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Sustainable mobility and transport in Stockholm: Moving from Eccentric to business as usual

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Abstract

This paper assesses the work of the City of Stockholm in the CIVITAS Eccentric project. Five cities work together in this project to demonstrate fifty measures aiming to increase levels of sustainable mobility and transportation in each city, and to facilitate replication of these approaches to other cities in Europe and beyond. Twelve of these measures are demonstrated in Stockholm, addressing six wider themes. The paper describes the implementation and aims of these measures, informing a discussion about the extent to which Stockholm can mainstream successful practices, and the possibilities for other cities to replicate measures in their own contexts. Replication is found to be a process of adaptation and adoption, in which cities *adapt* an idea from another context and *adopt* their own recipe. By facilitating learning and exchange, EU projects such as CIVITAS Eccentric play an important role in facilitating both local demonstration and enabling replication.

Keywords: CIVITAS Eccentric; Stockholm; sustainable mobility; mainstreaming; upscaling; replication

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1. Introduction

Road transport accounts for around 73% of transport emissions in the European Union (EU), with all transport accounting for 25% of the EU's total annual greenhouse gas emissions (EU, 2017). With drastic cuts to transport emissions essential to mitigate climate change, cities across Europe are demonstrating an enormous range of innovative actions to reduce emissions, facilitate modal shift, and realise other benefits such as improved urban environment and quality of life. To contribute to and accelerate these efforts, the EU funds projects that demonstrate, evaluate and disseminate innovative measures and encourage upscaling and replication of good practice. This paper presents the example of CIVITAS Eccentric, a project involving five cities, and focuses on the case of Stockholm. The paper describes the progress of twelve measures during the first three years of the project, and assesses the extent to which Stockholm and CIVITAS Eccentric can enable mainstreaming and upscaling of successful practices in Stockholm and other cities.

2. Theoretical background

The City of Stockholm was the first European Green Capital and is considered by many to be a forerunner on sustainability issues due to its work on, for example, greenhouse gas emissions, transport, and alternative fuels (Francart et al, 2019). A wide range of scientific studies have assessed the work of the City of Stockholm, along with the County Council and neighbouring municipalities. For example, Börjesson and Kristofersson (2018) is one of many articles assessing the effects of congesting charging in Stockholm since it was trialled in 2006 and permanently introduced following a referendum in 2007. The work done to introduce infrastructure for electric vehicles and alternative transport fuels such as biomethane and bioethanol, and encourage adoption of vehicles by public and private end-users, is the focus of multiple studies (e.g. Hjalmarsson, 2015; Langbroek et al, 2017; Lönnqvist, Sanches-Pereira and Sandberg, 2015; Sanches-Pereira et al, 2015; Vernay et al, 2013; Xylia et al, 2017). Critical assessment of cycling policy in Stockholm have been made by Hautein et al (2019) and Koglin (2015), Fenton (forthcoming) has focused on transport and logistics in the port city, whilst Sánchez-Díaz et al (2017) focused on logistics and the potential for night deliveries.

This diverse literature represents a sample of many studies addressing various dimensions of Stockholm's work for sustainable transportation. Common themes across the literature include the need for extensive cooperation with public and private stakeholders (cf. Paulsson et al, 2017) and evidence of complexity that can result in dissonance between parallel strategy and policy processes (cf. Isaksson et al, 2017) resulting in poor integration of sustainable mobility objectives across different strategies. Stockholm thus illustrates an example that, in terms of its diverse efforts to promote sustainable mobility and transport, may be considered somewhat unique, yet in terms of the general barriers and opportunities to implementation and upscaling – a need for integration and collaboration – appears familiar to many other contexts. Indeed, the latter topics have been discussed in literature on participatory governance (Healey, 1997, Howlett & Ramesh, 2016) as well as recent literature on city-city collaboration through EU projects (Boulanger and Nagorny, 2018).

