



REPLICATION STRATEGY

D8.4: Replication strategy

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Author: **Matilde Chinellato**



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Author(s)	Organisation
Matilde Chinellato	EUROCITIES

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Abstract

The replication strategy sets the framework for all activities carried out within the project that aim to support the peer-to-peer exchange between cities, with the aim to prepare for the transfer and adoption of the e-Mobility measures and strategies developed by the partner cities.

Keywords

Replication, scale-up, peer-to-peer exchange, transferability.

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Executive summary

The replication strategy sets the framework for all activities carried out within the project that aim to support the peer-to-peer exchange between cities, with the intention to prepare for the transfer and adoption of the e-Mobility measures and strategies developed by the partner cities. Apart from the replication activities and timeline, it also describes the objectives, processes, methodologies, and expected outputs, and clearly distinguishes the roles and responsibilities for each of the project partners and cities involved.



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1. Introduction

USER-CHI aims at unlocking the massive potential of electromobility in Europe. This will be achieved by

1. integrating different innovative charging technologies with a holistic perspective,
2. putting the user at the centre and empowering it,
3. exploiting the synergies between electromobility and the process of greening and smartification of the grid which is taking place to achieve the energy transition in Europe,
4. integrating the technological tools, business models and regulatory measures which will transform the elements cited above into an actual, working ecosystem which improves the user experience of EV drivers beyond the current levels of ICE vehicles drivers, whilst at the same time makes financially attractive for the relevant private and public actors the large-scale deployment of Europe's required user centric charging infrastructure.

USER-CHI is an industry powered, city driven and user centric project which will build and demonstrate its results around 7 leading cities which span north to south and east to west along 2 key TEN-T corridors. USER-CHI plans an active collaboration between industry, cities, and citizens in order to co-create and demonstrate a set of solutions and tools to foster the massive deployment and market acceptance of electric vehicles in Europe by:

1. optimising the design of charging networks with a user centric approach,
2. deploying an interoperability framework and platform,
3. enhancing scalable infrastructure roll out by means of smart grid integration,
4. developing innovative and highly convenient charging systems for a higher market acceptance,
5. co-designing and demonstrating novel and sustainable business and market models,
6. defining legal and regulatory recommendations for a massive deployment of electric vehicles.

USER-CHI will boost a large-scale e-Mobility market take up in Europe, by means of developing integrated smart solutions, novel business models and new regulatory framework conditions, which will be demonstrated and validated in 5 urban areas all along the European territory: Barcelona metropolitan area (Spain), Berlin (Germany), Budapest (Hungary), Rome (Italy) and Turku (Finland). These 5 sites act as connecting nodes of the key Mediterranean and Scandinavian-Mediterranean TEN-T corridors, while their different sizes, complementary

contexts and e-Mobility maturity level offer a holistic view of e-Mobility in Europe, facilitating the scalability and replicability of the demonstrated solutions.

Since large scale replication and transferability of USER-CHI results is one of the cornerstones of the project strategy, a replication city has been included in each of the TEN-T corridors involved in the project: Murcia (Spain) in the Mediterranean corridor and Florence (Italy) in the Scandinavian-Mediterranean corridor. This, together with the involvement of EUROCITIES and CITIES FORUM, will maximise the project impact even after its completion.

Purpose of the document

- 1.1** The replication strategy sets the framework for all activities carried out within the project that aims to support the peer-to-peer exchange between cities, and thus prepare them for the transfer and adoption of the e-Mobility measures and strategies developed by the partner cities. Apart from the replication activities and timeline, it also describes the USER-CHI envisaged solutions, replication objectives, processes, methodologies, and clearly distinguishes the roles and responsibilities for each of the project partners and cities involved.

1.2 Structure of the document

After providing a definition of replication in the context of USER-CHI, this document describes the target audience of the replication activities, as well as the object of the replication, namely the USER-CHI solutions and demonstration sites. It then presents the four components of the replication approach, as well as a detailed description of each foreseen replication activity and responsibilities. It provides an in-depth excursus on the peer-learning methodology, central to the USER-CHI replication approach. It then concludes with a timeline for the replication activities and measurement targets.



2. Replication in USER-CHI

Replication and scaling up are important objectives in USER-CHI: it is essential that other cities benefit from the demonstrator cities experience, challenges, and practices.

Replication in the context of USER-CHI is intended as the path towards the exploitation of solutions by a wide range of cities. However, replication will not be limited to the technical solutions, but it will touch upon the broader context that paved the way, in each city, to deploy a specific solution. Replication will then look at the approaches applied for the technical solutions, but also those related to collaboration, engagement, legal, business and governance models.

Replication target audience

2.1

Replication in USER-CHI will target cities, some of them already included with different roles in the project.

