Second Edition, 2019.
[3] https://transport.ec.europa.eu/transport-themes/clean-transport-urban-transport/sumi_en
[4] https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/eu-missions-horizon-europe/climate-neutral-and-smart-cities_en

1 Introduction

CIVITAS (www.civitas.eu) is one of the flagship programmes helping the European Commission achieve its ambitious mobility and transport goals, and in turn those in the European Green Deal[5]. It does this by acting as a network of cities, for cities, dedicated to sustainable urban mobility.

The CIVITAS Initiative has been a valuable instrument to help cities to achieve more sustainable mobility. It created tools and platforms (planning platforms, living labs), which helped to generate and collect expert knowledge from stakeholders. It also contributed to a change in behaviours and mindsets in European cities, both among citizens and decision-makers.

Despite COVID-19 challenging some of the latest projects' implementation and impact measurements, CIVITAS projects nonetheless succeeded in addressing urban mobility needs and offered cities a wider view of the sustainable urban mobility policies they can implement.

All CIVITAS actions share the common goal of promoting cleaner and innovative transport solutions in cities. They work towards this aim using behavioural change methods, innovative tools and research, and much more. They produced detailed research and best practices, which are the basis for this publication.

1.1 Objectives

The rationale behind this publication is to provide recommendations for public authorities and policy makers at local, national and European level, to improve policy making and policy planning in the future. These recommendations should also support future CIVITAS-type actions and inspire future EU initiatives on urban mobility.

This report presents research and policy recommendations based on the experiences of:

- 35 Innovation Action and Research and Innovation Action projects which were funded under the CIVITAS Initiative over the past 10 years (full list is reported in Annex I),
- 3 Policy Support Groups, i.e. groups of experts that have been activated whenever there was the need to structure policy advice (or synthesis work) on selected, emerging, cutting-edge urban mobility topics[6],
- the evaluation process of the implementation of sustainable mobility solutions by the CIVITAS projects supported by ELEVATE within the Evaluation Coordination Group.

The recommendations are derived from practical CIVITAS project experiences. They relate to a broad range of topics and themes relevant to municipal, regional and national policymakers and practitioners. The list of recommendations is by no means intended to be exhaustive, instead functioning as a strategic guide that supports cities in setting the right course.

[5] https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en
[6] Under CIVITAS ELEVATE, 3 different topics have been addressed in 3 PSGs, which have been selected upon the needs and requests from DG MOVE. These 3 PSGs have led to the production of 3 SUMP Topic Guides focusing respectively on micromobility public transport and mobility management.

The recommendations are formulated at two levels, i) on local level, for policy makers and practitioners in cities and regions across Europe, and ii) on EU level, to inform the policy making by European institutions.

Accordingly, this report aims to provide an answer to the following questions:

- How can CIVITAS help to improve policy making and policy planning at local, regional and national levels?
- Which lessons have been learned by CIVITAS projects and which solutions can be implemented?
- How can we learn from the evaluation activities and improve the CIVITAS Evaluation Framework (CEF)?
- How can the EU help to further enable the implementation of such solutions?

1.2 Structure of the deliverable

Recommendations for better urban mobility policy making are the main outputs of Task 7.5 (Policy recommendations) and the core part of this deliverable.

This document is closely linked to and draws on Deliverable 6.1, which presents a review and evaluation of the latest CIVITAS achievements from ongoing or recently finished CIVITAS 2020 RIA projects and living labs, as well as projects from previous CIVITAS editions until CIVITAS Plus II (2012-2016).

It is organised in 4 Chapters. After this introduction, the document is structured as follows:

- Chapter 2 screens through the learnings from 35 CIVITAS projects and 3 Policy Support Groups, extracting 10 key recommendations at local, regional and national level for better urban mobility policy making.
- Chapter 3 carries out the same exercise but outlines key learnings that can be addressed to the EU.
- Finally, chapter 4 summarises recommendations to improve evaluation within CIVITAS projects, based on the activities to support evaluation carried out in Work Package 6 (Evaluation and Advancing Knowledge) and the CIVITAS Evaluation Framework (CEF).

2 Recommendations at local level for better urban policy making

CIVITAS projects have shown that reliable infrastructure for different modes of transport and a rich offer of mobility services are essential if cities want to move towards more sustainable and active mobility. When planning for the mobility of tomorrow, cities should therefore develop different transport modes in an integrated manner, while giving special attention to active and multimodal mobility.

Over time, a number of focus areas has emerged in this regard. These are integrated mobility planning, walking and cycling, road safety, public transport, urban logistics, micromobility, gender and equality, governance, funding and data. For each of these focus areas, this chapter zooms in on 10 recommendations for policy makers and practitioners in cities across Europe. In addition, it also includes some recommendations for regional and national governments, as they can support cities in implementing mobility measures as well as in overcoming organisational, institutional, technical and financial barriers.

2.1 City vision and integrated mobility planning

A successful transition towards more sustainable and active mobility requires local policymakers and practitioners to make fact-based and goal-oriented decisions over a longer period of time. They, in other words, need a strategic approach to urban mobility. Cities should ensure such a strategic approach by developing a Sustainable Urban Mobility Plan (SUMP), which is based on a strong city vision and supported by political will.

In essence, a SUMP is a strategic plan designed to satisfy the mobility needs of citizens and business, to improve accessibility and to enhance urban quality of life. As a SUMP is catered to a city or region’s specific mobility situation, each plan is unique and consists of a customized and comprehensive set of mobility measures.

Cities should develop a holistic and integrated vision of urban mobility and break it down into long-term strategic objectives. Ideally, this vision and these objectives are shared by all relevant stakeholders at the local level and aligned with related strategies in terms of, for example, urban planning or environmental protection (Sustainable Energy and Climate Action Plans - SECAPs, regional development plans, etc.).

Cities should also plan for the implementation of the vision and objectives in the short term, i.e. through concrete mobility measures. Here, a clear implementation plan is key to prioritising the different interventions over time. For each mobility measure, its timing, budget and resource requirements should be specified. City participation in collaboration projects such as CIVITAS were proven to be a driving force towards the acceptance and delivery of sustainable solutions.

The implementation of a SUMP should also be monitored closely. Based on the selected performance indicators, progress towards the objectives of the plan and meeting the targets needs to be assessed regularly.

While a SUMP sets out long-term vision and objectives, it should also remain a flexible framework which allows for temporary and sudden changes, e.g. the change induced by the COVID-19 pandemic.

2.2 Prioritise walking and cycling

Increasing the modal share of walking and cycling is essential if cities are to achieve a swift shift to more sustainable and active mobility. More people walking and cycling can help to mitigate climate change, reduce air and noise pollution, promote healthy lifestyles and make cities more attractive places to live, work and study in.

To increase the modal share of walking and cycling, cities should reallocate public space away from cars and towards walking and cycling infrastructure. That infrastructure, especially in larger cities and metropolitan areas, should not only cover the city centre but also reach out into the suburbs and link up with the public transport network in the broader commuter belt.

2.3 Road safety: Aim for Vision Zero

Safety should be at the centre of any action focused on more sustainable and active mobility. Urban environments that are safe to walk, cycle and move around in, with new mobility devices such as micromobility solutions, are the ideal breeding ground for behavioural change and a shift towards more active mobility, particularly in suburbs.

Cities should adopt a Vision Zero, aiming to bring the number of traffic fatalities and serious traffic-related injuries down to zero. To turn this vision into reality, cities should invest, amongst others, in safe infrastructure, speed reductions in busy areas where cars, pedestrians and cyclists meet, and road safety campaigns as well as targeted enforcement. As traffic fatalities and serious traffic-related injuries are now decreasing at a slower rate than in previous decades, urban, regional and national governments should launch new initiatives to keep road safety in the foreground.

2.4 Make public transport attractive and sustainable

Creating, supporting and expanding a punctual and accessible public transport network is one of the most effective ways to bring down greenhouse gas emissions, manage congestion, better allocate road and public space, increase access to opportunities and services (particularly for disadvantaged groups), and in the long term, improve urban structure.

To best exploit these benefits, cities should ensure their public transport network is integrated with and complemented by shared and active mobility services, including micromobility solutions. Intermodal hubs, like park and ride facilities for example, can help attract more passengers to public transport.

Cities should also seek to electrify their public transport fleet to further bring down greenhouse gas emissions as well as noise and air pollution. High investment costs associated with

electrification can be overcome through national or European funding or through innovative business models.

2.5 Limit freight traffic in urban areas

With the increased popularity of online shopping, sustainable solutions need to be found to manage urban logistics and reduce the presence of polluting package delivery vehicles in cities. Such solutions can include data-based freight flow management, the electrification of the freight fleet and the implementation of consolidation hubs to support sustainable transport from these hubs to people's homes (last mile).

Low emissions zones, load/unload zones and off-peak delivery obligations can also help to redirect freight traffic. For all of these potential solutions, cities should closely collaborate with freight bodies and private stakeholders from different sectors.

2.6 See micromobility as part of the solution

Micromobility services, such as shared e-scooters for example, present cities with challenges in terms of safety and public space use. Cities should, however, see these innovative services as a lever to make multimodal travel more attractive.

Cities should first understand the role they want private micromobility providers to play in their transport system. Then they should choose a method to control access to their market. In a third stage, they should define how to regulate micromobility safety operations and how to enforce these regulations. Outcomes of this process will vary between cities.

2.7 Create a shift towards gender and equality in mobility

Not everyone has the ability to switch to more sustainable and active mobility. Some citizens, for instance those living with physical limitations or those above a certain age, cannot be expected to radically change their mobility behaviour.

A comprehensive behavioural change approach therefore takes societal issues such as equality, mobility poverty and social exclusion into account. A city's transport vision should be that everyone has the same access to transport services, to be able to go where they want or need to go and to be able to do so easily, safely, confidently and without extra cost.

Nowadays, cities have access to data, tools and approaches to help them to understand and achieve gender and diversity equality in transport and to help them to better incorporate gender issues in their planning and design.

2.8 Enable effective multi-level governance

To shift towards more sustainable and active mobility, cities should create a strong and solid governance structure, bringing together all stakeholders. Such a structure should be designed in a way that integrates all city activities in terms of urban mobility and improves coherence between different government levels and public departments.

Cities should ensure the governance structure reflects the city's long-term political commitment. Champion cities in urban mobility have in common a broad political agreement on urban mobility across political parties and planning departments. Regional and national governments, meanwhile, should ensure the existence of a regulatory framework that supports the shift towards more sustainable and active mobility.

Changing and fragmented rules and regulations, for instance in terms of data sharing, may hinder that shift. Rules and regulations should therefore be streamlined and harmonized, so best practices can more easily be replicated and transferred to other cities.

It is important to note that in metropolitan regions, mobility is often a responsibility shared between national, regional, local and sub-local or district governments (and between different departments at each level). Effective multi-level governance is therefore particularly important in metropolitan regions.

2.9 Target and innovate your mobility funding

Cities should bring their use of available budgets in line with their vision and objectives in terms of urban mobility. Importantly, budgets should be found for infrastructural mobility measures, but also for relevant communication and awareness raising campaigns.

Cities should actively seek regional, national and European financial support. This support needs to be applied for as early as possible. Not only does this support help the city in shifting towards more sustainable and active mobility; it can also accelerate the uptake of sustainable mobility solutions and even lead to additional funding or investments down the road.

Additional funding can also be found through creative partnerships with private stakeholders. As private companies have a higher investment capacity, they can accelerate the shift towards more sustainable and active mobility.

2.10 Optimise your data strategy

If a city wants to shift towards more sustainable and active mobility, it needs high-quality data to guide its decision-making processes. Primarily, data should be collected so local decision-makers have a comprehensive understanding of the current mobility situation in their city. Secondly, data can also support cities in determining the suitability of proposed mobility measures and in developing smart solutions, such as Mobility-as-a-Service applications. Finally, after the implementation of new mobility measures, data allows cities to monitor and evaluate their impact. Data, in other words, is vital. Many cities, however, lack the required data.

A city can try to collect the necessary data itself. As resources are limited, cities need to ensure data is collected efficiently. Keeping it simple should be the rule. On the one hand, vast amounts of data may already be available and accessible through public departments and agencies, regional and national governments, police and/or local universities. On the other hand, tried-and-tested data collection methodologies and tools, like the ones developed within CIVITAS projects, can support cities to collect data that is not readily available.

In addition, cities can also rely on private partners, like mobility providers, to collect data. Cities should strive to get clear upfront commitments from private stakeholders to share data that is already available or to collect data that is not. Formal data sharing agreements should be created to manage commercially sensitive data.

When data from various sources is combined, standardisation and harmonisation is needed. Currently, no commonly agreed data standards are available. Regulation at national and European level to support the standardisation of mobility data is needed. In any case, cities should ideally seek to create integrated data platforms bringing together all mobility data and making these data available to public and private stakeholders to manage, inform, operate, evaluate and plan a multimodal mobility system. The development of an integrated data platform, however, requires substantial and sustained funding.

Importantly, cities should always keep the bigger picture in mind when collecting and analysing data. As mobility flows extend beyond municipal boundaries, data collection and analysis should reflect that. This is especially true for larger metropolitan regions. Efforts have been made to digitise data of urban vehicle access regulations (UVARs) in European cities over the past years. Supporting measures include databases of information on access restrictions for cities that can be integrated into navigation systems, digital maps and smartphone applications.

3 Recommendations at EU level to inform policy making

Overall, CIVITAS has successfully explored and implemented solutions that improve urban mobility all over the EU. The initiative has contributed – and continues to contribute – to rich knowledge sharing, best practice exchange, and the creation of synergies.

The use of living labs has supported projects' implementation by helping to absorb innovations into the daily operation of cities, also beyond the end of projects. Policy Support Groups have extracted experts and stakeholders' knowledge on key topics such as micromobility, public transport and mobility management, supporting the development of additional SUMP guidance.

Project and policy outputs from CIVITAS have also contributed to informing policy making at EU level, e.g. how EU institutions can continue to help mobility practitioners at all levels to achieve more sustainable mobility in the future. EU support is complementary to the support from local, regional and national public bodies and helps decision-makers to overcome organisational, institutional, technical and financial barriers.

This chapter provides an overview, based on the experience of the CIVITAS projects, of the different areas in which the EU can support cities during the implementation of sustainable mobility strategies.

3.1 Governance

Governance schemes and planning processes at metropolitan scale vary from one specific context to another, making it difficult to have a one-size-fits-all solution. Nevertheless, common principles and lessons learned can still be drawn from CIVITAS projects, for the benefit of all metropolitan regions, while specific examples provide concrete support for all contexts alike. This is the case of the private sector for instance, which will increasingly exert influences, as companies adjust to new consumer behaviours.

To implement the new 2021 EU Urban Mobility Framework, the EU has also reinforced the engagement by Member States and improved the dialogue with cities, regions and stakeholders on all urban mobility issues through the reformed Member States Expert Group on Urban Mobility (EGUM). This reinforced platform for dialogue and co-creation is a positive step towards better multilevel governance, in which cities should play a key role.

3.1.1 Empowering cities

Experience from CIVITAS projects shows that cities need to not only govern innovation, but they also need to transform innovation and tailor it to their needs, to optimise their policy goals. The EU should further help cities take up the leading role to tackle their challenges and create a legacy for innovation.

3.1.2 National level cooperation

CIVITAS projects also demonstrated that ministries and national agencies play a leading role in SUMP development. National Task Forces and regional SUMP Platforms, as part of CIVITAS projects, have proven to be key drivers to support SUMP programmes. The national level should therefore be further involved in EU initiatives around urban mobility, e.g. with the new Expert Group on Urban Mobility (EGUM).

3.1.3 Public-private cooperation

CIVITAS projects successfully tested public-private collaboration and business models around SUMPs. They trialled new technologies and approaches, e.g. using data-driven planning to meet collective mobility objectives cost-effectively, and concluded that these are worth being considered for future SUMP development. Public-private cooperation should be further promoted at EU level as part of future EU projects. Such cooperation will be particularly strategic in order to achieve EU climate neutrality goals.

3.2 Planning

The main motivation to elaborate a SUMP is to create an integrated, green, accessible and affordable mobility system that locally moves citizens and goods in a sustainable and inclusive way, but also contributes to EU and international goals of reducing transport related GHG emissions. With the comprehensive diagnosis and monitoring components, the SUMP provides a sound data baseline to the city, which is essential for evidence-based decision-making and investment. It is also important for this information to be documented, to ensure that achievements become visible.

The European Commission has therefore developed a comprehensive set of indicators that support cities to perform a standardised evaluation of their mobility system and to measure improvements that result from new mobility practices or policies. Such indicators should be easy to use on the ground and integrate new mobility services. The multi-stakeholder approach of the SUMP also strengthens cooperation with different stakeholders and interest groups, leading to higher acceptance and ownership of the proposed measures.

3.2.1 SUMPs

Based on the experience of CIVITAS projects, it is clear that the EU should continue to promote SUMPs as a planning standard across Europe. In doing so, EU strategies on SUMPs should promote flexible SUMPs that have the ability to address unforeseen changes, such as pandemics. For instance, monitoring is an important tool for improving the flexibility of SUMPs.

In that context, the EU should ensure that future SUMPs are more tailored to address the European Green Deal targets and contribute to achieving them. Another learning from CIVITAS projects is the importance of the “avoid-shift-improve” principle. Future SUMP strategies should reflect this principle much more to successfully transform the transport system: by avoiding unnecessary traffic, shifting to the most sustainable modes of transport (i.e. public transport, walking and cycling), and improving each mode of transport.

The EU concept of SUMPs should also focus more on inclusivity, data, funding, diversity and co-creation.

The EU should also further encourage cities and regions to align their SUMP priorities with those of other local and regional plans, including SECAPs (Sustainable Energy and Climate Action Plans), to ensure the same vision is put in place and pursued consistently.

Last but not least, the EU should also continue to raise awareness of existing SUMP tools as well as developed transferability tools.

3.2.2 Indicators

The EU should further help cities with identifying simple and clear key performance indicators (KPIs) for effective monitoring and management of urban mobility, e.g. for new mobility services. A set of common indicators (e.g. defined by SUMI 2) should be used across European transport initiatives, including CIVITAS, Interreg, NetZeroCities, Driving Urban Transition, etc.