EU projects present cities with the opportunity to address local and internal challenges, with funding enabling experimentation, and creating possibilities for learning, integration across organisations or strategies, and potentially upscaling of good practice. Moreover, EU projects offer multiple cities the opportunity to interact, learn from each other and exchange good practice, share good examples and promote replication (Ibid, 2018). The next sections present an overview of CIVITAS Eccentric and its actions in Stockholm, which inform the subsequent Discussion on the processes of mainstreaming and efforts for upscaling and replication observed.

3. What is CIVITAS Eccentric?

3.1. CIVITAS Eccentric as a European project

CIVITAS Eccentric is a project funded by the European Union's Horizon 2020 research and innovation programme during 2016-2020. The project demonstrates innovative solutions to enable sustainable mobility and urban freight in five European cities – Madrid (Spain), Munich (Germany), Ruse (Bulgaria), Stockholm (Sweden), and Turku (Finland) – with a particular focus on peripheral zones outside of city centres. The City of Madrid coordinates the project, with the other city administrations and partners taking on responsibilities for Work Package leadership.

As in normal in EU-funded projects, each partners is responsible for their own budget and tasks, but each measure or sub-project is coordinated by a Measure Leader, with measures clustered into Work Packages with their own Work Package Leaders. In total, 30 public and private partner organisations collaborate in the project to demonstrate 50 measures, i.e. pilot projects in which an innovative policy, technology or approach is tested and evaluated. Information about these measures is shared with other stakeholders around Europe through communication, networking and learning actions aimed at facilitating upscaling and replication within local contexts, between cities within their respective nation states, and across boundaries to other contexts in Europe and around the world.

3.2. CIVITAS Eccentric as a local project

Each of the five Eccentric cities has developed its own approach, implementing measures that are appropriate to its local context and that may contribute to achievement of strategic objectives (see Table 1). The stakeholders engaged in the project and processes used within each city vary, and cities such as Munich and Ruse focusing more clearly on district-level transformation in peripheral zones, whereas Stockholm and Turku focus more broadly on city-wide initiatives.

Table 1. Number of measures per Work Package (theme) and City in CIVITAS Eccentric. * indicates city with additional responsibilities as Work Package Leader.

Work Package (theme) / City	Madrid (Spain)	Munich (Germany)	Ruse (Bulgaria)	Stockholm (Sweden)	Turku (Finland)	- Total per Work Package (theme)
Inclusive urban planning, new parking policies and mobility management	2	3*	2	2	2	11
Mobility as a Service for and by all	1	2	1	1	2*	7
Enabling safe walking and cycling	3	1	2	2*	1	9
Efficient and clean public transport solutions	2*	2	2	1	2	9
Promoting the uptake of clean vehicles	1	1	0	4*	1	7
Towards better and cleaner urban freight logistics	2*	2	0	2	1	7
- Total per City	11**	11*	7	12**	9*	50

As each city has a different “palette” of measures and approaches, the cities are able to share experiences with one another and make recommendations based on their experiences. By comparing similar, yet distinct, approaches in different cities, the project seeks to identify challenges or barriers to implementation of particular measures, as well as pre-requisites for successful implementation. This information is not only critical for each of the participating cities, as it forms part of their policy analysis and informs decision-making and upscaling efforts, but it also valuable for other cities inside and outside of the project for similar reasons.

Each of the participating cities has to develop a plan indicating how they will replicate a measure from another city, something the project’s follower cities must also do. To enable this, a range of study visits, workshops and seminars have been held in each of the five cities. Stockholm has been host for three project meetings at which measures from CIVITAS Eccentric and other projects have been presented, and in 2018, one such event was followed by a “train workshop” for participants travelling to the CIVITAS Forum conference in Umeå. The “train workshop” aimed to facilitate discussions about replication of measures and also to illustrate how large groups can work in a structured, climate-friendly way during a business trip, something the City of Stockholm hopes will become increasingly common in the near future.

4. CIVITAS Eccentric in Stockholm

The local CIVITAS Eccentric project in Stockholm is coordinated by the City of Stockholm (population approx. 960,000), which is the largest municipality of twenty-six in the Stockholm region (population approx. 2.3 million). The City of Stockholm's Environment & Health Administration and Traffic Office work directly in the project, with other city departments participating indirectly on an ad hoc basis. The Environment & Health Administration has overall responsibility both for the City's participation in CIVITAS Eccentric, and for the site as a whole.