- **Demonstrator cities.** For the demonstration activities, five USER-CHI cities located on the Mediterranean and the Scandinavian-Mediterranean TEN-T corridors will act as 'examples' and 'multipliers' for other cities on the same and further corridors. Those are: Barcelona (Mediterranean corridor), Berlin (Scandinavian – Mediterranean corridor), Budapest (is crossed by three core corridors: the Mediterranean, the Orient/East – Med, and the Rhine-Danube), Turku and Rome (which are both part of the Scandinavian - Mediterranean corridor).
- **Replicator cities.** Two replicator cities have committed to take on the use cases from the demonstrator cities and contribute to improve the implementation of e-Mobility measures by developing replication plans. They also form part of the TEN-T network and are: Murcia (Mediterranean corridor) and Florence (Scandinavian-Mediterranean). These cities will be involved in the project implementation from the beginning as they are already in the path of e-Mobility. They will also attend the projects' meetings and be a part of the knowledge sharing and peer to peer learning activities.
- **Interested cities** will participate in some replication activities of the project, in order to learn, exchange and develop their e-Mobility plans based on the lessons learnt by the demonstrator and replicator cities. They will be selected based on their importance on the TEN-T corridor, maturity of strategy and plans.

Replication, scale-up and business model analysis will be developed hand in hand and a community of practice will be built for cities, local practitioners, experts, and stakeholders in order to exchange knowledge, build capacity and address common challenges. It will also support the transfer of successful measures to a wider group of cities and develop policy recommendations

for decision makers at local, national and EU level. Therefore, the selection of the demonstrator, replicator and interested cities aims to address the aspect of interoperability between cities and ensure the linkage between e-charging infrastructure with the corridor-based approach.

USER-CHI solutions

2.2 The solutions designed, developed, and tested in USER-CHI are at the centre of the replication activities in this project, so they will be described in detail in the following paragraphs. However, as already explained above, replication will not be limited to the technical solutions implemented in USER-CHI. On the contrary, it will encompass the broader context that makes it possible to deploy a specific solution. Therefore, besides the USER-CHI products and demonstration sites, existing approaches, best practices, governance, and business models will form part of the replicable measures.

2.2.1 USER-CHI products

In USER-CHI, eight innovative products will be designed, developed, and tested in the demonstration cities. The eight USER-CHI products are:



CLICK- Charging location and holistic planning kit.

An online tool for the location planning of new charging infrastructure in cities and TEN-T corridors.



Stations of the future handbook

Guidelines and recommendations to design the perfect user-centric charging station of the future.



eMoBest – e-Mobility replication and best practice cluster

A collaboration platform to facilitate the transfer of best practices among the demonstration and replication cities.



INFRA – Interoperability framework

A package of rules, guidelines and recommendations that will support highly interoperable processes among the electromobility stakeholders.



INCAR – Interoperability, charging and parking platform.

A platform providing roaming and barrier-free access to EV charging points and offering related innovative integrated services for the EV drivers.



SMAC – Smart Charging tool

A tool providing smart grid integration and demand management services for slow, medium, fast, and ultrafast charging.



INSOC – Integrated solar DC charging for Light Electric Vehicles (LEVs)

A solution combining charging, onsite production of renewable energy and theft-proof parking for Light Electric Vehicles.



INDUCAR – Inductive charging for e-cars

A wireless and highly automated charging solution for e-cars.

2.2.2 USER-CHI demonstration sites

As explained above, the USER-CHI products will be tested in five USER-CHI demonstration cities and implemented according to each city's priorities and needs. The following chapters will present the basic facts of each demonstration site in each demonstration city based on the information available at this stage. Final demonstration sites description and usage scenarios will be defined in the framework of WP1.

2.2.2.1 Barcelona

INCAR, SMAC, INDUCAR, INSOC and CLICK will be demonstrated in the Barcelona metropolitan area, with a primary focus on INCAR, INDUCAR and CLICK. INCAR will be installed in the AMB metropolitan charging network for private EV users to analyse the interoperability between CPOs, explore the utilities and improve the CPO availability. Inductive charging infrastructure, INDUCAR, will be tested with the municipal employees, alongside with smart grid integration for four and two wheelers and integrated booking and billing systems. INDUCAR will make use of 5 vehicles and will use a 3.6 kW recharge power level. The INDUCAR user can also be an INCAR user. CLICK will be tested by the Barcelona Metropolitan Area (AMB) mobility department, in its role as metropolitan charging network planner and developer.

Table 1: Barcelona basic demo facts

Basic demo facts	
EV-Usage	Professional e-cars and vans (AMB fleet) E-bikes (private and public) E-taxis EV cars EV professional vans
End Users profile	Private users: e-cars drivers, e-bike riders Professional: e-taxis drivers, professional vans drivers, AMB employees
Charging Infrastructure	Existing: 10 quick public on-street charging points (AC/DC); 10 public on-street charging points for e-bikes; Normal charging points connected to a PV panel; Normal charging points in AMB offices parking. To be implemented: 3 inductive charging points in AMB offices parking, fast charging point or V2G charging point (optional).
Partners involved	AMB, IPT
Demo Site	Public ground (public charging points) AMB offices

2.2.2.2 Berlin

The Berlin demonstration pilot “E-park spots” will allow housing residents and non-residents to book and pay for e-charging parking spots located in a semi-public site. It relies on three pillars:

- A semi-public site in a mobility-wise attractive location on the housing company Gewobag property. (Exact site to be defined)
- The set-up of newly installed charging infrastructure by the CPO Qwello, or the use of existing, functional charging infrastructure.
- The set-up of a digital service which incorporates the INCAR platform, parking management and parking detection functionalities.