3.2.3 Stakeholder involvement

Future EU initiatives on urban mobility should continue to bring stakeholders together. The inclusive nature of stakeholder engagement greatly contributed to the success of CIVITAS projects, underlining the importance of involving a wide group of stakeholders, including local businesses, academics and decision-makers.

Questions remain about how to formalise stakeholder inclusion in local urban development, and how to find the funds to do so.

3.2.4 Co-creation

Co-creation activities should be further explored in EU projects and policies in order to tackle the climate crisis at local level. Co-creation models were not only tested by the projects, but also transferred to other mobility projects in Europe. Some measures from CIVITAS projects became permanent – underlining the long-lasting impact of co-creation.

Looking ahead and based on CIVITAS' experience, EU initiatives should embrace the potential of co-creation to make a difference and initiate a mind-set shift towards a more environmentally-conscious culture, as they help to boost the acceptance of new measures and policies.

3.2.5 Dissemination and transferability

The rich legacy of EU projects includes tools, guides and kits for future uptake of innovative mobility measures. These should be further disseminated at the local, regional, national and EU levels.

3.3 Innovation and new technologies

The speed of innovation occurring in transport requires cities to adapt quickly, balancing the need to promote innovation with accountability to users, and including new mobility partners into the urban landscape. Policymakers are presented with an opportunity to rethink how urban transport functions with the help of several tools, including standards. Standards have a proven record of facilitating the spread of innovation and are often referred to by CIVITAS projects, as possible support from the EU.

3.3.1 Standardisation

It can be concluded from several CIVITAS projects that European institutions and standardisation bodies should further support cities with standards, e.g. safety standards for new mobility devices, city logistics' standardisation, etc. This would contribute to deploying urban mobility innovations.

3.3.2 Cities' expertise and capacity-building

CIVITAS cities underlined the importance of the EU to continue helping local governments to develop new expertise and build capacity, e.g. manage data to better analyse and process data streams, for example on micromobility vehicle trips and crashes.

3.3.3 Cities as laboratories

The EU should continue to help cities experiment with innovative urban transport solutions. This has been the case for instance with the CIVITAS projects testing of business models to use excess capacity from private renewable energy systems, and the creation of the European eMobility Expertise Centre.

3.3.4 Accessible and low-tech solutions

Future projects should also investigate which, or at least be conscious of why, low-key and low-tech solutions might be more acceptable to the public. Across CIVITAS projects, partners indeed observed that citizens often question the use, or usefulness, of technological solutions.

It seems also important to make projects' tools more easily accessible to cities, so they effectively use these tools to address their needs.

4 Recommendations to improve evaluation within CIVITAS projects

For many years, within CIVITAS, many cities have been testing and demonstrating innovative sustainable solutions for cleaner and better urban mobility. Since the start of the initiative, it has been clear that a well-structured, transparent, and effective evaluation of the impacts of the measures and the understanding of the implementation process are crucial to achieving the CIVITAS objectives.

Evaluation is a powerful tool to understand what works, what does not, and the reasons for this. It allows cities to measure impacts, comprehend the story behind the figures, better know how measures were implemented, and realize why the observed changes have happened. The evaluation process allows for the exchange of experiences and learning from each other's successes and failures.

A proper evaluation will help public authorities to improve urban planning, make better strategic choices, and support the allocation of resources towards measures that can contribute the best to achieve the envisaged targets. It will provide knowledge on the effectiveness of specific (packages of) measures and it will make it possible to optimise strategies and identify good practices and optimal transferability options.

Considering all of this, it is evident that evaluation should be a key part of all CIVITAS projects. However, to achieve the positive benefits of a thorough evaluation, it is important that evaluation is done in a consistent way throughout the projects and sites where mobility measures are implemented. Due to the wide variation of projects, one standard approach to evaluation is neither appropriate nor feasible. Still, using common terminology, the same categorisation of impacts, and similar reporting style is crucial to making findings understandable and even comparable for other interested parties.

To support all projects to gain a common understanding based on a consistent evaluation approach, throughout the years the CIVITAS Evaluation Framework (CEF) has been developed and implemented in order to be used by all CIVITAS projects and in all the involved cities/sites where mobility-related measures are implemented.

To properly support projects with the implementation and application of the CEF, ELEVATE maintained the Evaluation Coordination Group (ECG). Within this group, CIVITAS projects were granted continuous and on-demand guidance in relation to their evaluation activities, with the main objective of having a harmonized evaluation approach across projects as well as improving the framework. ECG meetings took place every 4-6 months, between May 2020 and December 2022, and enabled a continuous collaboration between ELEVATE and the projects evaluation managers. These meetings aimed to take stock to the status of the evaluation activities, to enhance the exchange of experiences, to disseminate best practices, and to foster synergies and coordination between projects for a better harmonization of evaluation activities.

4.1 The CIVITAS Evaluation Framework (CEF)

The main objective of the CEF is to understand the process and impact of mobility-related measures that have been implemented by CIVITAS projects in cities or sites. As the understanding of both successes and failures is crucial for other cities and to build up an evidence-based European knowledge, the ultimate goal of the CEF is to understand what works and what does not, and to comprehend the reasons why.

The focus of the CIVITAS evaluation work are the measures implemented in a CIVITAS city. Evaluation aims to describe, through quantitative measurements in relation to quantifiable targets set in advance and qualitative observations, the impact of the implemented measures as well as the process for their implementation.

With this regard, the evaluation work includes two complimentary activities: impact evaluation and process evaluation.

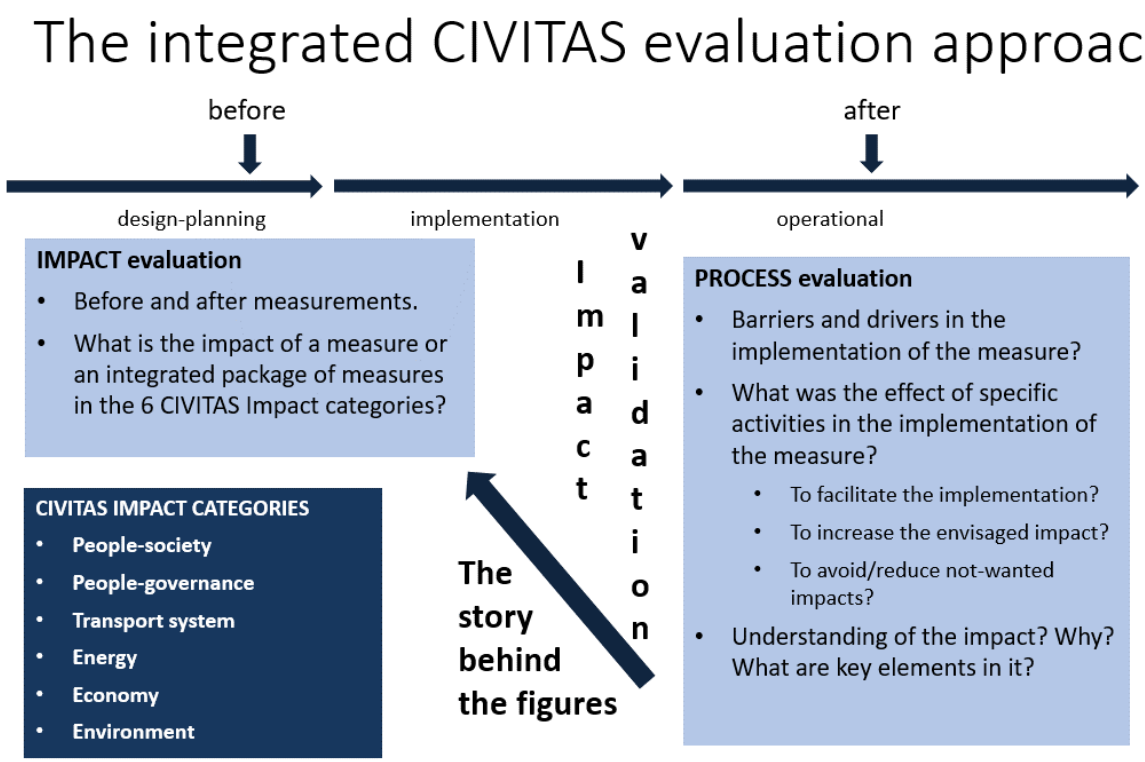
The impact evaluation includes the evaluation of a wide range of technical, social, economic and other impacts of the mobility related measures being implemented by the cities. It addresses the following questions:

1. What is the impact of a measure or an integrated package of measures in the CIVITAS impact categories based on before and after measurements of a selected set of indicators?
2. Why do we see the observed change of the selected indicators? What is the contribution of the specific measure and are there other influences affecting the observed change?
3. Which links are important between the different observed impacts as a basis for a useful and correct interpretation of the observed impacts?

The process evaluation involves the evaluation of the processes of planning, implementation and operation, aiming to understand why measures have succeeded or failed, including the roles of information, communication and participation. The questions addressed by the process evaluation are:

1. How was the measure implemented?
2. Which barriers and drivers do we observe during the implementation of the measure?
3. What was the effect of supporting activities in the implementation of the measure, to facilitate the implementation, to increase the envisaged impact and to avoid/reduce not-wanted impacts?

The integration and interpretation of the results from both aspects (impact and process) will provide the necessary comparative insights and understanding of the effectiveness of the measures in the context of the demonstration city.



4.2 Key recommendations from projects to improve the CEF

One of the key results of the evaluation support and guidance provided to CIVITAS projects for the implementation of the CEF, has been the collection of a series of recommendations on how to improve the CEF and to make it a better and more user-friendly instrument to define each project's evaluation activities. The key elements are summarized here:

4.2.1 Simplification and flexibility

One of the main suggestions that has been received from CIVITAS projects' evaluation managers is to make the CEF more simple and "user-friendly". In its current form, the CEF is a very exhaustive and long document, which might represent a burden towards its adoption.

In addition, a proper application of the CEF requires several iterations with the stakeholders and a high-level commitment from local evaluation managers, who also need to be properly trained. Making the implementation of the CEF a more seamless and straightforward process, would be envisaged, moving forward.

Finally, to cover the large variety of CIVITAS projects as much as possible, the CEF is extremely wide in comparison to the specific objectives/requirements of each single project. This results in projects being keener to develop their own tailored evaluation methodology, metrics and indicators. It is therefore recommended to develop a more flexible framework, also adaptable to new typology of projects.

4.2.2 Indicators and data collection

One of the most shared elements of improvement related to the CEF is related to the evaluation's indicators. In particular, project evaluators have emphasized the necessity to develop them through an open and participative process, which should allow local evaluators and stakeholders to include additional elements.

In addition, in relation to the topics covered, there is the need to both include social impacts (e.g., equity, quality of life, etc.) that are currently not defined, as well as to develop indicators to deal with new mobility concepts (e.g., autonomous vehicles, drones, etc.).

Also, it is envisaged that the evaluation indicators, which currently include both CIVITAS and SUMI's, are aligned with the new SUMI[7] indicators (currently under development) and the Climate Neutral and Smart Cities Mission[8] objectives.

Finally, a key point is related to the data collection required for the indicators' calculation. As pointed out by several project evaluators, the data collection often represents a bottleneck for an effective evaluation of the project's impacts. This is also due to the complexity of certain indicators and the laboriousness of the related data that need to be collected. Therefore, it is recommended to have "simpler" indicators, that are attainable, rather than more complex ones that eventually cannot be calculated because the data collection becomes too demanding.

4.2.3 Overall scope and coverage

Overall, the new CEF should adapt to the new objectives and scope of the Horizon Programme, as well as establish synergies with the evaluation framework that is being developed under the EU Mission's Climate Neutral and Smart Cities.

Also, the current CEF had been developed and refined with particular types of CIVITAS projects (mainly IAs – Innovation Actions projects) as its main target. Since then, the programme has extended in scope and the application of the evaluation framework has become very complicated (especially for RIAs – Research Innovation Actions projects). Therefore, the future framework should consider recent projects' development and the idea of "validation of concepts", rather than only being focused on testing sustainable mobility measures.

[7] https://transport.ec.europa.eu/transport-themes/clean-transport-urban-transport/sumi_en
[8] https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/eu-missions-horizon-europe/climate-neutral-and-smart-cities_en

5 Conclusions

This report summarises policy recommendations emanating from the experiences and evaluation findings of 35 CIVITAS projects over 10 years.

To improve local policy making and policy planning in terms of urban mobility, the 10 recommendations listed above act as a strategic guide that supports cities in setting the right course. They are accompanied by recommendations addressed at the EU level on how to further support cities during the implementation of sustainable mobility strategies.

The supporting role of ELEVATE in guiding projects in their evaluation activities has been fundamental and so will be the one performed by future CIVITAS Coordination and Support Actions. In this regard, one of the core elements corresponds to the update of the CIVITAS evaluation framework (CEF) that will continuously be used to guide project evaluation approaches.

In particular, it is anticipated that the new CEF will be informed by a participative process with CIVITAS project evaluation managers to reflect their needs, topics and requirements, its trial use in practice, and an appraisal against the current CEF, as well as alignment with new SUMI indicators and Climate Neutral and Smart Cities Mission objectives. Ideally it will envision both a qualitative and quantitative approach, including co-creation, planning, social factors, and it will be improved in terms of conciseness, clarity, indicators-attainability, and ease of use.

Different CIVITAS projects throughout the years have developed an abundance of resources that dive deeper into the recommendations listed above. These resources help cities put the recommendations into practice. They include SUMP development manuals, topic guides on specific mobility themes, best practices and case studies from other European cities, methodologies, toolboxes and so much more. Visit https://civitas.eu/ to consult these resources or check the reference list at the end of this publication to get started.

Finally, in the years to come, the CIVITAS initiative will keep improving and supporting cities across Europe in bringing their journey to a successful finish. In addition, to assist cities in accelerating that journey, the Mission for Climate-Neutral and Smart Cities was launched within the framework of the Horizon Europe research and innovation programme. This ‘Cities Mission’ engages local authorities, citizens, businesses, investors as well as regional and national authorities to deliver 100 climate-neutral and smart cities by 2030 and ensure that these cities act as experimentation and innovation hubs to enable all European cities to follow suit by 2050. CIVITAS will join forces with the Cities Missions and other relevant initiatives to provide a coherent and useful supporting structure to cities in the future.

6 References

CIVITAS ELEVATE D6.1. Review and evaluation of the latest CIVITAS achievements:

https://civitas.eu/resources/review-and-evaluation-of-the-latest-civitas-achievements

CIVITAS ELEVATE D5.4 First Results Publication:

https://civitas.eu/resources/Results_publication_ELEVATE

CIVITAS ELEVATE D5.6 Second Results Publication:

https://civitas.eu/sites/default/files/CIVITAS-ELEVATE-RIA-results-second-edition-FINAL_0.pdf

SUMP Topic Guide on Integrating Mobility Management for Public and Private Organisations soon to be published)

SUMP Topic Guide on Safe use of micromobility devices in urban areas:

https://www.eltis.org/in-brief/news/new-sump-topic-guide-safe-use-micromobility-devices-urban-areas

SUMP Topic Guide on Planning for Attractive Public Transport:

https://www.eltis.org/in-brief/news/new-sump-topic-guide-planning-attractive-public-transport

SUMP Topic Guide on SUMP in Smaller Cities and Towns:

https://www.eltis.org/in-brief/news/new-sump-topic-guide-smaller-cities-and-towns

SUMP Topic Guide on Planning for More Resilient and Robust Urban Mobility:

https://civitas.eu/sites/default/files/sump_topic-guide_planning_for_more_resilient_and_robust_urban_mobility.pdf

SUMP Topic Guide on Sustainable Urban Mobility Planning in Metropolitan Regions:

https://sumps-up.eu/fileadmin/user_upload/Tools_and_Resources/Publications_and_reports/Topic_Guides/sump_metropolitan_region_guide_v2.pdf

CIVITAS SATELLITE D2.13. Recommendations for policy makers based on results from projects funded under the CIVITAS Initiative 2016-2020:

https://www.polisnetwork.eu/project/civitas-satellite/

SUMP Guidelines 2019 (2nd edition):

https://www.eltis.org/sites/default/files/sump_guidelines_2019_interactive_document_1.pdf

ANNEX I: CIVITAS project achievements reviewed by CIVITAS ELEVATE

CIVITAS 2020 projects: 2019-2024

HARMONY	
Project duration	06/2019 – ongoing (02/2023)
What is about?	Holistic Approach for Providing Spatial & Transport Planning Tools and Evidence to Metropolitan and Regional Authorities to Lead a Sustainable Transition to a New Mobility Era
Thematic area	Integrated and inclusive planning
Website	https://civitas.eu/projects/harmony - https://harmony-h2020.eu/
Who is involved (pilots)	Rotterdam (NL), Oxfordshire (UK), Turin (IT), Athens (GR), Trikala (GR), Upper Silesian-Zaglebie Metropolis (PL)
Project coordinator	University College London
Project overview	HARMONY is developing a new generation of harmonised spatial and multimodal transport planning tools which comprehensively model the dynamics of the changing transport sector and spatial organisation, enabling metropolitan area authorities to lead the transition to a low carbon new mobility era in a sustainable manner. Co-creation labs are established in order for citizens, authorities and industry to design together new mobility and spatial organisation concepts. At the same time, demonstrations with electric AVs and drones take place to understand in real-life their requirements. Market surveys are organised to elicit people and freight actors' preferences and reactions towards the co-created concepts and the demonstrated new mobility technologies. The HARMONY model suite is designed to assess the multidimensional impacts of the new mobility concepts and technologies. The model suite integrates: 1. land-use models (strategic/long-term), 2. people and freight activity-based models (tactical/mid-term), and 3. multimodal network (operational/short-term) models allowing for vertical planning. This integrated approach is necessary for authorities to understand if policies are sustainable, while also contribute to meeting COP22 targets, social equality and wellbeing. The HARMONY model suite is also linked to an EU-wide model to further identify the impact of the concepts and technologies on the TEN-T level. HARMONY's concepts and the model suite are applied and validated on six EU metropolitan areas on six TEN-T corridors: 1. Rotterdam (NL), 2. Oxfordshire (UK), 3. Turin (IT), 4. Athens (GR), 5. Trikala (GR), 6. Upper Silesian-Zaglebie Metropolis (PL). By having six different areas as pilots, the project should be able to propose to authorities, spatial and transport planners, concepts and technologies for different types of areas/cities
Implementation and outcomes	The implementation of the project is still ongoing. Here is the latest state of play: Thorough reviews and analyses have been conducted for i) new forms of mobility, ii) SUMPs, iii) project appraisal techniques and iv) spatial and transport planning tools for new mobility concepts. Collection of stakeholders'

	spatial and transport planning requirements for urban air and autonomous mobility was achieved. The main actors and their requirements from the HARMONY Member States (MS) have been identified. The initial MS level-to-level and module-to-module input/output interactions have been identified. Event-based communication architectures has been adopted for the HARMONY MS, while certain considerations have been made for enabling software-agnostic implementations. The required survey tools for collecting primary data have been designed and implemented. These include the design of questionnaires, the preparation and customisation of the smartphone-based travel survey tool for collecting primary data, the design of the survey participants support interfaces (helpdesks), as well as development of the sampling strategies to be used in each pilot area. The 1st Prototype of the HARMONY Transport and Spatial Data Warehouse has been successfully delivered The Strategic Level simulator's architecture and I/O requirements have been defined, including the modelling framework of each sub-component. The regional economic model has been applied for the Turin pilot, while other use cases for HARMONY pilots have been designed. A first version of the Tactical Freight Simulator (TFS) has already been developed. The TFS is an advanced activity-based model that first generates a set of shipments and parcels (shipment and parcel synthesizers respectively) and then schedules them to tours (parcel and shipment scheduling modules). The first version of the TFS has already been tested for a zero-emission zone scenario. The main activities performed include: i) initial development and updating of network models for the Oxfordshire, Rotterdam, Turin and Athens pilot sites, ii) specifications and initial design for an air traffic controller, iii) specifications, detailed design and early prototyping of the passenger and freight service controllers including an application for a toy city network, iv) evaluation and adoption of vehicle performance and noise models for the purposes of HARMONY MS.