4.1. Organisation and division of tasks

The City of Stockholm is responsible for 11 measures, two work packages, and a range of so-called "horizontal" tasks, including site-level communications and replication tasks. Another measure is the responsibility of a private company, Cykelkonsulterna, who provide a range of cycle-related services to public and private customers. Furthermore, the companies GoMore (ride-sharing and car-sharing), Mobility Motors (vehicle sales), SnappCar (car-sharing) and Ubigo (Mobility-as-a-Service) are partners in the project, as is KTH – the Royal Institute of Technology, which is responsible for local evaluation tasks. In addition to these formal project partners, various measures include collaboration with other local or national stakeholders, examples of which are provided in Table 2. The measures are described in more detail in section 4.2.

Table 2. Overview of measures being demonstrated in Stockholm including indicative budget per measure, main focus, project partners and cooperation with other stakeholders.

Measure title	Main focus	Project partners	Other stakeholders and collaborations
Dynamic occupancy based parking fees (Smart and flexible parking using new technology) Indicative budget: € 300,000	Parking management systems	City of Stockholm	Brickyard and Parkling (winners of Innovation contest).
Green parking standards in Årsta city development Indicative budget: € 250,000	Modal shift and reduction of parking demand	City of Stockholm	Stockholm Water & Waste.
Develop smart choice of mobility services Indicative budget: € 720,000	Multimodality	City of Stockholm; GoMore; SnappCar; Ubigo	Vinnova (Swedish Innovation Agency).
Policy for re-routing cyclists during construction works Indicative budget: € 180,000	Safe walking and cycling	City of Stockholm	Private companies offering innovative safety products; Swedish Standards Institute; Cities of Gothenburg and Malmö.
Offering test fleets of e-bikes and e-freight bikes Indicative budget: €140,000	Modal shift	Cykelkonsulterna; City of Stockholm	Private housing associations; bicycle manufacturers.
Speed up core bus routes Indicative budget: € 175,000	Improve service quality of public transport	City of Stockholm	Region Stockholm, Stockholm Public Transport, and municipalities in Stockholm region; Swedish Transport Administration; bus operators.
Offering EV-test fleets to selected target groups Indicative budget: € 240,000	Introduce EV vans to new user groups	City of Stockholm; Mobility Motors	Tradesmen demonstrating e-vans.
Developing the Clean Vehicle Web Portal Indicative budget: € 40,000	Dissemination about clean vehicles and fuels	City of Stockholm	Users of website.

Master plan for developing EV-charging in Stockholm Indicative budget: € 220,000	Improve planning to enable charging infrastructure	City of Stockholm	Grid owner and electricity companies.
Promote installation of EV-charging facilities in multifamily houses Indicative budget: € 115,000	Dissemination and guidance on how to install charging infrastructure	City of Stockholm	Private housing associations; companies delivering charging solutions; other municipalities in Stockholm region.
Consolidating Stockholm municipal freights Indicative budget: € 160,000	Facilitate consolidation of deliveries and freight transport	City of Stockholm	Various City departments; large projects involving mass excavation; barge operators.
Night delivery with clean and silent vehicles Indicative budget: € 370,000	Demonstration of new PHEV truck for night deliveries	City of Stockholm; KTH	Restaurant chain; delivery firm; vehicle manufacturer.

4.2. Ongoing demonstrations in Stockholm measures

Whilst the timeline for implementation of each of the measures varies, all measures were implemented during the period 2017-2019. Technical evaluation data for a minimum of six months per measure must be gathered, and several measures are subject to detailed evaluation including process evaluation (including e.g. stakeholder surveys, interviews). The results of the project's local and overall evaluations will be available during 2020.

4.2.1. Inclusive urban planning, new parking policies and mobility management

In this work package, eleven measures are demonstrated in the five cities (see Table 1). These measures aim to introduce new concepts or services to enable more inclusive urban planning for sustainable mobility in suburban districts. Such actions include measures to support car-free lifestyles and to improve traffic safety. In Stockholm, two measures are underway (see Table 2).