The USER-CHI products required for the Berlin demonstration implementation are INCAR -which is the main focus- and CLICK, for which the Berlin city administration will provide support. It will also be further investigated how SMAC will be integrated.

Table 2: Berlin basic demo facts

Basic demo facts	
EV-Usage	E-Cars
Basic Use Case	Provision of „E-Park spots“ at the charging point, including routing, navigation, reservation, payment.
End Users profile	Private users: Gewobag residents, other private users Professional: E-car sharing providers
Charging Infrastructure	Type: AC, DC Status: already available and/or, to be implemented for USER CHI
Partners involved	Gewobag, Qwello, VMZ, other CPO or MSP
Demo Site	To be confirmed

2.2.2.3 Budapest

The user-centric mobility points in Budapest will offer a variety of mobility and e-Mobility solutions while keeping a good use of the public space. The new mobility points implemented in Budapest in the frame of USER-CHI will build on the existing mobility points, which so far do not offer charging solutions for EVs and LEVs. They will also offer charging for phones and tablets. Solar panels can be included at the mobility points for the operation of the station.

The USER-CHI products needed for the implementation of the Budapest demonstration case are INCAR, SMAC and INSOC, while CLICK will be used in the charging station planning process.

Table 3: Budapest basic demo facts

Basic demo facts	
EV-Usage	E-Car, e-bike and e-scooter sharing; cargo bikes
Basic Use Case	User-centric mobility points
End Users profile	Private users: e-car drivers, cyclists, e-scooter riders Professional: taxi drivers, delivery vehicles drivers
Charging Infrastructure	Type: DC Ultrafast charging PVs Status: to be implemented by USER CHI
Partners involved	Budapest, BKK, other CPO or MSP, road network operator, districts

Demo Site	To be confirmed: existing mobility points in the inner city, in residential areas, in TEN-T segments in the city, Park and Ride facilities
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2.2.2.4 Rome

Two main demonstration cases are being discussed in Rome: One located in Corso Francia (in the northern part of Rome), and one located in Via Cristoforo Colombo (in southern Rome).

The **Corso Francia demo case** is located in a private area, a former oil station now reconverted in an e-Mobility station with four charging points through a Connected Europe Facility (CEF) funded project. With USER-CHI, new fast and ultrafast charging points will be installed, and the possibility of installing photovoltaic panels will be explored. This area will be complemented with additional services for the users, such as parcel lockers, postal services, a bar, smart working facilities, an Enel X shop, etc..).

Table 4: Rome basic demo n.1 facts

Basic demo facts	
EV-Usage	E-Cars; e-scooters and e-bikes are still under discussion
Basic Use Case	Charging station with complementary services
End Users profile	Private users of EV cars, e-scooters and e-bikes users are under discussion
Charging Infrastructure	Type: DC Ultra-fast charging PVs
Partners involved	Municipality of Rome, Roma Servizi per la Mobilità (RSM), DSI, EnelX
Demo Site	Corso Francia (Rome northern area)

The **Via Cristoforo Colombo demo case** is located in the southern area of Rome, on a public ground. It will be an intermodal mobility hub with car, scooter and bike sharing facilities, bike parking with maintenance services, smart working facilities, a bar and services for users and a mini hub for cargo bikes. This demo case will focus on enhancing intermodality with other transport modes.

Table 5: Rome demo n.2 basic facts

Basic demo facts	
EV-Usage	E-Cars; e-scooters and e-bikes sharing facilities
Basic Use Case	Intermodal mobility hub

End Users profile	Private users of EV cars, e-scooters, and e-bikes
Charging Infrastructure	Type: AC
Partners involved	Municipality of Rome, Roma Servizi per la Mobilità (RSM), DSI, EnelX
Demo Site	Via Cristoforo Colombo (southern area of Rome), exact site to be defined.

A third, private location will be investigated to test Vehicle to Grid technology, however further details have not been defined yet.

The USER-CHI products deployed in the two main demonstration cases are INCAR and INSOC, while CLICK will be addressed to the professionals and be tested with the involvement of RSM (Roma Servizi per la Mobilità) and the municipality of Rome. SMAC will be tested off site and the results will be shared with the project.

2.2.2.5 Turku

Turku will have five demonstration cases. The USER-CHI products needed for the implementation are: CLICK, INSOC, SMAC and INCAR.

In the **first demonstration case (led by Turku municipality)**, Turku will create a city-wide masterplan for EV charging points and will demonstrate the CLICK tool. Important part for this is how the CLICK can visualise and take input from stakeholders. In support of the masterplan, Turku will create a marketing campaign for Turku’s citizens between 2021-2023. At this stage, the municipality is collecting information from current charging infrastructure and EV-user patterns as well as plans for future charging infrastructure (expected by the end of 2020). Turku will also create 10 electrification plans for city owned properties as part of the USER-CHI project.

Table 6: Turku demo n.1 basic facts

Basic demo facts	
EV-Usage	E-cars, e-bikes, shared e-fleets, e-busses
Basic Use Case	Masterplan for EV charging points
End Users profile	Private users of EVs
Charging Infrastructure	n.a.
Partners involved	Municipality of Turku, TVT, Vaso and Turku Energia.
Demo Site	All city and 10 city owned properties

In the **second demonstration case (led by Turku municipality)**, Turku will demonstrate the INSOC product in the form of LEV charging boxes with PV panels installed with them. Demo sites locations are not decided at this moment, but the planning will start early 2021 and construction will happen in 2022-2023. The boxes will be connected to the grid and will most likely have a solution for keeping LEVs safe from snow and ice in winter.