LEAD	
Project duration	06/2020 – ongoing (05/2023)
What is about?	Strategies for shared-connected and low-emission logistics operations
Thematic area	Urban Freight Logistics
Website	https://civitas.eu/projects/lead - https://www.leadproject.eu/
Who was involved (pilots)	Budapest (HU), Lyon (FR), Madrid (ES), Oslo (NO), Porto (PT), the Hague (NL)
Project coordinator	EMT Madrid
Project overview	The EU-funded LEAD project is designing digital twins of urban logistics to support experimentation and decision making in public–private urban settings. Specifically, the project's long-term goal is to develop an open physical internet-inspired framework for smart city logistics. Headed by a large consortium, the project will test its solutions in six cities. LEAD will create Digital Twins of urban logistics networks in six cities, to support experimentation and decision making with on-demand logistics operations in a public-private urban setting. Innovative solutions for city logistics will be represented by a set of value case scenarios that address the requirements of the on-demand economy while aligning competing interests and creating value for all different stakeholders. Each value case will combine a number of measures (LEAD Strategies): – innovative business models, – agile urban freight storage and last-mile distribution schemes, – low emission, automated, electric or hybrid delivery vehicles, and – smart logistics solutions.
Implementation and outcomes	Scenarios will incorporate opportunities for shared, connected and low-emission logistics operations by considering four innovation drivers: Sustainability - Zero Emission Logistics, the Sharing Economy, Technology Advancements and the emerging Physical Internet (PI) paradigm. Also, cost, environmental and operational efficiencies for value cases will be measured in 6 Living Labs. Evidence-proven value cases and associated logistics solutions will be delivered in the form of exploitable Digital Twins (TRL-7), incorporating the models that support adaptation to different contexts and that provide incentives for PPPs. The long-term vision of LEAD is to design an Open PI-inspired framework for Smart City Logistics that incorporates the Digital Twins created in the project, thus setting the foundations for the development of large-scale city Digital Twins.

MOMENTUM	
Project duration	05/2019 – 04/2022
What is about?	Modelling Emerging Transport Solutions for Urban Mobility
Thematic area	Behavioural change and mobility management
Website	https://civitas.eu/projects/momentum - https://h2020-momentum.eu/
Who was involved (pilots)	Leuven (BE), Madrid (ES), Regensburg (DE) and Thessaloniki (GR)
Project coordinator	EMPRESA MUNICIPAL DE TRANSPORTES DE MADRID SA
Project overview	MOMENTUM develops new data analysis methods, transport models and planning support tools to help cities to design policies that exploit the full potential of emerging mobility solutions. Disruptive technologies and emerging mobility solutions, such as MaaS (Mobility-as-a-Service), CAVs (Connected Automated Vehicles), shared mobility services and DRT (demand responsive transport), are bringing radical changes to urban mobility. The overall goal of MOMENTUM is to develop a set of new data analysis methods, transport models and planning support tools to capture the impact of these new transport options on the urban mobility ecosystem, in order to support cities in the task of designing the right policy mix to exploit the full potential of these emerging mobility solutions. The tools and techniques developed will be tested in a set of case studies across Europe, in the cities of Leuven, Madrid, Regensburg and Thessaloniki.
Implementation and outcomes	The project is to deliver the following outcomes: – A set of future scenarios, each associated with a probability of occurrence, to be considered in the planning and design of urban mobility policies in Europe. – A detailed analysis of the activity-travel patterns of different population groups, according to their sociodemographic characteristics, with particular focus on their use of new mobility services. – A set of data-driven predictive models for the adoption and usage patterns of new mobility options, as a function of different sociodemographic and behavioural variables. – New transport simulation and decision support tools for urban mobility planning able to properly consider the impact of new transport technologies. – A prototype of the newly developed tools implemented in the cities of Madrid, Thessaloniki, Leuven and Regensburg. – A set of guidelines for the use of the solutions developed by the project in the elaboration and implementation of SUMPs. MOMENTUM will advance the state of the art in: (i) the analysis of travel behaviour, by combining data fusion and machine learning techniques to extract mobility patterns from heterogeneous and sparse data sources and to identify possible explanatory variables for the extracted mobility behaviours; and (ii) the modelling of new transport solutions. MOMENTUM will combine data-driven and classical approaches to capture the mobility patterns associated to new mobility options and their impact on the whole mobility ecosystem. MOMENTUM will also evolve transport simulation software to represent demand in more disaggregated and heterogeneous terms and include supply and demand of emerging transport options.

	MOMENTUM will also advance the state of the art of policy instruments for mobility planning. The new data collection methods, models, decision support tools and policy recommendations will empower cities to formulate more flexible and resilient policies that perform well under a range of fast changing uncertain scenarios. User-friendly decision support tools will facilitate the impact assessment and comparison of the different alternative policies. Finally, the data collection and analysis techniques developed by MOMENTUM will result in the availability of better mobility and travel demand information at a fraction of the cost required by traditional methods. The possibility to monitor mobility on a continuous basis in an affordable manner will enable the early detection of changes in mobility patterns and the update and recalibration of transport models on a more frequent basis, leading to more reactive, adaptive, efficient and resilient policies. This is of particular importance in the current COVID-19 crisis situation, where exceptional policy measures, such as limiting mobility or banning certain transport modes, had to be put in place in a short period of time in different cities around the world. The continuous monitoring of mobility enables transport authorities to perform dynamic assessments of such measures. Some of the main results produced by the project during first reporting period have already been integrated into the SUMP Topic Guide on Resilient Cities.

ReVeAL	
Project duration	06/2019 – ongoing (11/2022)
What is about?	Regulating Vehicle Access for improved Liveability
Thematic area	Impacts of new technologies and changes on policy making
Website	https://civitas-REVEAL.eu/ - https://civitas-ReVeAL.eu/
Who was involved (pilots)	Bielefeld (DE), London (UK), Helmond (NL), Jerusalem (IL), Padova (IT), Vitoria-Gasteiz (ES)
Project coordinator	Stadt Bielefeld
Project overview	Restricting car access in urban areas is a heated topic for Europe's decision makers. The EU-funded ReVeAL project aims to add urban vehicle access regulations (UVAR) to the standard range of urban mobility transition approaches of cities across Europe. Towards this end, the ReVeAL consortium combines conceptual work and case study research with hands-on UVAR implementation in six pilot cities, in addition to encouraging systematic stakeholder interaction and organising professional communication activities. Through this process, ReVeAL systematically extracted lessons learned and therefore supported the wider roll-out of smart UVAR approaches across Europe. The overarching mission of the project is to enable cities to optimise urban space and transport network usage through new and integrated packages of urban vehicle access policies and technologies. Such policies can lead to fewer emissions, less noise and improved accessibility and quality of life, which especially benefits the people living in these cities. These policies can also encourage more sustainable transport choices, enabling cities to become more liveable, ultimately healthier and more attractive for every member of society. ReVeAL overall objectives include: 1. Planning for UVAR as a change in direction for a city (how to manage the transition?) 2. Understanding what has worked and what made it successful (both process and content) 3. Supporting and executing UVARs and learning from the process 4. Documenting, monitoring, assessing and evaluating the process and impacts 5. Extracting, synthesising and generalising the lessons learned to support other cities in UVAR implementation 6. Engaging stakeholders and effectively communicating about the processes and results
Implementation and outcomes	ReVeAL will deliver an innovation agenda for access regulations for local authorities, thus increasing the efficiency at local level of the integrated urban mobility plan. The pilots in combination with systematic desk-research and surveying will be the basis of two decision support tools: The ReVeAL Readiness Assessment Tool to identify potential barriers and drivers for access regulation through a questionnaire capturing key facts about the existing mobility culture, available transport services (alternatives to private car use or truck deliveries), IT and ITS legacy systems and legal and regulatory framework.

	The ReVeAL Process Advisor to support the design of access regulation schemes based on the envisaged objectives, impacts transition status as reported in the Readiness Assessment. The six pilots will deliver new practice-based knowledge related to various forms of access regulations (e.g. ZEZ, Superblock etc.) that will be studied in view of four Transition Areas: governance, user needs, mobility concepts and technologies. ReVeAL will be able to draw conclusions on the feasibility, effectiveness and efficiency of different access regulation solutions in different phases of transition. Through its evaluation and monitoring activities, ReVeAL will be able to draw lessons from the comparison of local contexts and applied solutions. The project will develop an overview of local investments and planned schemes (detailing technological and design prospects) in order to create visibility for future projects and increase innovation in their actual implementation. The expected impacts of the project include: 1. Improved knowledge on how current mobility transitions affect UVAR implementation 2. Better informed and involved UVAR stakeholders and decision-makers 3. Improved and measurable performance of UVAR schemes 4. Inclusion of UVARs into SUMPs and the urban mobility policy toolbox 5. Future-proof UVAR design approaches 6. Regulatory fitness of national UVAR frameworks 7. Translation of ReVeAL findings into EU policy recommendations 8. Creation of global agenda for UVAR implementation

SENATOR	
Project duration	09/2020 – ongoing (08/2024)
What is about?	Smart Network Operator Platform enabling Shared, Integrated and more Sustainable Urban Freight Logistics
Thematic area	Urban Freight Logistics
Website	https://civitas.eu/projects/senator - https://www.senatorproject.eu/
Who was involved (pilots)	Zaragoza (ES), Dublin (IR)
Project coordinator	Correos Madrid
Project overview	The main objective of the SENATOR (Smart Network Operator Platform enabling Shared, Integrated and more Sustainable Urban Freight Logistics) project is to provide governance schemes for four urban planning policies: User demand planning, Transport planning, Freight and Logistics planning and City infrastructure. SENATOR proposes a solution that integrates these four layers into one platform, which resembles a “control tower”, also known as the smart network operator. It aims to aggregate existing demand regarding urban last-mile logistic services and matching it with available resources (e.g. vehicles) and infrastructure (e.g. parking places) in order to satisfy all existing needs in a sustainable way. This multi-level urban space management model will promote sustainability, shared-connected freight and delivery services in cities, and optimise the satisfaction of all stakeholders’ needs by empowering their decision-making capacity and prioritising urban mobility via an integrated approach. It will also ensure an optimisation of operations through a fluent relationship between urban planners, urban freight logistics players and citizens. To test its effectiveness, Senator will be validated in a real environment in 2 Living Labs: in Zaragoza (Spain) and Dublin (Ireland), led by Correos (State Postal and Telegraph Society).
Implementation and outcomes	SENATOR project’s platform will work as a support tool for decision making, integration and planning of all logistics operations. In consequence, it will minimize the negative impacts that this distribution causes in the cities and will constitute an effective means of collaboration between agents (operators, transporters and administrations, as responsible for urban planning). To develop it, the project will take into account all the possibilities that the digitalisation of information and the integration of the Internet of things in transport provides, as well as the trends in connected and even autonomous vehicles.

SPROUT	
Project duration	09/2019 – 08/2022
What is about?	Sustainable Policy RespOnse to Urban mobility Transition
Thematic areas	Integrated and inclusive planning; public participation and co-creation
Website	https://civitas.eu/projects/sprout – https://sprout-civitas.eu
Who was involved (pilots)	Pilot cities: Valencia (ES), Padua (IT), Kalisz (PL), Budapest (HU), Tel Aviv (IL), and Ningbo (China) Validation cities: Hertogenbosch (NL), Ioannina (GR), Gothenburg (SE), Arad (RO), Mechelen (BE), Ile-de-France (FR), West Midlands (UK), Almada (PT), Minneapolis (US).
Project coordinator	FUNDACION ZARAGOZA LOGISTICS CENTER
Project overview	SPROUT provides a new city-led innovative and data-driven policy response to address the impacts of emerging mobility patterns, digitally-enabled operating & business models, and transport users' needs. Starting from an understanding of the transition in urban mobility, the project will define the impacts on the sustainability and policy level. It will also harness these through a city-led innovative policy response. The aim is to build cities' data-driven capacity to identify, track and deploy innovative urban mobility solutions. The findings will help navigate future policy. To achieve its goals, SPROUT is creating an Open Innovation Community on Urban Mobility Policy and will employ 6 city pilots and 7 validation cities with real-life policy challenges faced as a result of urban mobility transition in both passenger and freight transport. To achieve its aim, the project will pursue the following project objectives: 1. Understand the transition in European urban mobility (passenger and freight), by quantifying the current status, and defining the transition drivers to the future. 2. Foresee and determine the impact of urban mobility drivers on urban policy. 3. Formulate a city-led innovative policy response, that is widely applicable to European cities, to navigate urban mobility in transition. 4. Provide tools to contribute to an evidence-based policy making and enhance local policy making capacity. 5. Navigate future policy by channelling project results into future EU policy initiatives.
Implementation and outcomes	SPROUT progressed in its main aim of providing a city-led innovative policy response able to harness the impacts of new mobility solutions as follows: Understanding transition in urban mobility (WP2). SROUT has developed an inventory of the factors that are used by each of the SPROUT cities as a common framework to collect and integrate data. This allowed the project to get an overview of the urban mobility situation in the 1st and 2nd -layer SPROUT cities, and overview of the urban mobility transition drivers and their level of importance, and an overview of the locally relevant stakeholders. Determining the impacts of emerging urban mobility environments (WP3). In order to come to appropriate city-led policy responses in the later stages of the project, SPROUT developed city-specific 'do-nothing' scenarios for 2030 that describe the possible development of the urban mobility system in the 1st-layer cities if no new policies are introduced to harness transition. The five future city-specific scenarios were co-created following a cross-impact

	balance analysis and participatory approaches. Their sustainability and policy impacts were also assessed. Scenarios are an important intermediate result, providing a holistic, systemic and participatory analysis of the future mobility landscape. They form a base to better understand the impacts of policy making in the pilot cities and are the basis of the setup of the pilot use cases. A pilots' evaluation framework has been developed in order to assess the impacts of 9 innovative urban mobility solutions implemented in 5 SPROUT pilot cities (WP4). Until the end of the project, SPROUT will: 1. Define a minimum set of data to drive evidence-based urban mobility policy making, customised to the data capabilities of both rich- and poor data environments. 2. Offer currently missing evidence on the sustainability and policy impacts of a number of urban mobility innovations based on an overarching evaluation, monitoring, and data collection framework and new data sources to enable evidence-based policy making. 3. SPROUT will also deliver an Urban Policy Toolbox to be used for building capacity on recognising the benefits and appropriate use of tools. 4. Offer a methodology to formulate city-led innovative policy response by analysing the underlying urban policy model to understand how policies impact the urban mobility environment through a systems dynamics model and by looking beyond urban mobility, at factors that drive urban mobility from other domains.