One measure, originally intended to focus on dynamic occupancy based parking fees, has evolved to focus on smart and flexible parking using new technology. In this measure, the City of Stockholm launched an innovative procurement involving a competition open to entrants from across Europe. Suppliers were invited to submit suggestions as to how they would solve a task related to delivery of accurate parking monitoring data. Twelve companies entered the competition and were subject to assessment by an evaluation committee comprising national experts and local stakeholders. Two proposals were selected for demonstration, each involving scan cars that cruise the streets monitoring the availability of parking spaces in the pilot district. This data is then made available in real-time in a smartphone app to help drivers find empty parking spaces, thereby reducing search traffic. In one of the systems, license plate recognition enables cross-referencing with other systems, meaning the company can check whether cars have parked illegally or have not paid their parking fees. The expected results of this measure include reductions in illegal parking, parking search time, and emissions from search traffic, as well as improved data about parking occupancy, which can inform future decisions about parking availability, demand and pricing.

In the other measure, the City of Stockholm has introduced an innovative service to reduce car journeys to and from recycling facilities and waste disposal centres. National regulations prohibit individuals from transporting other persons' bulk waste to disposal centres, and only approved contractors of Stockholm Water & Waste may collect bulk waste for a regulated fee. As a result, many people use cars to dispose of bulk waste, and also to deliver materials for recycling or reuse to collection points. To reduce these journeys, Stockholm Water & Waste introduced "pop-up" recycling centres in 2017 (mobile stations that move from district to district on a weekly basis) at which residents can dispose of bulk waste, hazardous waste and exchange items for reuse.

Within CIVITAS Eccentric, a bookable service using clean vehicles was introduced during spring-summer 2019, enabling residents to transport their waste to the pop-up recycling facilities in a safe, sustainable and legal way.

This measure aims to encourage car-independent lifestyles and support policy-making to reduce the number of car parking spaces in urban areas. Furthermore, this measure includes assessment of existing policies to reduce the number of car parking spaces in new developments, something developers can do in exchange for commitments to introduce sustainable travel alternatives for residents. Together, these actions illustrate a variety of methods that may help other cities in their transition towards sustainable urban mobility.

4.2.2. Mobility as a Service for and by all

In this work package, the partners of CIVITAS Eccentric are implementing seven measures in five cities that promote and enable the demonstration of “Mobility as a Service” (MaaS) concepts, including ticketing and travel information systems, and facilitate a shift away from car ownership to mobility services. In Stockholm, various initiatives are ongoing within the umbrella of the city’s CIVITAS Eccentric measure. The most high-profile of these is the launch of Ubigo’s MaaS service, a one-year pilot in which around 200 households in three city districts will subscribe on a monthly basis using one app, for one fee, to a range of services including initially public transport, taxis, car-sharing, hire cars, and bike-sharing. The app provides users with information on a range of choices for their trips, and unused credit during one month are transferable to the next month. Separate to this, the peer-to-peer car-sharing platforms of GoMore and SnappCar are developing their services in the Stockholm region with, for example, new platforms and customer support services. These companies offer individuals the opportunity to hire out their vehicle to others and in addition, GoMore offer a carpooling service, which encourages people to travel together. These services help promote more efficient use of existing vehicles and, by providing easy access to vehicles to those that rarely need them, may help deter some individuals from purchasing cars and evolving into regular car users (due to e.g. endowment effects or sunk cost fallacies regarding car investment decisions, cf. Ho et al, 2018).

4.2.3. Enabling safe walking and cycling

Improving conditions to enable safe walking and cycling and increased modal share for active mobility is the focus of this work package, in which the five cities demonstrate nine measures. Two measures in Stockholm contribute towards fulfilment of this objective. In one, the company Cykelkonsulterna is providing a test fleet of e-bikes and e-cargo bikes, which residents can apply for to use for one-month trials. The aim of this test fleet is to introduce e-bikes to new user groups and encourage both cycling and purchase of e-bikes and, during the first year of the trial, 200 individuals tested the cycles and completed an evaluation exercise indicating their satisfaction with electric cycles.