Table 7: Turku demo n.2 basic facts

Basic demo facts	
EV-Usage	E-bikes
Basic Use Case	LEV charging boxes
End Users profile	Private users of e-bikes
Charging Infrastructure	To be installed: PV panels Type: AC
Partners involved	Municipality of Turku
Demo Site	Not decided

In the **third demonstration case (led by TVT)**, TVT will create a LEV and EV charging plan for the Mäntymäki area. The Mäntymäki area will be built in the next 10 years, construction has already started. LEV charging points will be built inside of the first building, the demonstration will hopefully finish at the end of 2021. A modified version of the charging boxes foreseen in the second demonstration case are to be built outside the buildings and will be worked together with city. Charging points will be suitable for all LEVs, from e-bikes to e-scooters.

Table 8: Turku demo n.3 basic facts

Basic demo facts	
EV-Usage	All LEVs
Basic Use Case	Planning and implementation of LEV charging points
End Users profile	Private users of e-bikes
Charging Infrastructure	To be installed: PV panels Type: AC
Partners involved	TVT
Demo Site	Mäntymäki area

In the **fourth demonstration case (led by VASO)**, Vaso will build charging points in the Pääskyvuorenrinne housing area. Vaso housing in Pääskyvuorenrinne will have 76 new apartments and charging spots will be built under the building in a parking hall. Chargers will be 22kW AC chargers. The housing will incorporate solar energy and a battery system with automated smart charging. This project will demonstrate the SMAC tool and will be set-up in cooperation with Turku Energia and Huippuenergia. The parking spots are in a location that can't be made public, so the INCAR product can't be implemented. These charging points will be used by house residents.

Table 9: Turku demo n. 4 basic facts

Basic demo facts	
EV-Usage	E-cars
Basic Use Case	Charging spots in a housing parking hall
End Users profile	Private users of e-cars (residents)
Charging Infrastructure	To be installed: 22kW AC chargers Solar energy, battery system, smart charging
Partners involved	VASO, Turku Energia and Huippuenergia
Demo Site	Pääskyvuorenrinne housing area

In the **fifth demonstration case (led by Turku Energia)**, Turku Energia will build a public charging point with V2G solutions in the Kupittaa area. This demo case is still not approved as a project change needs an approval before the planning can start. When approved, this charging point will test the INCAR app.

Table 10: Turku demo n.5 basic facts

Basic demo facts	
EV-Usage	E-cars
Basic Use Case	Vehicle to Grid public charging point
End Users profile	Private users of e-cars
Charging Infrastructure	To be installed: V2G technology
Partners involved	Turku Energia
Demo Site	Kupittaa area

Replication building blocks

The replication approach of USER-CHI is based on the peer learning methodology and consists of four building blocks reinforcing each other. They can be intended as complementary and progressive steps leading to replication and scale-up of the USER-CHI solutions, however, as explained in the next chapters, they do not have to be interpreted as strictly consecutive blocks. The four components of the USER-CHI replication approach are:

- Getting started: sharing knowledge and building capacity
- Meeting-up: gaining first-hand experience
- Moving forward: preparing for replication
- Scaling-up: engaging with interested cities



Figure 1: The 4 dimensions of USER-CHI replication

2.3.1 Getting started: sharing knowledge and building capacity

The first building block encompasses the regular exchange of information among the USER-CHI partners on the state of the art of the products' development and implementation of solutions which forms the basis for learning and building trust. The knowledge sharing will happen through email, online and offline meetings, peer-learning webinars, and collection of relevant documents, such as the city fingerprints. Knowledge sharing is complemented by the process of reinforcing specific learning needs through focused webinars of technical nature, where the participants can

build a specific knowledge and delve into the technical details. The replication training can also be seen as a first step of the replication process, where cities are equipped with techniques and methodologies they will use during the visit and that will facilitate both self-learning and will set the basis for long-term cooperation.

2.3.2 Meeting-up: gaining first-hand experience

The second building block is about getting first-hand experience and meeting the peers. Cities gain first-hand experience through specific peer learning visits where they get practical insight into the day-to-day challenges which can affect different aspect of the implementation. The replication webinars -organised before each visit- will help better address specific needs and align expectations.

2.3.3 Moving forward: preparing for replication

The third building block stems from the previous two phases to move forward towards proper application of the solutions in other cities. Based on the teachings from the previous two phases and the peer learning visits, replicator cities will prepare implementation roadmaps, setting-up the steps towards replication of the selected measures. Two replication workshops will bring together the demonstrator and replicator cities to follow-up on the intended replication measures, get feedback and find solutions to the encountered barriers to replication.