SUMP-PLUS	
Project duration	09/2019 – 08/2022
What is about?	Sustainable Urban Mobility Planning: Pathways and Links to Urban Systems
Thematic area	Integrated and inclusive planning
Website	https://civitas.eu/projects/sump-plus - https://sump-plus.eu/
Who was involved (pilots)	Antwerp (BE), Alba Iulia (RO), Greater Manchester (UK), Klaipeda (Lithuania), Lucca (IT), and Platanias (GR)
Project coordinator	City of Antwerp
Project overview	A comprehensive approach to sustainable urban mobility planning and delivery is crucial to maximising the mobility services and wider benefits for European citizens. The European Commission has recognised these challenges by encouraging cities to implement SUMPs and SULPs and have recently updated the associated guidelines through the 'SUMP 2.0' initiative. SUMP-PLUS is a three-year Research and Innovation Action designed to address these challenges and exploit these new opportunities, by developing a strong, rigorous evidence base through co-created City Laboratories approach, that will be demonstrated in different EU cities, building on the strengths of the existing SUMPs and SULPs. SUMP-PLUS will develop and apply transition pathways towards more sustainable cities, taking into account the need to establish stronger links with other urban system components. SUMP-PLUS will deliver a methodology and supporting analytics demonstrating how to customize the pathway to cities with different characteristics, capabilities, availability of data/resources and aspirations and will produce associated practical guidance tools and training programme (City-Consult, "Train the Trainer) that are targeted to the needs of cities at different stages in their mobility development. The key policy objectives are to develop and apply a set of context-specific mobility transformation pathways, to demonstrate how cities can develop stronger links with other urban system components, to identify new solutions and to identify and demonstrate new partnerships and business models. These policy objectives will be met and demonstrated through a programme of trials and comprehensive evaluation, in six co-created City Laboratories (CL) Antwerp (BE), Alba Iulia (RO), Greater Manchester (UK), Klaipeda (Lithuania), Lucca (IT), and Platanias (GR).
Implementation and outcomes	Research activities setting the conceptual frameworks required to develop a strong, rigorous evidence base through the project Co-created city Laboratories (CLs) have been carried out in WP1 (Implementation Strategy/Transition Pathway and supporting analytical tools), WP3 (governance coordination and capacity building) and WP4 (stakeholders and citizens engagement). The innovative concepts and tools developed/consolidated at research level, on the basis of the review of available literature/research and former relevant projects, have been adapted to the CLs context on the basis of the analysis of local needs, objectives and ambitions; finally the concepts have been introduced in the City Labs for supporting/facilitating the SUMP implementation in the involved cities, through the specification of the Co-created Laboratory Plans (CLPs) which identify the activities to be carried out level at CL level, the intermediate/final outputs and the timeline. The Evaluation methodology and the Evaluation Plan have been released as a general framework for the development of project evaluation activities (WP5). According to the activities implemented in the CLs and the expected outputs, the evaluation methodology is based on qualitative approach and

	assessment of co-created processes taking place at CL level: process evaluation has been customized and specified for the specific purposes of SUMP-PLUS and CLs activities. The most crucial outputs and outcomes of SUMP-PLUS are as follows: 1. Resilient, place-centred cities that put citizens and their needs first; 2. Practical and context-specific implementation pathways that make general guidelines realisable; 3. A simplified tool that allows for accessibility planning in small urban areas (with limited resources); 4. Improved cross-sector links that mean mobility requirements are considered in public service delivery models; 5. Governance, administrative, legislative and funding arrangements, and incentive structures needed to follow a development pathway and/or build cross-sector links; 6. The implementation of cutting-edge solutions for more efficient and sustainable freight and passenger transport; 7. Innovative stakeholder engagement strategies for enabling more advanced cooperation schemes among the actors inside and outside the mobility sector; 8. Public-private partnerships that use data-driven planning to meet collective mobility objectives cost-effectively; 9. A City Consult Agency that ensures a continuing process of SUMP skills and knowledge development, mentoring, and replication beyond the project; and, 10. Improved guidance for developing SUMP implementation.

ULaaDS	
Project duration	09/2020 – ongoing (02/2024)
What is about?	Urban Logistics as an on-Demand Service
Thematic area	Urban Freight Logistics
Website	https://civitas.eu/projects/ULaaDS - https://ULAADS.eu/
Who was involved (pilots)	Bremen (DE), Groningen (NL), Mechelen (BE), Alba Iulia (RO), Bergen (NO), Edinburgh (UK), Rome (IT).
Project coordinator	Freie Hansestadt Bremen
Project overview	The EU-funded ULaaDS project sets out to offer a new approach to system innovation in urban logistics. Its vision is to develop sustainable and liveable cities through re-localisation of logistics activities and re-configuration of freight flows at different scales. Specifically, ULaaDS will use a combination of innovative technology solutions (vehicles, equipment and infrastructure), new schemes for horizontal collaboration (driven by the sharing economy) and policy measures and interventions as catalysers of a systemic change in urban and peri-urban service infrastructure. This aims to support cities in the path of integrating sustainable and cooperative logistics systems into their sustainable urban mobility plans (SUMPs). ULaaDS will deliver a novel framework to support urban logistics planning aligning industry, market and government needs, following an intensive multi-stakeholder collaboration process. This will create favourable conditions for the private sector to adopt sustainable principles for urban logistics, while enhancing cities' adaptive capacity to respond to rapidly changing needs. The project findings will be translated into open decision support tools and guidelines. ULaaDS project will work on 3 key focus pillars: 1. co-creation process to model future on-demand scenarios for urban logistics and definition of relevant ULaaDS delivery solutions through novel toolkit; 2. deployment of 2 ULaaDS solutions co-created (combining new delivery vehicles and novel horizontal collaboration models) through a total of 6 multi-stakeholder research trials in the 3 pilot cities; 3. assessment of feasible value cases towards urban planning integration (SUMP/SULP).
Implementation and outcomes	3 pilot cities (Bremen, Mechelen, Groningen) propose 2 preliminary ULaaDS solutions to be further concretised through the first project pillar: Modular innovative cargo bikes operated by crowdsourced couriers to enhance logistics efficiency and multimodality in city centres; Integration of urban dual transport services (high on-demand distribution requirements of small goods with on-demand shared personal transport - eVans offering pooling for cargo, semi-AGVs, public transport) Also, ULaaDS also involves 4 other satellite cities (Rome, Edinburgh, L'Hospitalet, Bergen) which will also apply the novel toolkit created in ULaaDS as well as the overall project methodology to co-create additional ULaaDS solutions relevant to their cities as well as outlines for potential research trials.

CIVITAS 2020 research projects: 2016-2022

Cities-4-People	
Project duration	06/2017 – 11/2020
What is about?	New approaches for community-driven sustainable mobility innovations at neighbourhood and urban district level
Thematic area	Innovation in neighbourhoods
Website	https://CITIES4PEOPLE.eu/
Who was involved (pilots)	Oxfordshire (UK), Hamburg (DE), Istanbul (TR), Budapest (HU), Trikala (GR)
Project coordinator	Copenhagen Business School
Project overview	Cities-4-People is a H2020 project revolving around sustainable and people-oriented transport as a solution to the many challenges linked to mobility and faced by urban and peri-urban areas today. Aiming to implement mobility solutions developed by people for people, Cities-4-People taps into participatory practices of social innovation and neighbourhood governance and builds on three main pillars: citizen participation, community empowerment, and sustainable urban planning.
Implementation and outcomes	Cities-4-People promotes a people-oriented transport and mobility (POTM) approach, which provides new ways to deliver innovative, sustainable and targeted solutions that address the needs of the public. As the name suggests, POTM is a form of transport and mobility that takes the needs and wishes of people into account with the goal of improving transportation and increasing urban sustainability. POTM has high potential to lead to interventions that are required and accepted by the people they eventually affect. Some of the features that characterise the project's approach include: 1. Citizens at the core. The project follows procedures that are truly participatory and build on strong local knowledge to understand specific conditions, problems and cultural elements. The people, with their views, needs and desires, are the primary reference point. The term 'people' embraces all types of stakeholders of the urban mobility supply chain: these are the leading actors in the entire innovation process, working together in local communities. 2. Community empowerment. To empower mobility communities to interact and collaborate with mobility experts, policy makers and other urban mobility stakeholders, the project engaged citizens in local Mobility Labs, offering, an open-to-all, bottom-up and community-based model to support participation in local mobility developments. The project also created and deployed pilot-specific Citizen Mobility Kits, which are suites of offline and online tools aiming at enhancing collaborative activities and at supporting local mobility communities in envisioning and realising ways to innovate. 3. Urban sustainability. Cities-4-People had a holistic and inclusive approach to urban sustainability, which takes into account climate change and environmental issues, socio-economic and socio-cultural aspects, as well as the relevance of citizen participation in urban planning. In this context, social determinants and health inequality factors (e.g. health hazards, access to health services, access to employment, etc.) were seen as key elements influencing the sustainability of urban

	developments, while shared-economy mobility solutions were presented as a way to facilitate the emergence of citizen-led, sustainable urbanism. Its five pilot areas showcase new opportunities for sustainable urban development, suited to meet local needs and tackle serious urban challenges in cost-efficient ways. Thus, they contribute to a new vision for sustainable urbanisation, in which collaborative technologies and social innovation foster engagement in neighbourhood governance and increase the involvement of citizens in participatory urban planning. Experiences with citizens involvement led to the following key learnings: 1. Understanding the local context and specific needs is of high importance. 2. Identifying key informants (neighbourhood committees, local authorities, artists, etc.) is critical. Consider: who can advocate for your purpose and interventions in the initial prototype phase? How do you engage them and what is your offer to them? 3. By focusing a prototype on the neighbourhood level, you can use a realistic scope to iterate your intervention in a given period and build a strong community around it. 4. Ensuring transparency and public input through co-creation processes ensures higher viability of the project. 5. Confronting “taboo topics” – like parking spaces and car use – pays off and attracts people’s attention. 6. Using external expertise from outside the local community is very valuable. 7. Engaging citizens to identify and address urban mobility challenges has proven its worth. Citizens can then participate in urban developments that have a direct impact on their lives, and authorities are able to identify and nurture their citizens’ skills and interests.

CityChangerCargoBike	
Project duration	09/2018 – 07/2022
What is about?	Application of cargo bikes in urban areas
Thematic area	Innovative Solutions
Website	https://cyclelogistics.eu/
Who was involved (pilots)	Utrecht (NL), Cambridgeshire (UK), San Sebastian (ES), Oslo, (NO), Mechelen (BE), Lisbon (PT), Alba Iulia (RO), Dubrovnik (HR), Rimini (IT), Gdynia (PL), Varna (BU), Strasbourg (FR),
Project coordinator	Gemeente Utrecht
Project overview	The large-scale introduction and application of cargo bikes in urban areas has shown to be a game changer for cities: the image of cycling improves; general levels of cycling increase (both for freight and passengers); urban space is used more efficiently; air quality, safety levels as well as quality of life improve. However, this innovative solution is present in only a few cities and at best in the starting phase in other European cities. Its full potential has not been achieved in any European city. CityChangerCargoBike (CCCB) aims to change this and increase and accelerate take-up. CCCB will take the very best cargo bike implementation examples, contexts and expertise in Europe and profit and learn from them in order to transfer these on a large scale and in the best way possible to new cities and contexts - in CCCB's forerunner cities, in the follower cities and beyond. Further, cargo bikes bring with them a whole new bicycle culture: new fashionable multi-purpose cargo bike designs, cargo bike shops, new logistics concepts. Stationary cargo bikes can quickly be transformed to mobile street furniture and then even fulfil a place maker function. Building on the success of these previous projects, CCCB exploits the limitless potential of cargo bikes promoting their usage amongst public, private, and commercial users. Assessing best practices across Europe, CCCB will raise awareness and support the uptake of cargo bikes and cargo bike initiatives. In doing so, the project will foster exciting developments that - among other things - offer more sustainable logistics operations, improve public spaces, engage citizens, and reduce traffic congestion. CCCB has the following objectives: 1. Raise awareness among the relevant stakeholders: public, private and commercial sector. 2. Utilise innovative tools for the take-up and scale-up and transfer between forerunner and follower cities: e.g. peer-to-peer exchange. 3. Establish favourable framework conditions for cargo bike use. 4. Achieve wide roll-out and transferability through Forerunner cities, Follower cities (within the consortium) and External follower cities. 5. Reduce congestion, emissions; increase safety; increase public space and improve public space usage.
Implementation and outcomes	To achieve the project's objectives, CCCB deployed a variety of methods: 1. Training and workshops for a broad variety of target groups including city authorities, the commercial sector, the private sector, and NGOs

	2. Educating and supporting a variety of ‘multiplicators’ such as mayors, users and so-called “local heroes’ who can spread the message about cargo bikes and CCCB 3. Using the cargo bike as a medium through media bikes adapted to do TV and radio interviews as well as place maker bikes used as urban furniture in public spaces 4. Innovative funding and financing: to address the high price of cargo bikes, which may act as a barrier towards its scale-up, CCCB offer low-priced try-out and sharing schemes and develop entirely new and self-perpetuating, sustainable financing schemes for cargo bike businesses 5. By directly addressing mayors, financial institutions, and the bicycle industry as well as utilizing several national and international networks available to the project partners, CCCB will involve major stakeholders.

GreenCharge	
Project duration	09/2018 – 02/2022
What is about?	Smart electric mobility in cities
Thematic area	Clean and energy-efficient vehicles
Website	https://www.GREENCHARGE2020.eu/
Who was involved (pilots)	Bremen (DE), Barcelona (ES), Oslo (NO)
Project coordinator	SINTEF AS. Research organisation, Norway.
Project overview	The aim of GreenCharge is to empower cities and municipalities to make the transition to zero emission/sustainable mobility with innovative business models, technologies and guidelines for cost efficient and successful deployment and operation of charging infrastructure for EVs. Inspired by ideas from sharing economy, the business models focus on enabling the mutualisation of excess capacity of private renewable energy systems (RES), private charging facilities and the batteries of parked EVs, leveraging fair gain sharing to ensure sufficient incentives for all stakeholders to participate. The enabling technology coordinates the power demand of charging with other local demand and availability of local RES, leveraging load flexibility and storage capacity of local stationary batteries and parked EVs. Furthermore, it provides user-friendly charge planning, booking and billing services for EV users. This reduces the need for grid investments to establish new charging stations, removes range anxiety and enables the sharing of already existing dedicated charging facilities for EV fleets. To implement the technology the project integrates and extends existing systems. Pilots is carried out in Barcelona, Bremen and Oslo to demonstrate and evaluate the proposed approach. The pilots are extended with simulations for exploring more complex scenarios not possible to test in the pilots and to assess scalability. The guidelines synthesize the experience from the pilots and simulations and advice on localisation of charging points, grid investment reductions, and policy and public communication measures for accelerating uptake of electromobility, and align with Sustainable Urban Mobility Plan (SUMP) processes. The consortium includes commercial companies (also SMEs) with experience in commercialisation, and ambitious municipalities with significant experience in deploying innovative solutions.
Implementation and outcomes	Here is an overview of the projects' implemented measures and outcomes: 1. Introduce new business models supporting Energy Smart Neighbourhoods, and other innovative combinations of stakeholders in e-mobility solutions 2. Enable charging of cars in a private parking garages in a way that staggers charging to meet individual needs while at the same time being energy efficient 3. Simplify booking of charging 4. Provide systems that reduce the peak load on the public grid, thus reducing the upper capacity needed - and therefore costs for infrastructure installation

	5. Provide a Reference Architecture, acting as the start of a standard in the domain of smart charging 6. Convincingly demonstrate the pros and cons (from technical, usability and business perspectives) of a variety of e-mobility scenarios 7. Synthesise lessons learned from all of the above into recommendations for policy makers and technologists 8. Provide a set of technologies supporting these innovations, in some cases as commercial products 9. The long-term impact of GreenCharge should facilitate a substantial shift to use of e-mobility in a way that maximises use of green energy. That will ultimately lead to reductions in CO2 emissions.

Handshake	
Project duration	09/2018 – 08/2022
What is about?	Bringing together 13 of Europe's top cycling cities to share and inspire excellence
Thematic area	Innovative solutions
Website	https://Handshakecycling.eu/
Who was involved (pilots)	Amsterdam (NL), Copenhagen (DK), Munich (DE), Bordeaux (FR), Bruges (BE), Cadiz (ES), Dublin (IE), Manchester (UK), Helsinki (FI), Krakow (PL), Riga (LV), Rome (IT), Turin (IT).
Project coordinator	ISINNOVA
Project overview	Handshake supports the effective take up of the integrated cycling solutions successfully developed by Amsterdam, Copenhagen and Munich, the Cycling Capitals and world-renowned cycling front runners, to 10 highly committed Future Cycling Capitals, Bordeaux Metropole, Bruges, Cadiz, Dublin, Helsinki, Krakow, Greater Manchester, Riga, Rome and Turin. Partner cities are combined in a composite working environment in which diverse geographical contexts, socio-economic conditions and planning cultures work toward the same goals, that is, delivering the desired cycling change. The project believes that effective transfer can happen only in the presence of: i) state-of-art body of knowledge on cycling policy and solutions; ii) sustaining transition processes; iii) motivating and supporting forms of mentorship. In Handshake, this is ensured by the presence of 3 cycling planning champions, the employment of highly innovative methods brought together into a supportive and novel transfer cycle (including Bikenomics, Immersive Study Tours and Transition Management), and a mentorship programme that takes by the hand each participating city. The project's strategic objectives include: 1. Inspire the creation or refinement of holistic cycling visions and concrete transfer approaches; 2. Foster the adoption of a multidisciplinary planning culture to empower the project process and consolidate future cycling policies and investments; 3. allow cycling to become a key element of urban transport; 4. Improve cycling modal share and safety; 5. Leverage the potential of cycling as a critical congestion relief tool; 6. Leverage cycling to improve public health; vii) 7. Foster economic growth.
Implementation and outcomes	As cycling is a powerful way to address these challenges and steer cities towards being more sustainable, equitable and economically prosperous places for citizens. Handshake helps cities of all types become more liveable places, improving conditions for cycling as an everyday mode of transport. Handshake achieved this by improving the quality of both cycling infrastructure and communications through identifying innovation in areas such as intelligent transport systems, bike sharing, modelling, bike parking, socio-economic assessment and governance and decision-making. Handshake developed the manifold streams of project activity, identifying the cycling status baseline in each city and structuring the supporting mechanism to sustain the knowledge transfer and the cycling solutions implementation.

	The project worked synergistically to define the benchmarking cycling state-of-affair in each city, and an analysis and precise definition of the cycling solutions to be transferred from CCs to FCCs, identifying the areas in which inspiration and capacity building are most needed. The consortium set up the knowledge exchange mechanisms that accompany the project and sustain the cycling solutions transfer: An inspirational, motivational and empowering programme of mentorship. A concatenation of highly innovative methods brought together into an original and structured pathway, which includes Bikenomics, immersive study tours and symposia, transition management, ethics and equity guidelines. By fall 2020, the project was successfully able to hold online a number of critical knowledge share and transfer events, some of which newly designed, including thematic workshops gathering the technical staffs of the cycling capital cities. Policy and scientific-relevant insights have been collected to boost the effective take-up of cycling in urban mobility planning. In particular, a self-assessment tool to assess cities' capacity for cycling solution development has been designed in a city-driven and highly participatory manner. Finally, Handshake kept promoting attractive, easy-to-digest formats the interesting and valuable information generated by the specialised and motivational exchange among world-renowned cycling front runner organisations and highly committed cities.