In the other measure, the City of Stockholm has initiated a process that aims to reduce risk of accident or injury to unprotected road users, along with conflicts over pavement and road space, which may arise when construction works lead to re-routing of pavements and cycle paths. This process comprises three main steps. First, the City of Stockholm has updated its technical handbook for contractors to follow when implementing road works to include guidelines concerning this issue. Second, the City administration has, together with the Swedish Business Association for Safer Road Construction Sites (SBSV), invited SBSV members to demonstrate innovative solutions to reduce incidents around construction sites.

For example, this includes on-street demonstration of adapted materials such as protective netting, flexible signage and special ramps instead of hard materials such as concrete blocks, metal fencing and high curbstones. In addition to the aforementioned safety objectives, the use of these materials aim to facilitate seamless flows for pedestrians and cyclists during road works, so that the modal shares for these modes do not dramatically decrease during temporary interventions in the urban environment. In a 2019 test of the approach, a reduction of cycling by 5.19% compared to normal levels was observed, which the City of Stockholm considers a highly satisfactory result. This activity is not only linked to the continual improvement of guidelines provided in the technical handbook, but also to the third part of the measure – a process to develop national standards for these products with involvement of the Swedish Standards Institute and the cities of Malmö and Gothenburg.

4.2.4. Efficient and clean public transport solutions

Nine measures are demonstrated in this work package, which aims to increase the use of public transport in peripheral districts around the five cities. In Stockholm – a city with extremely high levels of public transport usage, particularly for peak hour commuting – the measure focuses on improving the quality of services on key bus routes linking peripheral urban centres in northern districts. The routes Mörby-Jakobsberg and Vällingby-

Sollentuna are transversal routes providing essential local and regional services for public transport users outside of the city centre, not least by helping many public transport users shift between regional trains and local transport, thereby avoid longer journeys via the city centre. CIVITAS Eccentric finances the City of Stockholm's participation in a larger process involving the Stockholm County Council, Swedish Transport Administration, neighbouring municipalities and SL, the regional public transport authority. Together, these actors collaborate to implement and evaluate actions that can improve the service quality along eleven peripheral core bus routes. As the first routes to be addressed within the process, the two routes improved by CIVITAS Eccentric will provide significant impact to the improvement of all eleven routes in the coming years.

4.2.5. Promoting the uptake of clean vehicles

Four cities demonstrate seven measures within this work package, four of which are implemented in Stockholm. The City of Stockholm has worked for over twenty-five years to promote the uptake of clean vehicles and fuels in public and private fleets, using instruments such as national joint procurements, information campaigns and EU projects to help stimulate introductions of e.g. electric vehicles, biogas, and bioethanol. The four measures demonstrated in CIVITAS Eccentric illustrate different methods that have previously been employed in other projects to promote and stimulate uptake of clean vehicles and fuels.

For example, in one measure, the City administration is working with a vehicle dealership to promote the uptake of light electric vans for use by tradesmen such as plumbers and electricians. This user group accounts for a significant portion of daily journeys in Stockholm traffic, and the measure seeks to assess the performance, functionality and cost-effectiveness of electric vans in contrast to fossil-fueled equivalents. The vehicle dealership invited companies located in the Stockholm region to enter a competition to participate in the demonstration and receive project funding to cover the additional costs of the electric van, with entrants judged against a range of criteria including the districts served by the business, the type of business provided, potential emissions savings, etc. (Previously, a similar approach has been used in projects such as Cleantruck, (Fenton, forthcoming)). In total, fifteen companies have introduced light electric vans into their daily operations and are providing the project with important information about factors including driver experience, charging patterns, and the vehicles' suitability for different businesses. The participating companies benefit from media interest, and several report that their main motivation for testing the vehicles was to strengthen their environmental profile in order to meet customer demand.