2.3.4 Scaling -up: engaging with interested cities

The fourth building block of the replication approach addresses the external cities that are interested in scaling up the USER-CHI solutions. Peer learning visits, technical and peer learning webinars addressing the demonstrator and replicator cities will also be opened to interested cities outside the USER-CHI consortium to disseminate and scale-up the USER-CHI solutions across Europe. As part of the project website, the most interesting results will be showcased and made available to cities that are interested to take-up similar solutions. A replication booklet will offer technical and strategic guidelines to transfer the USER-CHI solutions to other cities. Finally, policy recommendations will be developed to help local, national, and European authorities to boost the massive deployment of EV charging infrastructure.



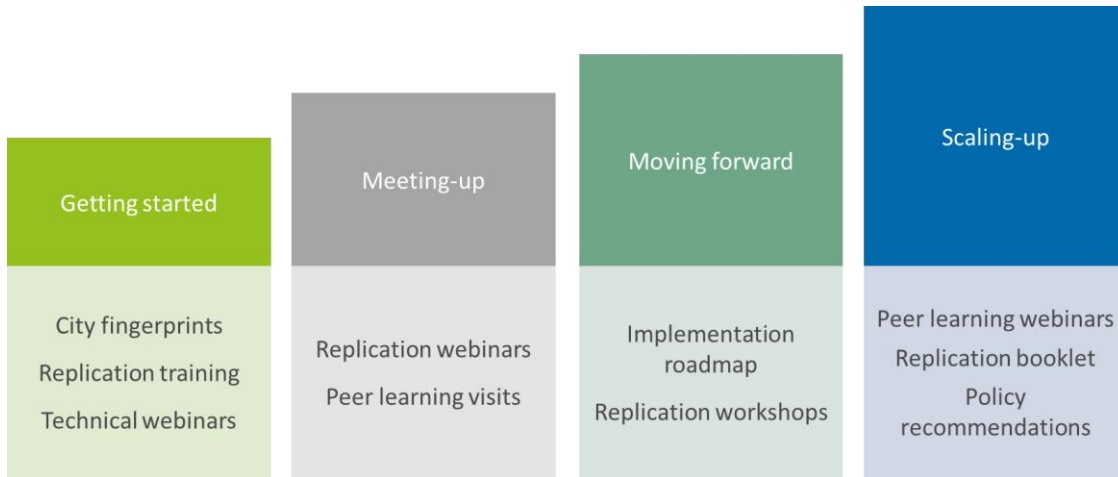


Figure 2: The four dimensions of replication and related activities

2.4 Peer to peer learning methodology

The USER-CHI replication approach is based on the peer-to-peer learning methodology.

Peer-to-peer learning is an excellent instrument for improving the implementation of cities' policies and strategies. It is based on the idea that people who work on similar issues and have similar roles and working backgrounds in their cities can share experiences and learn from each other. These people are usually called 'peers' and can be city experts, decision makers or local stakeholders. 'Peers' share a common understanding of and interest in implementing e-Mobility projects and policies in their cities. In many ways they face similar challenges, need to find solutions to similar problems and look for corresponding solutions, projects, and alliances. Hence, sharing experiences and solutions with each other can help them to improve their projects, organisational structures and ways of thinking and working. Peer-to-peer learning is part of a wider collection of training methods that cities can use to exchange knowledge and best practices.

In this section, we will present two methods that we will be using in the USER-CHI replication activities, namely the peer learning visits and the webinar. These methods are based on the long-standing experience of Eurocities in this field and the knowledge matured in projects like Cascade, Covenant of Mayors, and Green Digital Charter, among others. Besides explaining the two peer learning methods, the next paragraphs will hopefully be beneficial to cities to organize their own peer learning activities.

2.4.1 Peer learning visits

The peer learning visit offers groups of experts, decision makers and/or other stakeholders from one or more cities (the visitors), the opportunity to visit another city (the host) and see first-hand how the latter has successfully implemented its plans, policies, projects and/or initiatives. The peer learning visit is a dynamic and interactive process that facilitates the exchange of experience

and knowledge between cities. It provides the participants with a better understanding of local projects and initiatives and allows interaction with key local stakeholders and decision makers. During the peer learning visit, the visitors can see how projects are implemented in reality and learn from the host city through short presentations, site visits and peer-to-peer discussions.

This method allows visitors to view successfully implemented projects/initiatives, learn about the history of any given project from planning to implementation and discuss challenges and barriers encountered along the way and how they were overcome. Thus, they can get useful information and ideas for improving their existing projects or initiating new ones. Although the visitors are the main beneficiaries of a peer learning visit, it can benefit the host city as well. The host city has the opportunity to showcase itself and demonstrate its successful projects and initiatives to visitors. Discussing its projects with their counterparts from visiting cities can also be beneficial as this way the host city can see its projects from a different perspective. The visitors' experiences and new ideas can help the host city to improve its project(s)/initiative(s) further.

The peer learning visit can benefit both city experts and decision makers, or even local stakeholders (managers of public companies and operators, citizens' associations, local companies, technology providers, etc.). However, participants should preferably be decision makers or experts who can use the knowledge gained to improve working patterns in their own city.

USER-CHI will organize five peer learning visits, as explained in the following chapters.