MEISTER	
Project duration	09/2018 – 02/2022
What is about?	Mobility Environmentally-friendly, Integrated and economically Sustainable Through innovative Electromobility Recharging infrastructure and new business models
Thematic area	Clean and energy-efficient vehicles
Website	https://meisterproject.eu/
Who was involved (pilots)	Berlin (DE), Malaga (ES), Stockholm (SE)
Project coordinator	ETRA INVESTIGACION Y DESARROLLO SA, Spain
Project overview	MEISTER aims to deliver a set of tools to foster e-mobility large scale adoption by (1) demonstrating innovative, sustainable business models to lower installation and operation costs of charging infrastructure, (2) optimizing usage of infrastructure by the smart combination of charging and parking services, (3) integrating EV within urban SUMPs, including the establishment of EV sharing and the inclusion of EV within MaaS schemas to reduce CO2 emissions and optimize urban space usage, (4) providing interoperable platforms and services to users for an easy, convenient and barrier-free access to charging, billing and smart grid services, including an increase of the use of RES and self-generation to power EVs. Thus, MEISTER aims at creating the conditions for smart e-mobility market take up in cities, by means of developing integrated approaches, smart solutions and innovative, sustainable business models, which are tested and validated in three urban areas in Southern, Central and Northern Europe: Malaga (Spain), Berlin (Germany), and Gothenburg (Sweden). These 3 sites are EU leaders in the field of e-mobility, have complementary contexts and share a common vision on EV deployment. The three MEISTER pilots involve 51,500 users, 1,000 EV and 660 charging points. The specific focus areas for the MEISTER project are described in the objectives below: 1. Establishment of innovative, sustainable business models for smart e-mobility 2. Deployment of an e-mobility interoperability platform 3. Integration of e-mobility in the cities' sumps and city planning process 4. Integration with smart grid services
Implementation and outcomes	MEISTER solutions are packaged in the form of 5 products/results (P): – P1: MEISTER Replication, Market Uptake and Deployment Handbook: key outcomes of the project which any city willing to boost the large-scale deployment of electromobility should use. – P2: MEISTER Intelligent Billing & Roaming Platform: operator and service provider independent platform for e-mobility providers that enables an easy, non-discriminatory, convenient and barrier-free access to end users for EV charging billing features in urban areas. – P3: MEISTER Integrated Real-Time Information & Booking Services: with five components: (i) the backend (integrated services), three frontends namely (ii) smart phone app for individual EV drivers, (iii) mobility display for housing services, (iv) application for urban logistics companies, and (v) the smart e-mobility dashboard for the city management.

	– P4: MEISTER European eMobility Expertise Centre (EeMEC) and eSUMPS knowledge base: technical, legal and financial support centre to facilitate the transferability of best practices from the three MEISTER pilot cities –and other cities leading eMobility in Europe- to other European local governments. – P5: MEISTER Smart Charging and Storage Platform: tool to be used by vehicle-sharing companies and e-fleet managers, in order to optimize the activities related with the smart charging and discharging of the EVs, responding to the flexibility requests of the grid. Thereby, MEISTER develops integrated approaches, smart solutions and profitable BMs to achieve the objectives and outcomes previously explained.

Metamorphosis	
Project duration	06/2017 – 05/2020
What is about?	Transformation of neighbourhoods in a child-friendly way to increase the quality of life for all citizens.
Thematic area	Innovation in neighbourhoods
Website	http://www.Metamorphosis-project.eu/
Who was involved (pilots)	Alba Iulia (RO), Graz (AT), Meran (IT), Munich (DE), Southampton (UK), Tilburg (NL), Zurich (CH)
Project coordinator	Forschungsgesellschaft Mobilität - Austrian Mobility Research FGM – AMOR Gemeinnützige GmbH
Project overview	The aim of the Metamorphosis project is to transform car-oriented neighbourhoods into child-friendly places to increase quality of life for all. Indeed, the core value of the project relies on the premise that the presence of children in urban public space is a major indicator of a people-oriented and sustainable neighbourhood. The project applies an innovative and participatory approach, which encompasses the direct involvement of children as crucial players in each phase of the project – from planning through implementation, evaluation, and dissemination. During each phase of Metamorphosis, children's perspectives, suggestions, and ideas are highly valued as essential contributions to create more children-friendly cities. The objectives of Metamorphosis are: 1. transforming car-oriented into children-friendly neighbourhoods, leading to behavioural change and increasing citizen quality of life 2. implementing the vision-building process needed for such transformation 3. achieving creative breakthrough innovations for streets, squares and other public spaces in neighbourhoods and urban districts, such as in development, design, governance and planning procedures 4. developing and implementing children-friendly mobility solutions 5. evaluating take-up, involvement, process and impacts using innovative evaluation methodologies 6. using new instruments to facilitate the transfer of know-how acquired, from city to city and country to country, also beyond the duration of the project Metamorphosis seeks to address new ways of supporting development and implementation of neighbourhood-level and urban-district level transport innovations, while at the same time helping to improve quality of life for residents in these communities, by recognising the needs and rights of children in public space and implementing processes, measures, and activities which will benefit them. Metamorphosis includes seven trial implementation cities representing a wide mix of neighbourhoods and demographic characteristics.
Implementation and outcomes	The project followed the following steps: 1. a definition of child-friendly neighbourhoods, i.e., the potential scope of the project, including typical attributes and characteristics of such a public space 2. a summary of children's needs and abilities at different ages through childhood, including potential issues and strategies for the activation of children as essential stakeholders and participants

	3. suggested approaches to the planning of implementation trials, including methods for engaging children in the visioning, design and evaluation of intervention measures and activities 4. prospective implementation options, including further concepts, tools and methods for developing child-friendly neighbourhoods, as well as an initial summary of innovative and best practice interventions which will be considered by the cities in developing their implementation plans and trials 5. advice for monitoring and evaluation in each city, including goal setting and target indicators based on the best practice experience gained from other EU projects. The involvement of children during all project stages was unique to the project and will trigger changes in the respective neighbourhoods that go far beyond existing practices. With this methodology, it is possible to include emotional social and educational elements in addition to usual technical planning approaches.

MUV – Mobility Urban Values	
Project duration	01/2017 – 05/2020
What is about?	Sustainable and active mobility
Thematic area	Innovation in neighbourhoods
Website	https://www.muv2020.eu/
Who was involved (pilots)	Amsterdam (NL), Barcelona (ES), Fundao (PT), Ghent (BE), Helsinki (FI), Palermo (IT)
Project coordinator	Palermo Urban Solutions HUB
Project overview	MUV levers behaviour change in local communities using a novel approach to reducing urban traffic. Rather than focus on infrastructure, it raises citizens awareness on the quality of the urban environment to promote a shift towards more sustainable and healthy mobility choices. Its technological ecosystem integrated three components: 1. a mobile and wearable app used as the interface with end-users to (i) explain MUV's philosophy, (ii) anonymously track users' mobility choices, (iii) provide visual feedback and statistics about sustainable mobility improvements, and (iv) let users challenge friends, redeem trophies and even physical rewards and discounts made available by sponsors. 2. a distributed network of environmental monitoring stations (co-designed with 'FabLabs' and local makers) aimed at collecting useful data and interacting actively with citizens; 3. a web dashboard providing recommendations to local supporting organizations, mobility managers and decision makers. The project has the following objectives: 1. understanding the neighbourhoods' peculiarities and emerging values to define an effective behaviour change strategy; 2. co-designing site-specific solutions for better and more liveable urban environments; 3. developing scalable digital solutions and technologies to improve the experience of urban mobility; 4. raising awareness among citizens on the importance of sustainable and healthy mobility choices 5. analysing, visualising and sharing mobility and environmental data to build an effective decision support system for multiple stakeholders; 6. integrating new co-created mobility solutions into urban policy-making and planning processes at the neighbourhood level; 7. bringing the whole experiment to market through an innovative business model to improve urban transportation
Implementation and outcomes	The methods used within MUV project include: 1. gamification, ICT and data science to translate people's needs into new sustainable mobility solutions; 2. added-value services (e.g. trip planning), artistic design, awareness raising techniques, co-creation to maximise the involvement of end-users and prevent the risk of low uptake; 3. geo-referenced digital marketing and direct marketing techniques to improve local businesses' selling performances

	4. data visualisation to simplify complex information about urban mobility and support decision making; 5. real-world piloting in diverse urban neighbourhoods, to ensure the relevance of the lessons learnt and maximise replicability MUV co-creation activities have generated mobility policies targeted to each pilot area: – Amsterdam pilots are focused on the question of data governance. How can MUV data be best organised, used, and governed? – The Barcelona pilot aims to develop a co-creative method for analysing data, and then to co-create policy recommendations based on that data. Pilot coordinators use co-creation sessions to expand their network of stakeholders. – Pilot coordinators in Fundao aim to reactivate the local mobility community. With the help of citizen 'project ambassadors', the pilot looks to strengthen existing local ties, while also expanding to new community members. – Ghent focuses on safety and raised awareness about their existing campaigns on safe routes through neighbourhoods. – Helsinki 's focus is on how to make use of community-gathered data to develop novel strategies for working with traffic data. They developed a mobility panel of MUVers; combining qualitative and quantitative data in traffic planning; and developing a system to allow and promote feedback and dialogue – Pilot coordinators in Palermo aimed to continue developing dialogue on mobility with the local community and to select high-quality and feasible concepts stemming from MUV evidence.

Park4SUMP	
Project duration	09//2018 – 08/2022
What is about?	Transformation of neighbourhoods in a child-friendly way to increase the quality of life for all citizens.
Thematic area	Innovative solutions
Website	https://PARK4SUMP.eu/
Who was involved (pilots)	Freiburg (DE), Gdansk (PL), Krakow (PL), La Rochelle (FR), Lisboa (PT), Reggio Emilia (IT), Rotterdam (NL), Shkodra (AL), Sint-Niklaas (BE), Slatina (RO), Sofia (BG), Tallinn (EE), Trondheim (NO), Umea (SE), Vitoria-Gasteiz (ES), Zadar (HR)
Project coordinator	Mobiel 21
Project overview	Park4SUMP is an EU-funded Horizon 2020 project dedicated to showing how cities can adapt parking management policies and deploy effective and innovative solutions as part of their Sustainable Urban Mobility Plans (SUMPs). In spite of the fact that effective parking management has proven to be beneficial in delivering sustainable urban mobility in our cities, it is still one of the most underdeveloped elements within Sustainable Urban Mobility Planning (SUMP) policies. In fact, good parking management can help free up valuable public space, making our cities more attractive; support local economy; reduce vehicle traffic; improve congestion, road safety and air pollution; and moreover, generate revenues to invest in sustainable mobility and urban improvements. Park4SUMP is demonstrating how Innovative parking solutions become an integral part of cities' Sustainable Urban Mobility Plans (SUMP) to achieve their vision and objectives. Park4SUMP is learning cities how to: 1. Move from an operational and reactive parking policy to a more strategic one 2. Implement innovative and cost-effective parking solutions 3. Ring fence parking revenues for sustainable mobility purposes 4. Increase political and public acceptance of parking management solutions 5. Free public space from parking pressure to improve the quality of life in your city 6. Reduce car travel, as a result of parking management solutions, to make their transport system more sustainable The overall objectives of Park4SUMP are: 1. to achieve wide roll-out and transferability 2. to stimulate further innovation in parking management 3. to raise awareness and gain acceptance among relevant stakeholders on how parking policies can help cities 4. to build capacity, particular among cities that have difficulties in implementing such policies 5. to improve quality of life in society and cities
Implementation and outcomes	Park4SUMP outcomes included: 1. a city analysis and assessment of their level of development in terms of parking management, SUMP development and the integration of both

	aspects. Additionally, national and regional framework conditions (laws and regulations) were collected and analysed to understand possible barriers when (later) transferring success-proven practice measures in policy transfer-, capacity building and SUMP-integration programmes mainly in the second period of the project. The assessment process with interviews and questionnaires also formed the basis for development of the ParkPAD audit tool. 2. the conceptualisation of cities' (policy oriented) action- and (practical) implementation plans with measure selection for the Park4SUMP life time 3. a survey distributed among the Park4SUMP city representatives the framework addressing concepts and typologies of innovation in parking policies. 4. a capacity building programme ensured that representatives of all Park4SUMP cities build their capacity in a way that aligns their parking management activities with SUMP, their action plans and also with the project objectives. Cities started the implementation of parking measures and their integration into SUMP supported by the capacity building insights. The development of a monitoring and evaluation methodology and a city by city evaluation plan. – the care for ethics requirements in the project. – risk management and contingency actions due to the COVID-19 outbreak. This include several work packages - especially capacity building, dissemination, implementation of Parking Management measures and Evaluation The evaluation of the ParkPAD test phase in 16 cities and preparation of the institutionalisation of ParkPAD tool

PROSPERITY	
Project duration	09/2016 – 08/2019
What is about?	Prosperity through innovation and promotion of Sustainable Urban Mobility Plans
Thematic area	SUMPs
Website	http://sump-network.eu/
Who was involved (pilots)	Koprivnica (HR), Dubrovnik (HR), Fargaras (RO), Hradec Kralove (CZ), Jonava (LT), Kassel (DE), Katowice (PL), Limassol (CY), Lisbon (PT), Ljutomer (SL), Szeged (HU), Varna (BG)
Project coordinator	Forschungsgesellschaft Mobilität - Austrian Mobility Research FGM – AMOR Gemeinnützige GmbH
Project overview	CIVITAS PROSPERITY aims to enable and create a culture shift in government agencies and local authorities to support Sustainable Urban Mobility Plans (SUMPs). The project focuses on promoting and supporting the broad take-up of SUMPs especially in countries, regions and cities where take-up is currently low. It aims to achieve this by providing mechanisms and tools for national and regional agencies to take a leading role in the development of SUMPs, and by building professional capacity through peer-to-peer exchange programmes and tailor-made training programmes on various aspects of SUMPs and/or innovative approaches in sustainable urban mobility. The core concept of PROSPERITY is bringing ministries into the project, which significantly enhances the visibility of the project at the national level and therefore increases the number of cities active in SUMPs. Thus, PROSPERITY ensured that more cities commit to SUMPs that are in line with the EU SUMP guidelines and that include a broad range of innovative measures. This generates a high potential for replication by neighbouring cities, especially in regions where take-up is low and the impacts from transport are severe – for this reason, the majority of PROSPERITY activities took place in southern, central-eastern and eastern Europe.
Implementation and outcomes	CIVITAS PROSPERITY followed the SUMP philosophy. The main aim is to support local and national authorities to improve the quality and uptake of SUMPs. This was achieved through the involvement and interaction of national level administrations, while acknowledging gaps between the needs and demands of cities developing SUMPs and those of higher administrative institutions who prepare the groundwork and programmes to encourage cities to do so. The objectives of CIVITAS PROSPERITY have been to: 1. Produce a shift in the organisational culture of transport planning. 2. Get ministries and national agencies to play a leading role in SUMP development. 3. To provide mechanisms and tools for ministries to take on this lead role. 4. Analyse problems with the take-up of SUMPs, understand challenges as expressed directly by cities, and then help cities to address these barriers. 5. Get more cities to create SUMPs. 6. Ensure that these SUMPs will lead to implementation of more innovative transport measures. 7. Build capacity that reflects the spirit of the EU SUMP guidelines, shifting local cultures that view them merely as mandatory documents written to fulfil a requirement.

	8. Deliver a measurable impact. These objectives were achieved in 12 Member States and across a broad and active network of partner cities by means of a four-pronged approach: 1. National programmes – activating cities through strong involvement of the national level; 2. Living Labs – creating a support system for PROSPERITY partner cities; 3. Tools and guidelines – improving SUMP tools and guidelines to provide support to cities 4. Capacity Building – supporting innovative capacity-building, led as much by cities as by expert trainers, informed by the experiences and participation of 'Champion SUMP cities' and tailored to the needs and contexts of each locality.

SUITS	
Project duration	12/2016 – 11/2020
What is about?	Supporting Urban Integrated Transport Systems: Transferable tools for authorities
Thematic area	SUMPs
Website	https://www.suits-project.eu/
Who was involved (pilots)	Alba Iulia (RO), Coventry (UK), Stuttgart (DE), Kalamaria (GR), Palanga (LI), Rome (IT), Turin (IT), Valencia (ES),
Project coordinator	Coventry University
Project overview	The SUITS project is a four-year research and innovation action, intending to increase the capacity building of Local Authorities and transport stakeholders and to transfer learning to smaller sized cities, making them more effective and resilient to change in the judicious implementation of sustainable transport measures. SUITS is one of the three projects of the EU's CIVITAS 2020 initiative focusing on sustainable urban mobility plans. The project produced and provided small and medium-sized cities with a set of tools on planning, financing and implementing sustainable transport measures and will support the enhancement of the capacity of nine cities in seven EU countries to efficiently address the new challenges of urban mobility and to foster investments in sustainable transport. The SUITS objective is to increase the capacity of local authorities to develop and implement sustainable, inclusive, integrated, and accessible transport strategies, policies, technologies, practices, procedures, tools, measures, and intelligent transport systems that recognise the end-to-end travel experiences of all users and freight.
Implementation and outcomes	SUITS developed a suite of learning material for decision makers and planners to address knowledge gaps and misconceptions related to urban planning measures and to the deployment of innovative mobility solutions and technologies. The project made available tools, manuals, resources to enhance the capacity to design and implement sustainable transport measures. These include: 1. An extensive assessment of capacity and resources of the nine pilot cities 2. A demo tool for data collection and analysis, which includes a tool for traffic data acquisition and a tool for freight data acquisition 3. Sample tools for route optimisation and online surveys 4. A data management platform for the Urban Transport Management Tool 5. A Decision Support Tool, integrating a suite of tools on innovative financing methods, procurement of transport products and services, and on business-models for transport 6. Capacity Building Toolbox that integrates a set of different modules covering a wide range of topics related to urban mobility and relevant training materials. 7. A change toolkit to be used for the transformation of the transport departments of small- and medium-sized cities into learning- and knowledge-sharing organisations 8. A monitoring tool to evaluate any changes in capacity and capability of local authorities to implement sustainable mobility measures 9. The SUITS capacity building manual, which will explain the implementation of the SUITS capacity building programme in full scale