Two other measures focus on increasing public knowledge, one on the availability of clean vehicles and fuels and one on how to install charging infrastructure in apartment blocks and private housing. CIVITAS Eccentric has enabled the City of Stockholm to make improvements to the Clean Vehicles Portal (www.miljofordon.se), a national website developed together with the cities of Malmö and Gothenburg that provides facts about e.g. environmentally-classed cars, vans, heavy goods vehicles, cargo bikes, alternative fuels and charging infrastructure. Whilst this measure seeks to influence purchasing decisions of consumers, another measure uses an awareness-raising campaign to promote and facilitate installation of charging infrastructure at residential premises. As part of this campaign, produced by the City administration in partnership with other municipalities in the region, four seminar series attended by over 1500 participants were held during 2017-2019. Participants were provided with step-by-step guides on how to install and administer charging facilities, information on government subsidies, and opportunities to meet suppliers. Follow-up surveys indicate that participants subsequently initiated processes to install around 3,000 charging points in the Stockholm region.

In a similar vein, the other measure demonstrated in Stockholm seeks to facilitate installation of on-street charging infrastructure in the city. To achieve this, a series of workshops were held and working groups established to develop a charging strategy to ensure the interests of multiple, diverse user groups are provided for when installing on-street charging infrastructure. At the heart of this strategy is the "charging street" concept, in which around fifty clusters of around ten commercially-operated chargers are located along strategically-selected streets, thereby enabling the city to meet a short-term target of 500 on-street chargers by 2020. The possible locations for these "charging streets" are mapped in a publicly-accessible "charging map", which companies or other organisations intending to install public charging infrastructure can use to select possible locations. These stakeholders can then apply for five-year contracts (with strict requirements on operability, appearance, etc.) to establish charging operations at these sites and must install the charging points within six months, otherwise the locations are made available for other applicants.

4.2.6. *Towards better and cleaner urban freight logistics*

This work package includes seven measures demonstrated in four cities that offer sustainable solutions to the complex and growing challenge of urban freight distribution. Two measures are demonstrated in Stockholm, one of which focuses on the strategic challenge of consolidation, and the other is an innovative pilot demonstrating a combination of new techniques to provide night delivery services. With regard to consolidation, the City administration commissioned an extensive analysis of the framework conditions and pre-requisites for consolidation of deliveries of municipally-procured goods (e.g. school food deliveries). This comprehensive report outlines the series of steps and actions needed to implement consolidation with different degrees of ambition and scale. Furthermore, the City administration is investigating the option of introducing barges to provide waterborne consolidation of rocks and other mass excavated from tunnelling works around the city. With Stockholm experiencing a construction boom and major investments in road, rail and metro tunnels, the transportation of construction waste generates significant volumes of heavy goods vehicle transport, which is detrimental to traffic safety and urban air quality. The use of barges as an alternative may generate significant savings in terms of fossil fuels, reduced congestion, fewer accidents, etc. Together, these studies provide important information to policy-makers about various approaches to consolidation and ways to reduce use of heavy goods vehicles in urban areas.

In the final measure, a new plug-in electric hybrid heavy goods vehicle is making night-time deliveries to a restaurant chain in central Stockholm. This work is an extension of previous work described in Sánchez-Díaz et al (2017) and combines the evaluation of the new vehicle technique with demonstration of geofencing technology and extensive sound analysis to demonstrate that night deliveries do not generate additional noise pollution. In addition to operating on electric power within the city centre, the truck runs on biodiesel (HVO) at other times, thereby reducing its CO₂ emissions. The main objective of the demonstration is to show how the city can, by allowing certain kinds of night-time delivery, reduce day-time congestion and attain environmental improvements. Early results suggest that the companies involved, and their staff, consider the arrangement ideal, as the reduced stress of driving off-peak or receiving goods in an empty restaurant compensates for working night shifts, and fewer journeys per week are required to deliver the same volume of goods. This measure is expected to generate results that will be of interest to cities across Europe, many of which are considering allowing night deliveries to ease traffic problems.