To make a peer learning visit effective:

- It is important to dedicate a great deal of time and effort during the initiation and preparation phases to achieve a good match between the visit programme offered and visitors' needs through a dedicated webinar.
- The sharing of experiences can be significantly improved if the participants know the work and background of their peers from the other cities before the visit. Reading the city fingerprints and people profiles prior to the visit could be very helpful. Furthermore, it would be better if the participants made a short presentation of their background at the beginning and not at the end of the visit.
- A three-day visit would allow appropriate time for discussion and networking, beside encouraging the exchange of experiences and facilitating participants' interaction.
- A varied yet limited (max 12) visiting group will facilitate interactive discussions while providing a transnational perspective.
- Quite often the participants are not able to attend the conclusion and discussion session at the end of the visit. It might be better to have discussion and conclusion sessions at the end of each day or after each batch of presentations and site visits.
- Presentations followed by site visits to the described projects seem to be the most effective format of a peer learning visit. The format can be further improved by including several opportunities for networking and discussion. In addition, a

presentation of the city's mobility vision and strategy at the beginning would help the visitors to understand better how the projects presented fit into the general framework.

- Interactive discussions during the presentations and site visits better facilitate sharing of knowledge and experience compared to fixed Questions & Answers sessions at the end. In addition, the visitors should be encouraged to make recommendations for improvements.
- Presentations by and discussions with local stakeholders involved in the projects help participants to understand better how these were developed and implemented. Hosts should avoid having presentations only by the personnel of the city.
- The visit should be the beginning and not the end of the learning process. The visitors should carry out a 'transferability analysis' to investigate whether and how the new solutions and methods can be transferred to their city. Based on the results of the analysis they develop an action plan or implementation roadmap.
- The visitors should keep the hosts and other visitors updated about the results of the analysis and the progress of their action plans. A teleconference or a replication workshop months after the visit can help to evaluate the impact of the visit and strengthen collaboration.
- The organisation of a peer learning visit brings together staff from different departments and usually improves interdepartmental communication in the host city. The host city should try to capitalise on these new contacts to improve the interdepartmental collaboration and develop cross-cutting projects.
- Hosting a peer learning visit can improve the visibility of the city's energy or mobility team and reaffirm the interest of decision makers. The city officers should try to involve the city decision makers in the visit and give publicity to improve the political and citizen support of their work.

2.4.2 Webinars

'Webinar' is short for 'Web based seminar', a meeting for the exchange of knowledge, which uses the communication tools of the Internet. Webinars are a powerful medium for reaching varied audiences - small or large. Easy to access as well as convenient, webinars are an effective mode of learning for professionals who can fit the concentrated hours of learning or exchange into their schedules. The use of Internet avoids the need for travelling, which is naturally an important advantage for international networks and projects. In the specific context of the COVID-19 pandemic, the use of webinars has and will replace some of the activities that were originally planned in person.

The webinar format can be a powerful training and sharing tool, it has the potential to introduce and discuss complicated issues. The audience stays in their own work environment and can concentrate on the issue at hand. The technical possibilities of the webinar should then be used as much as possible (whiteboard, shared screen, interactive discussions, video, etc.). In such an application, the exchange between speakers and participants is important and needs particular attention when setting up the webinar.

A highly specific content idea that can be presented in detail should be selected. This will make it easier to focus on the topic. When the subject of the webinar is not specific enough, it will not attract the right audience. The proposal for the content can come both from the host or the speaker(s). In the former case, the host – a city, a network, an initiative – selects content according to its strategic priorities and needs. In the latter, the speakers ‘pitch’ their work or ideas in an effort to further disseminate and promote it.

USER-CHI will organise technical webinars and peer learning webinars, as explained in the following chapters.

To make a webinar effective:

- The subject must have genuine added value. Most people are too busy to stop what they’re doing and watch a webinar that does not interest them or does not clearly address a specific need.
- Webinars need to be hosted by skilled, knowledgeable experts in their field. They should be able to speak confidently about the chosen subject. Subject matter expertise is also important for answering unexpected questions.
- When choosing and communicating a time to host the live event, keep in mind that not everyone will be in your time zone.
- Create a registration page on your website that requires a name, company/city name, and email address to register and has all of the information about the webinar. Describe what participants will learn in the webinar and put presenter bios on your registration page.
- Promoting must start on time, at least one month in advance.
- Textual content for a virtual presentation should be clear and to-the-point. Like a classroom presentation, the text should not just mimic what the speaker will eventually say. Keywords and not sentences should be used. Back up with as much data and evidence as possible, and naturally presentations should be entertaining.
- Unlike a classroom presentation, where the presenter can talk and explain a slide for at least 2-3 minutes, a virtual presentation has to have a slide movement every 20-40 seconds to keep the audience interested. This can include slide transitions, annotations or section highlights - all relevant to what the audience needs to know.