SUMPs-Up	
Project duration	09/2016 – 02/2020
What is about?	European Programme for Accelerating the Take up of Sustainable Urban Mobility Plans
Thematic area	SUMPs
Website	https://sumps-up.eu/
Who was involved (pilots)	Birmingham (UK), Budapest (HU), Malmo (SE), San Sebastian (ES), Sofia (BG), Thessaloniki (GR), Turin (IT)
Project coordinator	ICLEI European Secretariat GMBH
Project overview	The SUMPs-Up project assists planning authorities to overcome the barriers that prevent or make it difficult to implement SUMPs by enabling them to embrace SUMP as the European-wide strategic planning approach, especially in countries where take-up is low and the negative effects of transport are severe. To achieve this, the project combined comprehensive SUMP research, tailored capacity-building, strong mechanisms for technical support, as well as constant SUMP monitoring and evaluation. SUMPs-Up reviewed, strengthened, and integrated existing SUMP resources, designing a support system to assist cities to develop high quality SUMPs. A SUMP Tool Inventory helped mobility planners make better informed decisions about which planning tools to apply in their local contexts. This was enriched with experiences from city partners, who tested innovative solutions in SUMP preparation and implementation. The SUMPs-Up Innovation Pilot Pool created a mechanism that allows identifying and validating the most effective concepts, approaches and methodologies in SUMP practice for different framework conditions and different types of cities, complemented by a peer learning programme to leverage resources and enable more cities to apply the SUMP concept. At the Member State level, SUMPs-Up fostered exchange to improve national SUMP frameworks.
Implementation and outcomes	A comprehensive evidence-base on the barriers to SUMP preparation and implementation was created through applied research at the early stages of SUMPs-Up. Based on these findings, the project compiled the most effective planning tools and methods and provided guidance on various mobility policy areas. Based on the research and experiences, SUMPs-Up created innovative products and insightful reports and made these widely available, thereby ensuring the longevity of project impacts on SUMP development. A series of publications provide planners with expert guidance on crucial SUMP topics. An important update to the first edition from 2013, the second edition of the SUMP guidelines was launched at the CIVITAS Forum 2019 as one of project's key activities. In addition, SUMPs-Up has contributed practical and replicable tools and methods to support SUMP preparation, including guidance and training materials that are applicable to a large target audience. Throughout its lifetime, SUMPs-Up worked closely with its city partners to implement and monitor the progress of several good practice measures and procedures. Among the most prised endeavours of SUMPs-Up is the SLP (SUMP Learning Programme), which stimulated and helped to accelerate SUMP take-up by engaging planning authorities in a series of participant-driven learning activities. In addition to allowing for the testing of SUMPs-Up tool and guidance, the SLPs equipped local planning authorities and mobility

	practitioners with the knowledge and skills needed to develop and implement SUMPs. To enable a wider group of mobility experts and practitioners to benefit from project results and knowledge, a variety of learning opportunities were offered through the project, including face-to-face workshops, webinars, and a series of e-learning courses. The theme of some of these activities included the updated SUMP guidelines, SUMP Self-Assessment Tool, and financing and funding options for sustainable urban mobility. SUMPs-Up activities contributed to a deeper understanding of barriers to SUMP development and cities' SUMP needs, and they have – and will continue to – improve the quality of SUMP planning processes and enhance EU level and member state dialogue concerning SUMP.

SUNRISE	
Project duration	05/2017 – 07/2021
What is about?	Sustainable urban neighbourhoods, research and implementation support in Europe.
Thematic area	Innovation in neighbourhoods
Website	https://civitas-sunrise.eu/
Who was involved (pilots)	Bremen (DE), Budapest (HU), Jerusalem (IL), Malmo (S), Southend on Sea (UK), Thessaloniki (GR)
Project coordinator	Rupprecht Consult
Project overview	The SUNRISE mission is to develop, implement, assess and facilitate co-learning about new, collaborative ways to address common urban mobility challenges at the urban district level through “neighbourhood mobility labs”, and thus to lay the foundation for a Sustainable Neighbourhood Mobility Planning concept. SUNRISE rests on four main pillars: 1. Utilisation of neighbourhood-specific opportunities. 2. Co-creation of solutions, i.e. through strategic civic-public alliances 3. Consideration of the socio-technical nature of solutions, including through promoting combinations of services, social arrangements, rules, technologies, etc 4. Creation of new synergies between bottom-up and top-down approaches. The research entails promoting the use of “co-creative” activities along the entire innovation chain: identification of mobility problems, devising solutions to them, overseeing the implementation of measures and their evaluation, learning and knowledge transfer, and sharing. The project involves people representing different parts of society, as well as businesses, NGOs, local authorities, and academic institutions. Local activities aim to be inclusive of often under-represented groups in society such as migrants, women, older and younger people. SUNRISE will lay the foundation for a Sustainable Neighbourhood Mobility Planning concept to complement existing SUMPs
Implementation and outcomes	SUNRISE used several methods based on different strategies for mobilisation and participation: 1. Quantitative and qualitative methods of co-collecting and co-analysing information. 2. Action research – researchers and consultants are not restricted to analysis but they take part in processes of change. 3. Transdisciplinary involvement of urban and regional stakeholders spanning politics, administration and private, organised and non-organised citizens. 4. Deployment of “citizen science” – specific forms of the involvement of organised and non-organised citizens in urban development and mobility behavioural change 5. The use of the internet as a tool for interactive, more inclusive and more transparent participation processes, as well as to mobilise “crowd wisdom”, collective intelligence and creativity SUNRISE’s impact inspired, supported, and informed European cities and neighbourhoods about new, neighbourhood-focused processes towards

	novel types of transport innovations. SUNRISE is making significant contributions to improving knowledge on: 1. New innovation processes: SUNRISE embraces the principle of co-creation, i.e. the involvement of citizens, stakeholders, and users in the identification of problems, the development of new measures and their implementation and evaluation, applying participation to all phases of the innovation circle. 2. New organisational and governance concepts and planning processes: SUNRISE examines existing governance and planning systems and develops and tests new arrangements to inform its recommendations. SUNRISE aims to develop a new, district-level governance approach to mobility, known as Sustainable Neighbourhood Mobility Planning. 3. New forms of urban mobility solutions: Working at the neighbourhood or district level: over 50% of the local budget is reserved for the development and implementation of resident- and stakeholder-driven solutions, including technological and low-tech solutions. 4. Impact assessment and evaluation: SUNRISE assesses its impacts at the neighbourhood and project levels, including direct effects on resident quality of life, on businesses and on the environment. SUNRISE also evaluates the degree to which various participation techniques and tools managed to meaningfully involve all sections of the population and which governance strategies fostered or hindered co-creation. 5. Implementing a strategy to create scale, visibility, co-learning and uptake: The SUNRISE Take-Up Cities group has been established as a primary target group for upscaling and transfer.

CIVITAS 2020 Living Lab projects: 2016-2021

DESTINATIONS	
Project duration	09/2016 – 05/2021
What is about?	CIVITAS DESTINATIONS seeks to integrate sustainable tourism and mobility strategies through the development of mobility solutions in six European island locations: Elba in Italy, the Portuguese island of Madeira (and its capital Funchal), Limassol in Cyprus, Rethymno on the Greek island of Crete, Las Palmas de Gran Canaria in Spain, and the Valletta Region of Malta.
Thematic area	Integrated and inclusive planning
Website	https://civitas.eu/projects/destinations
Who was involved (pilots)	Madeira (PT), Limassol (CY), Rethymno (GR), Valletta (MT); Elba (IT) and Las Palmas de Gran Canaria (ES)
Project coordinator	HORARIOS DO FUNCHAL-TRANSPORTES PUBLICOS SA, Portugal
Project overview	CIVITAS DESTINATIONS aimed to change the mind-sets of all stakeholders involved in providing effective mobility and transport solutions in an integrated way. The need to integrate conventional Public Transport (PT) with flexible and tailored services is particularly challenging in tourist destinations. Such towns are often too small and lack the resources to provide adequate sustainable mobility options for both residents and tourists - with fluctuating demand - especially during peak season. In these tourist destinations, mobility is often car dependent, leading to congestion and other harmful impacts which can harm the urban experience for the local and visiting population. This generates exceptional demands and trade-offs by local administrations, who are tasked with accommodating the needs of many different road users. The lack of well-established private-public collaboration schemes and business models also prevent the provision of seamless mobility services in many touristic destinations. To show how to address this challenge, DESTINATIONS implemented integrated innovative mobility solutions in: Madeira, Limassol, Rethymno, Valletta (Malta); Elba; and Las Palmas de Gran Canaria; targeting the resident and tourist mobility demand with an integrated approach, delivering sustainable mobility tools and strategies.
Implementation and outcomes	CIVITAS DESTINATIONS sought to integrate sustainable tourism and mobility strategies through the development of mobility solutions in six European island locations: Elba in Italy, the Portuguese island of Madeira (and its capital Funchal), Limassol in Cyprus, Rethymno on the Greek island of Crete, Las Palmas de Gran Canaria in Spain, and the Valletta Region of Malta. The six locations applied a set of uniform methodologies in order to develop and implement sustainable mobility measures and actions, with a view to offering clean and green transport. For close to five years, 28 partners from nine Member States - with the strong support of local politicians - worked together on designing, developing, and implementing more than 75 measures and actions. As part of their solutions, the DESTINATIONS cities: 1. developed Sustainable Urban Mobility and Logistics Plans (SUMPs and SULPS); 2. created attractive and accessible public spaces;

	3. fostered behavioural change towards shared mobility and e-mobility (including by providing new infrastructure); 4. managed mobility demand and re-allocated urban space in favour of sustainable modes; 5. raised awareness on the worth of sustainable mobility; and, 6. fostered attractive, efficient and accessible public transport. Taken together, these measures have helped reduce the tourism-derived pressure on transport systems across the DESTINATIONS project sites and saw broad groups of stakeholders unite to drive a shift towards more sustainable modes. Ultimately, DESTINATIONS proved that the tourism and transport sectors can work together and that sustainable mobility is a highly touristic service - forging a path for other holiday destinations to follow as they attempt to go green. Following the onset of the COVID-19 pandemic, DESTINATIONS also supported touristic cities to rethink tourism in times of travel restrictions.

ECCENTRIC	
Project duration	09/2016 – 11/2020
What is about?	Innovative solutions for sustainable mobility of people in suburban city districts and emission free freight logistics in urban centres.
Thematic area	Urban logistics; Integrated and inclusive planning
Website	https://civitas.eu/projects/eccentric
Who was involved (pilots)	Madrid (ES), Stockholm (SE), Munich (DE), Turku (FI) and Ruse (BG)
Project coordinator	City of Madrid
Project overview	The cities of Madrid, Stockholm, Munich, Turku and Ruse have formed the CIVITAS ECCENTRIC consortium to tackle the challenges of mobility in suburban districts and clean, silent and CO2 free city logistics. In many cities, these two important areas have received less attention in urban mobility policies. Though European cities have made significant steps forward in making city centres attractive and liveable urban nodes, there is a remaining conflict between providing high quality public space and meeting the accessibility requirements for freight deliveries. The suburban areas have remained largely unaddressed with a much higher car usage as a consequence. Recent or expected urban growth processes are posing additional pressure to peri-central areas, which face the specific challenges of: 1. Becoming sufficiently appealing to avoid an unnecessary traffic flow towards to the city centre; 2. Providing sustainable and high-quality mobility options to enable and encourage car independent lifestyles; and 3. Planning the urban future according to carbon neutral mobility principles ECCENTRIC demonstrated and tested the potential and replicability of integrated and inclusive urban planning approaches, innovative policies and emerging technologies to reach sustainable urban mobility objectives. The solutions will be implemented in 5 living laboratory areas in the outskirts that face high population growth and an increasing pressure on the existing transport networks. As highlighted in the SUMPs of the ECCENTRIC cities, this action on a wider geographical scale than the city centre is needed in order to meet the targets of the Transport White Paper in terms of air quality, energy use and CO2 emissions, road casualties and wide uptake of clean vehicles. To reach CO2 free city logistics by 2030, ECCENTRIC will test clean vehicles and fuels, formulate new regulations and services and develop consolidation solutions in close partnerships with the private sector.
Implementation and outcomes	The project has prepared a large collection of dissemination and replication materials, mostly in short audio-visual formats to enhance the discussion and further development as a legacy of the work done within the financed period. The expectations are that the inclusive and innovative approach and results of the work done may have a deep influence in the further knowledge-basis for the long term necessary sustainable urban mobility shift and new urban models. Some innovative approach has been directly replicated or analysed for replication in other cities, i.e. the E-mobility nodes (from Stockholm to Turku and Madrid), the maintenance of cycling and walking itineraries in cold

	weather (from Munich and Stockholm to Turku), the dialogue marketing for MM from Munich to Turku; the parking management from Stockholm to Amsterdam, the pop up or tactic strategy for testing a change from Stockholm and Madrid to Turku. The replication has been object of detailed study through an academic research linked to ECCENTRIC, through articles and master thesis that are going to be continued in next months.

PORTIS	
Project duration	09/2016 – 11/2020
What is about?	Provide more and better mobility of goods and services; better design and functionality of urban spaces and transport network in port cities.
Thematic areas	Demand and urban space management; urban logistics.
Website	https://civitas.eu/projects/PORTIS
Who was involved (pilots)	Aberdeen, (UK), Antwerp (Belgium), Constanta (Romania), Klaipeda (Lithuania), and Trieste (Italy)
Project coordinator	City of Antwerp
Project overview	Port Cities can be seen as multidimensional laboratories where challenges connected with urban mobility are more complex due to the dual system of gravity centre: the city, the port, not to mention their shared hinterland. These peculiarities are at once a challenge and an opportunity, as they provide scope for planning, researching and implementing integrated mobility solutions in distinctively complex urban contexts. Civitas PORTIS designed, demonstrated and evaluated integrated sets of sustainable mobility measures in 5 major port cities located on the North Sea (Aberdeen and Antwerp), the Mediterranean Sea (Trieste), the Black Sea (Constanta), and Baltic Sea (Klaipeda). The project also involved a major international follower port city on the East China Sea (Ningbo). Thanks to the project, the partner cities proved that more efficient and sustainable mobility is conducive to the establishment of vital and multi-modal hubs for urban, regional, national and International movements of passengers and goods. To do this, they established integrated living laboratories clustering local measures according to four major aspects of sustainable urban mobility: 1. Governance: to increase port-city collaborative planning and participation, leading to enhanced forms of SUMPs. 2. People: to foster less car-dependent mobility styles, leading to modal shift in favour of collective and more active transport. 3. Transport system: to strengthen the efficiency of road traffic management to/from the port and through the city, and foster the use of clean vehicles. 4. Goods: to enhance logistics and freight transport, improving the efficiency and coordination of city, port and regional freight movements. Working with port cities, CIVITAS PORTIS will generate a strong and twofold replication potential: 1) specifically to other port cities, and 2) more generally to cities presenting major transport nodes and attractors for the benefit of the whole CIVITAS Initiative.
Implementation and outcomes	All five cities have finalised their local measures in the living laboratories. The governance initiatives led to the approval of the SUMPs in Aberdeen, Trieste and Klaipeda, and to the upgrade of the SUMP to a regional level in Antwerp. Constanta and Klaipeda established a structured dialogue with citizens and stakeholders, never before seen in Romania and Lithuania, while Trieste has set up a project office to redevelop the Old Port area together with citizens and other stakeholders (WP1). In addition, the five cities have taken steps to improve public transport and encourage cycling, thereby providing mobility apps and guides to facilitate getting around the city/port area for citizens and tourists. Reallocation of road space to pedestrians, cycling and PT has been implemented in Antwerp and Constanta, supported by awareness-raising campaigns, which was a core activity in all cities (WP2).

	The cities have also implemented solutions to manage traffic flows and parking, improved signage and boosted the uptake of e-mobility, finding innovative ways to reduce pollution and make transport more efficient. A new system for the prioritisation of public transport has been developed in Klaipeda and an access control system is now in use in Trieste based on camera and sensor technology while Antwerp move to the NXTMobility, a data-driven mobility policy (WP3). Given the importance of freight transport in port cities, improvement of interconnectivity and traffic flows in order to reduce environmental impacts has been pursued. Freight routing backed by smart technology and cooperation with industry has been developed in Aberdeen, while real-time tracking of vehicles and cargoes to and inside the port has been developed in Trieste. A market place for logistic solutions is active in Antwerp, with continuous calls for projects (WP4). The project has also devised the CIVITAS PORTIS Innovation Process, created electronic innovation brochures, and established the Thematic Innovation Platform (WP5). Moreover, evaluation activities have been carried out to evaluate the effectiveness of the PORTIS measures in terms of impacts and process (WP6). Actions to understand the potential market for CIVITAS PORTIS innovations have been finalised and the transferability potential of local measures has been assessed and disseminated for the benefit of port cities across Europe and beyond. Exchanges with EU cities, China and third countries have been enhanced via webinars, training sessions and workshops (WP7).

CIVITAS 2020 research projects: 2015-2018

CIPTEC	
Project duration	05/2015 – 04/2018
What is about?	Using collective innovation to improve public transport
Thematic area	Collective passenger transport
Website	http://ciptec.eu/
Who was involved (pilots)	Frankfurt (DE), Rotterdam (NL), Southern Tuscany (IT), Thessaloniki (GR)
Project coordinator	Aristotelio Panepistimio Thessalonikis
Project overview	CIPTEC sought to increase the modal share of public transport (PT) by being able to better understand and attract new users at as low a cost as possible. It sought to do so by developing and utilising modern marketing techniques and promoting creativity and innovation to encourage the desired modal shift. Two main processes sat behind this: 1. Market research of user groups 2. Collective innovation CIPTEC also examined PT from the supply perspective, shedding light on the challenges faced by PT providers. To tackle these, it produced the CIPTEC Toolbox for Public Transport Innovation. This helped operators and policymakers understand their situation, identify applicable solutions, and implement these. CIPTEC's objectives were: 1. To gather and analyse customer intelligence improving the understanding of urban public transport demand 2. Collect market intelligence to allow the demystifying of the urban public transport supply 3. Advanced motivational insights undergoing transport related behaviour 4. Mapping and identification of promising innovative approaches and co-creation of novel integrated solutions and business models for urban PT 5. Translation validation and capitalization of results through an extended platform of motivated stakeholders for PT innovation
Implementation and outcomes	During the first phase of the CIPTEC project, an analysis of current market and social trends that might influence public transport within the next years has been conducted. CIPTEC investigated the specific needs of users and potential users of Public Transport systems. This analysis was performed by means of a rigorous and in-depth review of the literature on different types of Public Transport customers groups and their needs. The analysis was complemented by the mapping and profiling of urban public transport supply. The main goal of the second phase was the development of innovative concepts in the public transport sector by means of collective intelligence, such as crowdsourcing campaigns and co-creation workshops, as well as the implementation of advanced marketing research methods. The second phase was concluded with the advanced marketing research methods that were used for ranking the innovations and identifying hidden groups of PT users.