5. Discussion

The activities of the City of Stockholm and its local partners in CIVITAS Eccentric indicate a range of pathways towards sustainable mobility and transportation which may inspire other cities to attempt replication. In most cases, the measures demonstrated in Stockholm were embedded within pre-existing strategies, such as the City's "Urban Mobility Strategy" and "Strategy for a fossil-fuel free Stockholm 2040", thereby ensuring a sound mandate and organisational basis for the project. Linking the objectives of various strategies within the framework of a project may therefore offer a partial remedy to the integration challenge highlighted by Isaksson et al (2017), yet may also risk adding new layers of complexity and parallel processes, with a limited timespan and budget.

Nevertheless, the CIVITAS Eccentric measures in Stockholm have been implemented and the City administration has been able to add complementary tasks to further enhance the quality of its output. Access to EU funding has thus enabled the City administration to turn words into action by creating small platforms from which innovative measures could be launched, evaluated and – if successful – embedded into future policy, handbooks, guidelines, etc. It should be noted that – in line with Paulsson et al (2017) – the experience of most measures indicates that extensive cooperation with public and private stakeholders is essential to stimulate such action; this is true not only for emerging topics, such as MaaS, but also for institutionalised actions, such as the work done to improve public transport connections.

In terms of upscaling and replication within Stockholm and Sweden, several of the measures are designed so as to result in output – in the form of analysis, evaluation, guidelines, recommendations, standards, etc. – that can be, subject to political decisions or resources, rolled out to become business-as-usual. This applies to, for example, the work on cycling, public transport, electric vehicles and charging infrastructure, and logistics. In the case of MaaS, the demonstration aims to launch and evaluate services that will be scaled up as demand grows; and in parking management, the measures aim to illustrate potential for new approaches which could be scaled up if demonstrated to be effective. However, with regard to replication in other contexts, the extent to which lessons from successful (or unsuccessful) demonstrations will be learnt by other cities is harder to assess.

As Boulanger and Nagorny (2018) make clear, replication is a complex task underpinned by a quicksilver concept of “best practice”, with replication itself meaning different things to different people. This means replication should perhaps be considered a process of adaptation and adoption, in which cities *adapt* an idea from another context and *adopt* their own recipe. To date, the demonstration of CIVITAS Eccentric measures in Stockholm, along with the various communication actions of the project, have enabled a growing group of cities to learn more about the policies, processes and decisions of the City administration concerning sustainable mobility and transportation.

Among the CIVITAS Eccentric partner cities, Stockholm has been a reference point for Munich’s new road safety strategy, and Turku has adapted and adopted various measures from Stockholm including maintenance enabling winter cycling, the policy for re-routing cyclists at construction works, and various actions promoting use of electric vehicles. During the final stages of the project, the partner cities aim to disseminate their experiences to more cities, in order to develop relationships that can lead to replication of the right measures, in the right contexts. This process essentially consists of three steps – inspiration, adaptation and adoption – with the latter most critical if Europe is to achieve a rapid transition away from fossil fuels.

6. Conclusions

Twelve measures have been demonstrated in Stockholm as part of the CIVITAS Eccentric project, which – individually and collectively – make valuable contributions to strategic work to achieve sustainable mobility and transportation in Stockholm and beyond. These measures contain innovative processes, techniques and methods, including unique tests of safety equipment for unprotected road users, a MaaS service, and a new, silent, low-emission heavy goods vehicle operating on electricity and biodiesel and using geofencing technology. The measures were embedded in pre-existing strategies and include actions aiming to facilitate upscaling within Stockholm. Stakeholder participation is an important pre-requisite for planning and demonstration of measures. An important objective of CIVITAS Eccentric is replication of measures to other contexts, which may be possible through adaptation of concepts and adoption of a relevant local equivalent in another context. This is already happening between the five demonstration cities in CIVITAS Eccentric and, with evaluation ongoing and further rounds of learning, exchange and communication with other cities, the project may yet enable replication in other cities too. In such ways, EU projects such as CIVITAS Eccentric can achieve their objectives of implementing local demonstrations and facilitating replication across Europe, thereby contributing to reduction of greenhouse gases and increased levels of sustainable mobility and transportation.

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