- Graphics are a big part of a virtual presentation and reduce textual matter. Graphics that need to be explained like graphs or charts should be explained only to the suitable point of detail. Going into too many details will cause the learner's attention to decrease. Visual clues like one-word descriptors, figures or percentages can be provided to help the audience to understand the graph or chart quickly.
 - A very interactive way of doing a presentation is using screen sharing. The presenter demonstrates or illustrates on his own computer screen his subject. This can be very helpful for explaining procedures and techniques in certain computer programmes.
 - A short video between two presentations can make the webinar more attractive. The videos should be short and illustrate the subject of the webinar.
 - A webinar host can help with the flow of the presentation. This person introduces the speakers, asks any questions that come up during the webinar or Q&A, and concludes the event. If any problems arise, this person can address them easily, without causing the speakers to get off-topic.
 - Make sure to be on-line at least 10 minutes before the webinar is scheduled to begin, or even earlier if possible. This will help get things going promptly and can help you feel more relaxed when it's time to begin. Starting late will make participants leave, because they find no activity or connection at the time they expect to start.
 - At the start of the webinar, inform the participants about the discussion rules, and about the way they can ask questions.
 - Many participants are probably new to the technical interface. Therefore, one should take the time to walk them through the various features and functions they will need during the online event.
 - Other interactive methods like open-ended discussions can be used at the end of a session to invite new ideas and suggestions.
- 2.5** • Because a part of those who register will not show up, it is advisable to record the webinar. After the webinar, send an email to everyone who registered with a link to the recording.

Replication activities

The next paragraphs will describe in further details the different activities that form part of each replication building block.

Where possible, the following sections will already suggest specific formats, contributions, and topics to be addressed, that will be however refined and adjusted as needed in the course of the project.

2.5.1 City fingerprints

City fingerprints for each demonstrator and replicator city have been prepared at the beginning of the project to analyse the state of the art of electromobility in each city, collect best practices and investigate the initial plans for demonstration and replication. They represent a first very important tool for getting started, know each other better and learn from each other's experience. The city fingerprints helped and will continue to help replicator cities in developing the replication plans as they present the state of the art of e-Mobility in each city and highlight the potential for replication, including existing e-Mobility targets and goals, e-Mobility measures, and infrastructure. They are available on the USER-CHI website.

Roles and responsibilities

Eurocities oversaw the collection of the information and drafted the city fingerprints in M6 with input from each city.

2.5.2 Replication training

A replication training was organised with the demonstrator and replicator cities to present and discuss the USER-CHI replication approach, have a mutual understanding of the planned solutions in each city, as well as collect replication plans by the replicator cities. It equipped cities with the peer learning methodology that will be applied in the project. The replication training took place in M11. Due to the COVID-19 pandemic, the training took place online.

Roles and responsibilities

Eurocities organised the training and delivered the main presentations, while facilitating the discussion.

Demonstrator cities contributed by sharing the state of the art of their planned demonstration sites.

Replicator cities contributed by sharing their envisaged replication plans.

2.5.3 Technical webinars

Five technical webinars will be organised -with the input of the relevant product leaders and demonstrator cities- to present the products and other technical solutions being implemented in the project, as well as challenges encountered. Besides offering a learning and knowledge exchanging opportunity within the USER-CHI community, these webinars will also target interested cities and particularly urban nodes on the different TEN-T corridors outside of the project.

An initial proposal of topics and contributions is summarised in the table below.

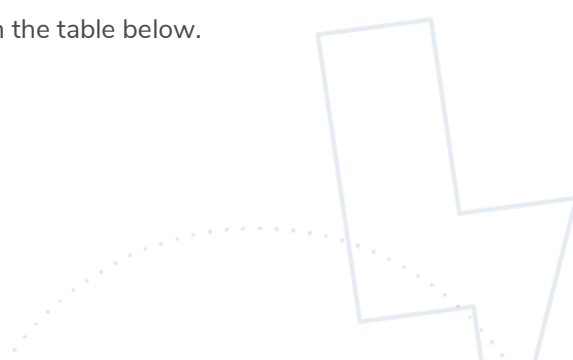


Table 11: Potential topics for technical webinars

Topic	USER-CHI contributions
Optimal location planning of new charging infrastructure	<ul style="list-style-type: none"> • CLICK tool for the optimal location planning • Rome planning approach based on the number of employees in a given area (TBC)
Interoperability among electromobility stakeholders	<ul style="list-style-type: none"> • INFRA framework • INCAR platform
Smart charging	<ul style="list-style-type: none"> • SMAC • Vehicle2Grid (V2G)
Inductive charging	<ul style="list-style-type: none"> • INDUCAR • Barcelona application of INDUCAR (TBC) • INCIT-EV – Zaragoza (TBC)
Solutions for LEVs	<ul style="list-style-type: none"> • INSOC
Business models for charging infrastructure	<ul style="list-style-type: none"> • Results from the business analysis in WP8

This initial list of topics might be subject to adjustments and corrections, to be able to capture the most interesting results generated by the project. The technical webinars will take place between M12 and M30, according to the maturity of the solutions to be presented.

Roles and responsibilities

Eurocities will organise the technical webinar and will facilitate the discussion.

Product leaders will deliver the main technical presentations.

Demonstrator cities will contribute by sharing their experience on the implementation of that solution in their city context, or by sharing other existing best practice examples or challenges.

2.5.4 Replication webinars

Replication webinars will be organised before each peer learning visit to refine with the participants the content of the visit and get familiar with each other's background, collect specific requests, and agree on the agenda. It is a very important step to align expectations and needs. They will take place indicatively one month before each visit.

Roles and responsibilities

Eurocities will organise and facilitate the replication webinars.

2.5.5 Peer learning visits

Peer learning visits are at the very heart of the USER-CHI replication approach as they give a strong impulse to the replication process.