	Additionally, behavioural insights have been tested both in lab and field environment, by taking into account the fact that preferences and attitudes can often be poor predictors of behaviour. In short, CIPTEC tested the potential of social labelling to increase people's actual use of the bus in two areas During the third phase of the project, the Toolbox for Public Transport Innovation has been designed and the potential of social entrepreneurship in the Public Transport sector was investigated through special workshops with experts on the field.

CITYLAB	
Project duration	05/2015 – 04/2018
What is about?	Incubating zero-emission logistics in living laboratories
Thematic area	Urban freight logistics
Website	www.citylab-project.eu
Who was involved (pilots)	Rotterdam (NL), Amsterdam (NL), Brussels (BE), London (UK), Oslo (NO), Paris (FR), Rome (IT), Southampton (UK)
Project coordinator	Transportokonomisk Institutt
Project overview	The objective of the CITYLAB project was to develop knowledge and solutions that result in the roll-out, scaling up and further uptake of cost-effective strategies, measures and tools for zero-emission city logistics. In a set of seven Living Laboratories ("Living Labs"), promising logistics concepts were implemented, tested and evaluated, and the potential for further roll-out and upscaling of the solutions investigated and explained. CITYLAB focused on four areas requiring intervention: highly fragmented last-mile deliveries in city centres; inefficient deliveries to regular recipients of large deliveries (e.g., businesses) and public administrations; urban waste, return trips and recycling; and logistics sprawl. CITYLAB worked on three pillars: 1. Improvement of basic knowledge and understanding on areas of freight distribution and service trips in urban areas that have received too little attention; 2. test and implementation of 7 innovative solutions that are promising in terms of impact on traffic, externalities and business profitability and have a high potential for future growth; 3. Provision of a platform for replication and spreading supported solutions.
Implementation and outcomes	The project's participating city each implemented one or more freight measures during the project: – Amsterdam: City centre micro-hubs and cycle freight deliveries. – Brussels: Increasing vehicle loading by utilising spare capacity. – London: Growth of consolidation and electric vehicle use. – Oslo: Common logistics functions for shopping centres. – Paris: Logistics hotels to counter logistics sprawl. – Rome: Integration of direct and reverse logistics flows. – Southampton: Joint procurement and consolidation for large public institutions. The creation of living labs in city logistics provided a new way to develop and address different trends and challenges. It supports an action driven cooperation form fostering innovation deployment and improving communication and cooperation between stakeholders. Development of a shared vision, aligning individual interests to common goals and active involvement of the end-users as well as other competencies in the co-creation process helps to develop innovative solutions that are more user-friendly, more financially sustainable and adapted/tested within a real-world environment. CITYLAB has developed a handbook with guidance on how to get started for those wanting to develop future city logistics living labs.

	Also, CITYLAB supported seven implementations aiming at reducing the negative impacts of freight and service trips. Data have been collected and the implementations have been evaluated. The project contributed to synthesising and generating urban freight knowledge. This includes an Observatory of Strategic Developments Impacting Urban Logistics. The project also contributed to identifying the challenges that need to be addressed and overcome by the private and public sectors by the private and public sectors in ensuring the successful uptake and outcome of urban freight initiatives, and have increased the understanding of expected effects of measures. The knowledge and solutions generated in CITYLAB are expected to increase efficiency and load factors of freight trips in urban areas, and to reduce the negative impacts of freight activities in combination with achieving more sustainable business models for urban freight operations. The collaborative environment achieved from planning, implementing and evaluating the real-life CITYLAB implementations is a major leap forward from the traditional city logistics initiatives, where demonstrations aim to “prove” the functionality of a solution within a limited and temporary organisation. Because the Living Lab approach focus more on the city environment, CITYLAB achieves more than demonstrating the feasibility of a short-term test pilot, it also allows absorption by the city.

CREATE	
Project duration	06/2015 – 06/2018
What is about?	Reducing traffic to create place-based cities
Thematic area	Integrated Planning
Website	www.create-mobility.eu
Who was involved (pilots)	Berlin (DE), London (UK), Paris (FR), Copenhagen (DK), Vienna (AT), Adana (TR), Amman (JO), Bucharest (RO), Skopje (BG), Tallin (EE)
Project coordinator	University College London
Project overview	CREATE (Congestion Reduction in Europe: Advancing Transport Efficiency) studied how five cities in Western Europe tackled growing car use and congestion over 50-60 years. The lessons they learned were then used to support five cities in Eastern Europe and around the Mediterranean to reduce congestion and car use, and move towards the use of sustainable transport modes. CREATE explored historical patterns or urban road traffic and car use, identify success factors in encouraging modal shift and lessons learnt in Western European capital cities, and work with Eastern Europe and Euro-med city partners to assist them in developing sustainable strategies. The main objectives of CREATE are to: 1. Improve our understanding and measurement of congestion and road network performance 2. Identify factors that have encouraged an evolution from Car-oriented, (Stage 1), through Sustainable mobility (Stage 2) to City as places (Stage 3) 3. Explore future mobility pressures faced by cities with growing populations 4. Develop guidelines and training materials for cities
Implementation and outcomes	CREATE's objectives have been reached thorough: 1. Analysing congestion and network performance data provided by INRIX and WE cities. 2. Using detailed household travel data from repeat surveys in WE cities since the 1970s/1980s and complementary data on network, economic and demographic conditions; and documents setting out historical policy development. 3. Preparing detailed guidance and training for our CEE cities, which will then be delivered to a much larger set of cities. 4. Working with leading technology providers, businesses and futurists, to explore what options there might be to provide high quality mobility in cities facing increasing population and employment. The main CREATE outcomes include: 1. A framework for exploring policy evolution and a basis for benchmarking cities worldwide in terms of their dominant policy perspective 2. A critical understanding of the strengths and weaknesses of different methods of measuring congestion and network performance, and how they can distort policy making – leading to fresh insights into better problem diagnosis and objective setting 3. Provision of policy makers with insights into the respective roles of policy, demography and economy in affecting levels of car use and helping policy

	makers to better understand the key role of legislation, administration and funding arrangements in delivering sustainable/liveable policies 4. Insights into ways of funding and financing sustainable/liveable policies and pointers to ways in which forecasting and appraisal methods need to be adapted 5. Guidelines to assist cities in applying CREATE principles Recommendations for tackling congestion and planning the cities of the future included: 1. Broaden the debate about congestion 2. Use wider indicators of urban mobility and city liveability 3. Develop a wider city vision, in which sustainable transport plays a key role to encourage place-based thinking 4. City shaping depends on a full integration of transport and land use planning at the metropolitan level 5. Foster cross-sector multi-level governance for more effective policy making and delivery 6. Invest in institutional capacity: broader skills base, better enforcement, delivery capability, etc.

EMPOWER	
Project duration	05/2015 – 04/2018
What is about?	Rewarding change in travel behaviour
Thematic area	Car-independent lifestyle
Website	www.empowerproject.eu
Who was involved (pilots)	Leading cities: Enschede (NL), Gothenburg (SE), Helsinki (FI), Milton Keynes (UK) Take Up Cities: Antwerp (BE), Budapest (HU), Milan (IT), Newcastle (UK), Odense (DK), Reading (UK), Bologna (IT)
Project coordinator	University of Leeds
Project overview	EMPOWER researched how positive incentives can encourage members of the public to reconsider their travel choices and reduce the extent to which they travel using conventionally fuelled vehicles (CFV). They utilised incentives such as information, points, discounts, rewards, community support and games to help attract new users to use sustainable modes. Aside from implementation, EMPOWER also examined business cases for the creation and methodologies for the evaluation of such schemes. The main objective of EMPOWER was to investigate how to substantially reduce the use of CFV in cities by influencing the mobility behaviour of CFV drivers and users towards fundamental change. The EMPOWER approach is to reduce the use of CFV by: shifting trips to other modes/other vehicle types and promoting sharing and self-organisation to reduce demand overall. Undesirable impacts from CFV use will be reduced by: shifting CFV use to outside peak times and diversions to avoid particular areas/routes.
Implementation and outcomes	The innovation outputs of EMPOWER included an EMPOWER Toolkit to support industry, policy makers and employers to understand, choose and implement positive policy interventions. The Toolkit included: new mobility services to provide innovative positive policy measures, new evidence on behavioural responses and impacts from positive incentives, improved organisational models for successful implementation of positive policy measures and innovation in the evaluation methodology for new mobility services. Also, EMPOWER elaborated the so-called 'Success factors for Social Innovation Implementations', whose goal is to identify the success and failure factors in social innovation-based implementations in the transport sector. The results have Identified a set of factors attributed to the success or failure of social innovation schemes in the transport sector. These factors should provide information and guidance for the design of future transport schemes using social innovation. The main focus of the project's living lab is here summarized: 1. Enschede focused on a reduction of car usage by stimulating a substitution of car trips with bicycle trips. Using a series of challenges, users could earn points which could be converted to reward vouchers at local retailers, supported by the already implemented SMART-app. 2. In Gothenburg the Living Lab focused on substituting longer commute car trips by Public Transport in two local communities. The SMART-app was tuned for the local situation to support this, using an equal reward system as in Enschede.

	3. In Milton Keynes the Living Lab focused on the whole city and included schemes to encourage cycling and to encourage use of the electric bus on Route 7. Using the Love to Ride and *zwitch app, to schemes were implemented where voucher for local shops was the reward presented to users. 4. The Living Lab in Scotland focused on longer term decision-making around private vehicle purchasing decisions and a change to Ultra-Low Emission Vehicles (ULEVs). Information and financial incentives were provided to participants using several dedicated web tools. This approach used employers as a proxy-organisation between the Living Lab Operator and the end-user. 5. In Helsinki, the focus was strongly on the structures and processes need to enable innovative collaboration with local stakeholders, more in particular employers. We focused on investigating existing collaborative relations and the obstacles that would need to be overcome in order for implementation to take place in practice. The experimental work involved a series of small-scale test with two employers The project provided recommendations for future positive incentive schemes on the following aspects: 1. The design of mobility services 2. The use of social networks for the enrolment of new users 3. The embedding in existing organisations 4. The factors influencing the uptake 5. The most effective and efficient incentives

FLOW	
Project duration	05/2015 – 04/2018
What is about?	Walking and cycling as tools to take on congestion
Thematic area	Car-independent lifestyles
Website	http://h2020-flow.eu/
Who was involved (pilots)	Budapest (HU), Dublin (IE), Gdynia (PL), Lisbon (PT), Munich (DE), Sofia (BG)
Project coordinator	Rupprecht Consult
Project overview	Furthering Less Congestion by Creating Opportunities for More Walking and Cycling or "FLOW" is a project that aims to put walking and cycling on an equal footing with motorised modes as a solution to tackle urban congestion, by developing a user-friendly methodology, involving traffic modelling, to assess the effectiveness of walking and cycling measures. The project took a trans-disciplinary approach to congestion reduction, and aimed to create and implement a new state-of-the-art by integrating the FLOW methodology and congestion assessment tools into the current standard transport impact analysis process. FLOW mission is to place non-motorised transport on an equal footing with motorised modes with regard to urban road congestion. It will achieve this by developing a methodology and tools to assess the ability of walking and cycling measures to reduce congestion in European cities. FLOW's objectives were: 1. To define the role of walking and (safe) cycling in congestion reduction; 2. To develop and apply tools for assessing the congestion-busting impacts of various walking and cycling measures; 3. To demonstrate and assess the congestion reduction impact of various walking and cycling measures; 4. To actively support take-up of congestion reducing measures by public administration; 5. To increase awareness of the congestion reduction potential of walking and cycling; 6. To foster the market for new walking and cycling products and services for congestion reduction; 7. To communicate congestion reduction facts of walking and cycling.
Implementation and outcomes	The project addressed the challenge of helping cities to better assess the transport impacts of walking and cycling measures so that the benefits of such projects in reducing congestion could be understood and conveyed. FLOW began by investigating the definition of congestion, technical methods for assessing transport network quality (specifically congestion), and the transport impact analysis process. Next, FLOW developed methods to improve the ability of transport analysis tools to assess the impacts of walking and cycling measures. Concretely, FLOW developed calculations for assessing different aspects of transport network quality, a comprehensive impact assessment tool and improvements to existing transport modelling software. The FLOW multimodal transport analysis calculation methods were developed to improve the ability to assess the transport impacts of walking

	and cycling. Existing techniques can evaluate the transport impacts of walking and cycling measures, but they only provide mode-specific results. They cannot help deciding whether it is better to add a cycle lane or a car lane in a given situation. The FLOW Impact Assessment Tool was developed to ensure that transport decision making considers environmental, societal and economic impacts of a proposed measure in addition to mobility impacts. The spreadsheet-based tool can be used to evaluate the impacts of a proposed transport measure by comparing data from before and after implementation. Finally, FLOW contributed through the following refinements to transport modelling: 1. Micro modelling – Enhanced modelling of conflict zones between cars and pedestrians, behaviour parameters, new mobility patterns, the interaction between bikes and pedestrians and shared space; 2. Macro modelling – Path-level attributes in stochastic assignment of bicycles, a modelling platform for combining two legs of a journey using different transport modes (here, shared bikes and public transport) and an enhanced representation of mobility sharing in public transport assignment One of the project's most important contributions has been highlighting the need to improve transport models to better consider walking and cycling.

NOVELOG	
Project duration	06/2015 – 05/2018
What is about?	Four steps for sustainable urban freight
Thematic area	Urban freight logistics
Website	https://cordis.europa.eu/project/id/636626
Who was involved (pilots)	Athens (GR), Barcelona (ES), Graz (AT), Mechelen (BE), Rome (IT)
Project coordinator	CERTH
Project overview	The innovative NOVELOG project provided guidance to cities and regions on how to implement sustainable urban freight transportation (UFT). Known as 'New Cooperative Business Models and Guidance for Sustainable City Logistics', NOVELOG means that cities can now put sustainable policies and measures in place via four simple steps: 1. Understand the UFT environment; 2. Focus on the most suitable measures and policies; 3. Assess these measures; and, 4. Guide stakeholders for effective implementation. The specific objectives of the project were: 1. cost-effective, eco-friendly measures and business models; 2. increased load factors and reduced vehicle movements; 3. optimised governance and stakeholder co-operation in urban distribution; and, 4. strengthened capacity of local authorities and public and private stakeholders for sustainable policy-making and mobility planning Project's pilots focused on: – Athens – an integrated rail-road system and cargo consolidation for last mile transportation – Barcelona – the operation of micro-blocks and e-tricycles for urban freight distribution, together with the use of the AreaDUM app for smart urban freight parking management in the city; – Graz – the extension of an existing e-bike B2C home delivery service and the introduction of an eco B2B delivery system; – Mechelen – a smart locker system and bike services for last mile distribution of goods; – Rome – the design and development of a 'decision support system' for freight distribution planning and monitoring; – Turin – the flexible use of bus lanes by freight vehicles and parking management in limited traffic zones.
Implementation and outcomes	The project's objectives have been achieved through: 1. the targeted understanding of urban freight and service trips, fostered by data collection on city logistics, 2. field testing and implementation of representative city logistics measures, 3. the development and application of a modular, integrated, evaluation framework for the assessment of these measures

	4. the development of a typology between cities and potential city logistics components 5. the provision of guidance to cities, shaping consistent implementation channels for successful solutions, all according to the local needs and constraints. These activities have been accompanied by the production of the tools that are expected to support the take-up impact to wider international city and industrial networks: 1. The NOVELOG Understanding the cities tool: This tool aims to provide a starting point for the various stakeholders, to realize interrelations beyond their own environment; identify the key influencing factors of UFT demand & supply and their expected impact on the UFT characteristics, through a stakeholder participation approach; serve as an ongoing platform at the city level, for building a common view among stakeholders on the UFT environment and reaching consensus on critical issues 2. The NOVELOG Toolkit: This tool aims to enable a city to identify measures, typology and impacts, in an accessible and repeatable fashion. The tool uses the findings of the previous work of NOVELOG to provide suitable measures and interventions to cities 3. NOVELOG Evaluation Tool: This tool was designed to help NOVELOG cities to assess measures that are designed to provide sustainable urban freight distribution. The Evaluation Tool enables the comparison of implemented measures or/and planned measures by using data that are obtained by observation of modelling 4. NOVELOG Impact assessment Guidance Tool. This tool can be used by cities to develop business models for UFT solutions, as well as to integrate it with their existing SUMPs.

SUCCESS	
Project duration	05/2015 – 04/2018
What is about?	Sustainable logistics solutions in the construction industry
Thematic area	Urban freight logistics
Website	www.success-urbanlogistics.eu
Who was involved (pilots)	Neudorf (CH), Paris (FR), Valencia (ES), Verona (IT)
Project coordinator	Luxembourg Institute of Science and Technology
Project overview	SUCCESS (Sustainable Urban Consolidation CentrES for conStruction Projects) focused on the construction industry and its relationship with logistics. It saw potential to improve the efficiency of goods and waste movement and service trips in EU cities. The project aimed to explore and test green and efficient solutions covering various issues in the construction supply chain and material freight logistics in urban areas. To test those solutions, SUCCESS developed simulation tools to play out several scenarios focusing on the implementation of Construction Consolidation Centres (CCCs) at four pilot sites. Pilots studies have demonstrated reduced transportation impacts, positive effects on transportation efficiency and construction site productivity. Specifically, the project aimed to: 1. Decrease the nuisances caused by urban freight transport, so to improve the overall quality of life in urban zones. 2. Improve the use of the existing transport infrastructures and diminish their degradation, so to decrease building and renovating costs and impacts on urban environment. 3. Increase the level of cooperation and coordination among all the stakeholders of the supply chain and the policy makers. 4. Develop reusable methods and tools which can be adopted for the optimisation of the supply chain of future construction projects and help the implementation of CCCs, with clear indications of their impact, suggestions on where to optimally locate them, and a Cost-Benefit Analysis
Implementation and outcomes	The project followed the following steps: 1. Analysing the current situation by collecting information and data on the four pilot sites to detect problems, inefficiencies and potential improvements to the Construction Supply Chain. 2. Offering solutions and optimisation tools for the Construction Supply Chain (e.g. RFID and GIS technologies, e-collaboration tools, process mapping, business models, etc.). 3. Establishing numerical scenarios and simulations with and without CCCs for several cases using the data from the pilot sites (e.g. single / multiple suppliers, single / multiple site, etc.) and assessing potential solutions to be applied. 4. Implementing and testing different scenarios directly on pilot sites. 5. Developing a “Business model” based on construction sites’ results in order to ensure replicability of the solutions developed, especially in other European cities.

	The project produced three tools: 1. The SUCCESSFUL–Action plan tool to assess the logistics complexity of a given set of projects in a given city and identify the most appropriate optimisation measures. 2. The SUCCESSFUL–CBA4CCC tool to assess the costs and the benefits that the CCC implementation would bring for a given set of projects in a given city. 3. The SUCCESSFUL–CCC Locator tool to identify the best location of a CCC for a given set of projects in a given city. The core impact of SUCCESS is its contribution to the reduction of the negative externalities and costs of freight deliveries and service trips generated by the construction supply chain in urban areas. It delivered the first comprehensive data collection effort focussing on the analysis of construction supply chain across four heterogeneous pilot sites and clear, unbiased scientific knowledge on the viability of consolidation centres that can lead to larger adoption with benefits for the affected urban areas and the other stakeholders. The same applies to a number of other policy improvements (e.g. limitations on size, class, mode, delivery windows etc.). The project's results have been transferred during the project to twelve non-partner cities and translated in a set of freely available software tools that urban decision makers, transport & logistics and construction companies will be able to use to assess the impact of these measures on their future projects and receive helpful advice on how to practically implement them.

TRACE	
Project duration	06/2015 – 05/2018
What is about?	Using tracking tools to encourage active mobility
Thematic area	Car-independent lifestyles
Website	http://h2020-trace.eu/
Who was involved (pilots)	Agueda (PT), Belgrade (RS), Breda (NL), Esch (NL), Flanders (BE), Plovdiv (BG), Southend-on-Sea (UK)
Project coordinator	INESC ID
Project overview	The TRACE project assessed the potential of movement tracking services to better plan and promote walking and cycling in cities, and developed tracking tools to drive the uptake of walking and cycling measures. The project looked at measures to promote cycling and walking to the workplace and school, for shopping purposes, and simply for leisure. More specifically, TRACE assessed the potential of ICT-based tracking services to optimise the planning and implementation of such measures and enhance their attractiveness and potential impact. TRACE objectives included: 1. To assess the potential of the use of tracking data 2. To deepen and deliver the knowledge on how to apply cycling and walking tracking technology for behaviour change initiatives 3. To study how cycling and walking tracking data may be used to improve urban mobility planning 4. To tackle the related ICT challenges for the development of tracking services 5. To develop, implement, and test tracking-based tools 6. To provide guidance and tools to disseminate them
Implementation and outcomes	TRACE improved and delivered new applications that support the need to change the culture and incentives faced by travellers and the need to provide sensible information for planners seeking to improve the conditions for cycling and walking. To fully exploit the huge potential of walking and cycling as congestion busting measures, TRACE unlocked the possibilities offered by quickly developing ICT tracking technologies. By expanding the knowledge and leveraging the potential of cycling and walking tracking, TRACE triggered innovative cycling and walking promotion initiatives and planning practices. These applications were launched among final users in pilots on 8 test sites. These experiments delivered knowledge on practical, real-world performance of the applications developed in the project. The experience gathered in the roll-out of the TRACE apps and tools will prove to be beneficial to develop even more successful applications and R&I initiatives. Moreover, it provided insights on potential business models for entities (e.g. SMEs) willing to exploit the market potential of this type of applications. Introducing and implementing such an innovative approach beyond the parties directly involved in the project required appropriate dissemination and exploitation efforts supported with tailored communication activities. This helped to make sure that these innovations reached and engaged the envisaged stakeholders and target groups and thus the project's take-up potential was exploited to the fullest.

	TRACE developed different types of tracking tools, according to the final objective they purse: i) behaviour change and ii) mobility planning. Traffic Snake Game (TSG) – The campaign encourages primary school children to travel more sustainably to school, for instance walking, cycling, or with public transport. Each day they do so, the children put a sticker on a snake banner. TRACE adapted the already existing campaign to integrate a tracking element. Positive Drive (PD) – This app utilises gamification and gives users direct feedback. Based on “doing and rewarding the right transport choice”, participants receive rewards if they show the “right behaviour”, e.g.; using a bike instead of a car. These can then be shared through social media. PD uses only positive nudges. Biklio (Cycle2Shop – C2S) – The app detects if customers travel to (local) businesses by bicycle. If they do, they receive a reward for doing so. Users can see on a map which businesses are participating in Biklio and the incentives they offer.

U-TURN	
Project duration	06/2015 – 05/2018
What is about?	New models for urban food transportation
Thematic area	Urban freight logistics
Website	https://civitas.eu/projects/u-turn
Who was involved (pilots)	Athens (GR), Milan (IT), London (UK)
Project coordinator	Intrasoft
Project overview	In urban areas, tackling economic and environmental sustainability challenges increasingly calls for horizontal collaboration in logistics. In this context, the U-TURN project sought to tackle particular problems associated with urban food transportation, including congestion, increased use of convenience stores, and a rise in home deliveries of food ordered online. With shared logistics as its base operating principle, U-TURN sought to establish more efficient and sustainable distribution models for food by conducting three pilot initiatives. The project enhanced our understanding of freight distribution in urban areas and suggests innovative shared logistics practices, together with tools achieving more efficient operations.
Implementation and outcomes	In an effort to cover the key requirements and main trends of food distribution in urban areas, three different pilots were conducted: 1. Pilot 1: The distribution of packaged goods from food manufacturers to retail outlets located in urban areas in Athens (Greece). This used two different practices: sharing a common vehicle for deliveries and an Urban Consolidation Centre (UCC) for collaborative 'last-mile' goods distribution. 2. Pilot 2: The distribution of fresh food from local producers and online retailers to consumers in urban areas in Milan (Italy). 3. Pilot 3: Food delivery from online retailers to consumers in urban areas in London (United Kingdom). Three different supply chain structures were identified, with a micro hub playing a different role in each case The three pilots address different flow-consolidation settings in various market contexts. More specifically, the U-TURN project initially analysed the existing and anticipated transportation flows of food products in urban areas and it then equipped market stakeholders with a set of tools that will enable the quick assessment and uptake of shared logistics practices. The following models and tools have been deployed: 1. a series for shared logistics distribution models that suggest alternatives ways of sharing resources, 2. a smart matching tool that enables the identification of logistics sharing matches among different stakeholders, 3. a simulation tool that models and quantifies the impact of Urban Consolidation Centres as an alternative logistics sharing practice 4. an economic and comparative assessment model that evaluates the operational and economic impact of various shared logistics models

	5. a collaboration platform that supports information sharing, the identification of synergies by utilizing the smart matching logic and the creation of appropriate partnerships. Through the application of the above toolset in various real pilot settings by using actual data, the U-TURN project have identified opportunities for consolidating transportation flows and have evaluated the alternative shared logistics distribution models by providing evidences about their benefits and their implementation challenges. Considering the results obtained in the project, U-TURN project contributed to better understanding of the impact of food logistics in urban areas and provides qualitative and quantitative assessment of innovative, cost-effective and environmentally-friendly strategies in this context. Measurable outcomes and specific KPIs in each pilot by using real and simulated data from various markets across Europe and field studies reflect the impact of collaborative transport practices from the UK, the Italian and the Greek markets. The main project achievements, which advance existing distribution processes and technologies and go beyond the state of the art, are related to the following aspects: 1. The formulation of innovative shared logistics distribution models proposed within each pilot context and the insights gathered about their potential benefits and feasibility through close interaction with the industry 2. The utilization of the smart matching approach for addressing the needs of collaborative urban transportation 3. The integration of supply chain network simulation with a collaborative route planning algorithm for the last mile 4. The implementation of a shared logistics planning platform that supports the collaboration among various partners and the identification of synergies by using the smart matching approach.

CIVITAS Living Lab projects: 2012-2016

DYN@MO	
Project duration	12/2012 – 11/2016
What is about?	Sustainable mobility planning in dynamic European cities.
Thematic area	SUMPs
Website	https://civitas.eu/projects/dynmo
Who was involved (pilots)	Aachen (DE), Gdynia (PL), Palma de Mallorca (ES), Koprivnica (HR)
Project coordinator	Stadt Aachen
Project overview	CIVITAS-DYN@MO was an ambitious project with strategic importance to sustainable mobility planning in four dynamic European cities. DYN@MO worked in two leading cities, Aachen in Germany and Gdynia in Poland, as well as two learning cities, Palma de Mallorca in Spain and Koprivnica in Croatia. The mission of the project cities was to strengthen sustainable mobility by promoting non-polluting lifestyles, fostering social interaction and collaboration on the basis of the new media, and implementing integrated implementation of innovative transport services for active citizens of all ages. The strategic aims of project were to develop 'Mobility 2.0' systems and services by applying web 2.0 technologies, implementing city and citizen-friendly, electric mobility solutions, using new electric and hybrid vehicles and engaging in a dynamic citizen dialogue for mobility planning and service improvement. The specific objectives of the project covered four levels: 1. Strategic level: to create a culture for interactive mobility planning in which citizens and other stakeholders can actively participate in planning through innovative dynamic processes. 2. Technical level: to use clean, energy efficient, especially electric vehicles, and advanced ICT and ITS Systems as the basis of innovative transport services. 3. Service level: expose citizens and travellers in the cities to innovation hotspots with exciting new mobility services. 4. European level: to enable politicians and technical decision makers from the project cities to actively contribute to European exchange and learning through summer schools and trainings by developing competence centres for Sustainable Urban Mobility Planning and electromobility.
Implementation and outcomes	DYN@MO cities implemented altogether 30 innovative measures to strengthen sustainable mobility. Sustainable Urban Mobility Plans (SUMPs) were at the core of the project and represented a sound basis for mobility planning. The two leading cities Aachen and Gdynia advanced their planning culture and existing SUMPs, while Koprivnica and Palma set out to develop ambitious SUMPs, all involving extensively citizens and stakeholders via Web 2.0 applications. Clean public transport remains the backbone of urban transport systems, while the cities have strong commitment to enhance the environmental performance and energy efficiency of their fleets within the project. Alternative fuels, such as Compressed Natural Gas (CNG) and hybrid buses, as well as the increased use of electromobility in public transport and car

	sharing schemes, will help to accelerate the introduction of clean vehicles in the European market. Venturing into new technology and mobility options in addition to promoting new life styles will increase the people's acceptance for mobility without a private car. Information and communication technologies (ICT) together with intelligent transport systems (ITS) were used throughout the project to improve service quality of public transport such as communication and maintenance of transport systems. This also provided support for preparing, discussing and updating sustainable urban mobility plans, involving stakeholders and citizens in related processes. The four cities implemented measures with a high degree of transferability across Europe and enhanced mutual learning by establishing Competence Centres on Sustainable Urban Mobility Planning and electro-mobility.

2MOVE2	
Project duration	12/2012 – 11/2016
What is about?	New forms of sustainable urban transport and mobility
Thematic area	SUMPs
Website	https://civitas.eu/projects/2move2
Who was involved (pilots)	Brno (CZ), Malaga (ES), Stuttgart (DE), Tel-Aviv (IL)
Project coordinator	Landeshauptstadt Stuttgart
Project overview	Mobility for each citizen as well as the transport of goods must be ensured in combination with a free choice of transport modes. However, actions of mobility management should be strengthened to raise people's awareness towards sustainable mobility. Due to changing conditions (e. g demographic development, rising energy costs, new ecological standards) new quality standards for an attractive pedestrian, bicycle, and public transport infrastructure are on the urban agenda in many cities. 2MOVE2's main objective was to improve urban mobility by advancing or creating sustainable, energy-efficient urban transport systems in the participating European cities for the benefit of all citizens, society and climate policy, respecting environment and natural resources. The project consortium consisted of eight partners in the four participating cities. The coordinating City of Stuttgart was supported by SSP Consult which handles technical coordination and project evaluation, as well as the University of Stuttgart which coordinates a Sustainable Urban Mobility Plan (SUMP) working group and site. The City of Brno was supported by its public transport company DPMB, while the City of Tel Aviv-Yafo was supported by the Technion Institute. Based on the idea to develop and implement similar measures and initiatives in the partner cities, the 2MOVE2 partners defined measure packages in all four cities involving: 1. Innovative, clean, energy efficient vehicles and integrated transport systems for personal, collective and freight applications. 2. Deployment of ICT and ITS for traffic management, vehicle guidance, accident avoidance, passenger information and travel planning, road pricing and smart payment systems. 3. Sustainable urban transport planning that combines land-use with innovative transport systems and 'human' transport modes of cycling and walking.
Implementation and outcomes	Following the idea of defining and implementing similar measures and initiatives in the partner cities, 2MOVE2 partners developed 23 measures in total. The development and implementation of similar projects and initiatives in the four cities allowed evaluation and comparison of the results and impacts in the different contexts within the leading and learning cities. In addition, the measures were selected to allow transfer and applicability to other small and medium-sized towns. Specific emphasis was given in 2MOVE2 to the measures of e-mobility, freight and ITS-based traffic management. Linking the proposed measures with SUMPs and urban development plans was also being stressed. Other important topics addressed in the measures were the promotion of non-

	motorised mobility and public transport, as well as the enhancement of mobility information services for companies and citizens. The main goal of the participation in 2MOVE2 was to implement new measures which support and enable the establishment of more sustainable transport systems. This required that the measures demonstrated in the framework of this project are not isolated, but are part of a comprehensive system combining measures in all thematic areas of CIVITAS. Therefore, special importance was given to the issue of SUMPs. All four cities wanted to implement or advance these. The 2MOVE2 Working Group on SUMPs provided strategic and political validation and advice to the project. It was composed of site managers and local representatives such as politicians or relevant stakeholders. The working group provided directions to improve the project's effectiveness, quality and compliance with policies, in addition to providing conclusions and recommendations resulting from the project. The measures were complemented by major awareness and consensus building efforts among others through training workshops and educational activities.

ANNEX II: CIVITAS projects supported by CIVITAS ELEVATE for evaluation

Project	Category and Description	Project duration	Evaluation support start
CityChangerCargoBike	Take-up of innovative solutions Exploit the potential of cargo bikes to improve the image and general levels of cycling and enhance air quality, safety levels and liveability in urban areas.	09/2018-07/2022	06/04/2020
Handshake	Take-up of innovative solutions Enable the effective take up of the integrated cycling solutions successfully developed by "cycling capitals"	09/2018-08/2022	22/04/2020
Park4SUMP	Take-up of innovative solutions Integrate innovative parking management solutions into SUMP policies	09/2018-08/2022	27/03/2020
GreenCharge	Smart electric mobility in cities Demonstrate how technological solutions and associated business models can be integrated and deployed to overcome barriers to wide-scale adoption of EVs.	09/2018-08/2021	14/04/2020
MEISTER	Smart electric mobility in cities Change the paradigm in the e-mobility market by providing interoperable platforms and services for easy, convenient, and barrier-free access to charging, billing and smart grid service	09/2018-02/2022	25/03/2020
SUNRISE	Innovation in neighborhoods Develop, implement, assess and facilitate learning about new, collaborative ways to address common mobility challenges at the neighbourhood level.	05/2017-07/2021	15/04/2020
HARMONY	Multimodal inter-urban transport, regional mobility and spatial planning Develop spatial and transport planning tools for sustainable urban mobility	06/2019-02/2023	08/05/2020

MOMENTUM	Impacts of new technologies and changes on policy making Develop a set of new data analysis methods, transport models and planning support tools able to capture the impact of new transport options on urban mobility, in order to support cities in the task of designing the right policy mix to exploit the full potential of emerging mobility solutions	05/2019-04/2022	08/05/2020
ReVeAL	Impacts of new technologies and changes on policy making Help to add Urban Vehicle Access Regulations (UVAR) to the standard range of urban mobility transition approaches of cities across Europe for improved Liveability	06/2019-11/2022	08/05/2020
SPROUT	Impacts of new technologies and changes on policy making Provide a new city-led innovative and data driven sustainable policy response to address the impacts of the emerging mobility patterns, digitally-enabled operating & business models, and transport users' needs, for urban mobility transition	09/2019-08/2022	08/05/2020
SUMP-PLUS	Impacts of new technologies and changes on policy making Develop and apply transition pathways towards more sustainable cities taking into account the need to establish stronger links with other urban system components	09/2019-08/2022	08/05/2020
Lead	Urban Logistics Create Digital Twins of urban logistics networks in six cities, to support experimentation and decision making with on-demand logistics operations in a public-private urban setting.	06/2020-05/2023	24/03/2021
Senator	Urban Logistics Provide governance schemes for urban planning policies bringing together relevant stakeholders in urban freight logistics within one multi-collaborative framework based on a new urban logistics model to attend the requirements of the 'on demand economy'.	09/2020-08/2024	16/04/2021
UlaaDs	Urban Logistics Accelerate the deployment of novel, feasible, shared and ZE solutions addressing major upcoming challenges generated by the rising on-demand economy in future urban logistics.	09/2020-08/2023	25/03/2021
FastTrack	Coordination and Support Action Fast-track and mainstream the replication of innovative, tested urban, peri-urban, and rural mobility solutions, supporting the transfer, financing and implementation of innovative transport solutions amongst 24 cities and metropolitan regions	02/2021-07/2023	25/03/2021

MOVE21	Smart, Green And Integrated Transport Multimodal and interconnected hubs for freight and passenger transport contributing to a zero emission 21st century.	05/2021-04/2025	19/10/2021
SCALE-UP	Smart, Green And Integrated Transport The project will assist three European urban nodes (Madrid in Spain, Antwerp in Belgium, and Turku in Finland) in becoming better connected and climate resilient while developing and operating complex multimodal transport systems, which can easily be scaled up.	05/2021-05/2025	19/10/2021