Each demonstrator city will host a peer learning visit for the other demonstrator cities, replicator cities, and interested cities as well. The peer learning visits will be the occasion of showcasing the existing measures and ongoing activities, it will be an opportunity for the visiting cities to learn first-hand and ask specific questions. The host cities, on the other hand, will have the chance to share challenges and get tailored feedback. A transferability session will form part of the peer learning visit to analyse the transferability potential of the analysed measures. Given its centrality in the replication approach, the box below explains in detail how to organise a peer learning visit in the frame of USER-CHI. The peer learning visits will take place between M18 and M32. Although the demonstration activities in the demonstration cities will not be completed by then, we consider it will be important for the visiting cities to already get acquainted with the preparatory work and the existing demonstrations, measures and solutions that paved the way to the deployment of the USER-CHI solutions.

Roles and responsibilities

Eurocities will organise and facilitate the peer learning visits, including the transferability session.

Demonstrator cities will host one visit each in their city.

Replicator cities will participate in the visits and prepare implementation roadmaps afterwards.

HOW TO ORGANIZE A USER-CHI PEER-LEARNING VISIT?

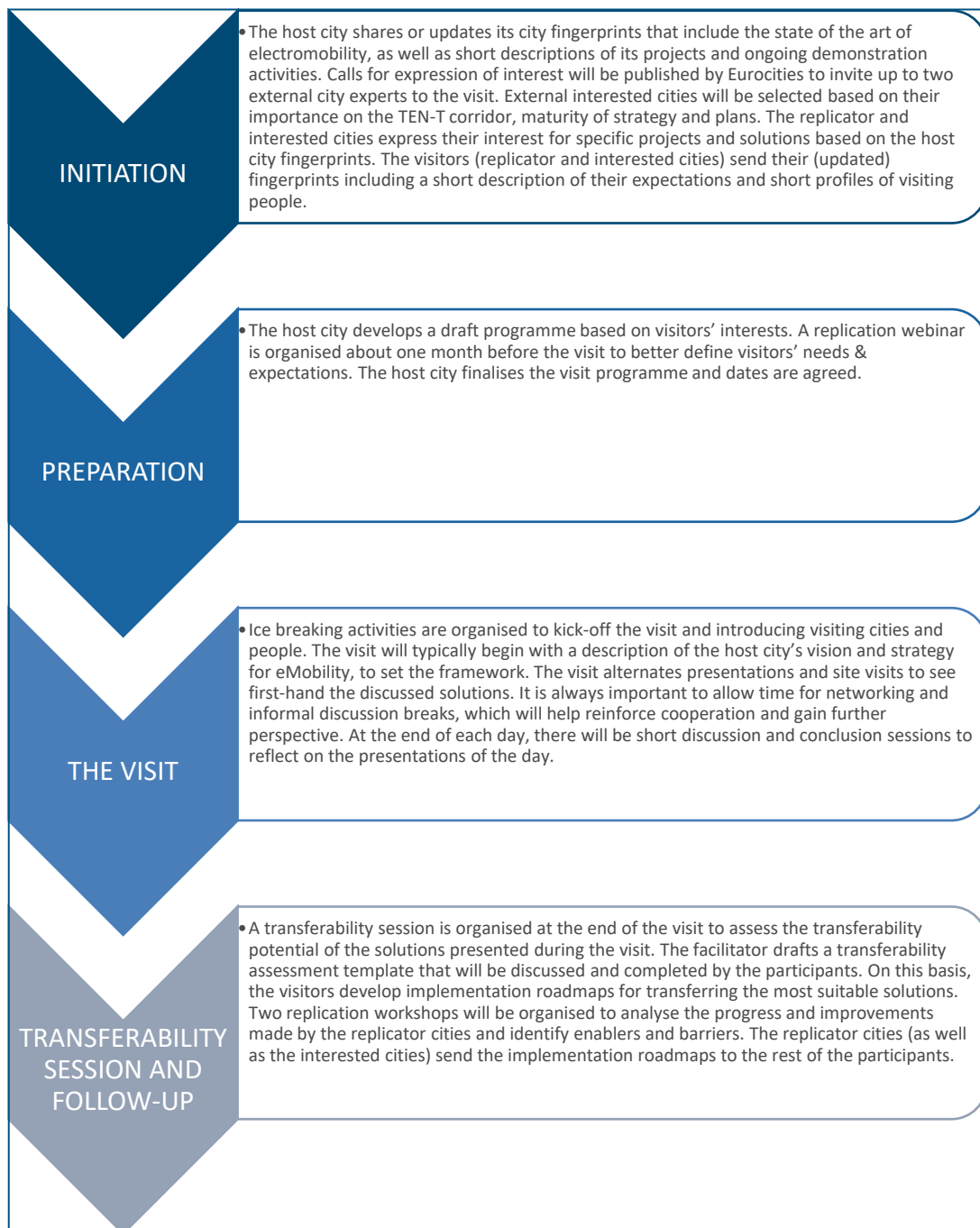


Figure 3: The USER-CHI peer learning visit process

2.5.6 Implementation roadmaps

As a follow-up to the peer learning visits, the replicator cities will draft implementation roadmaps specifying the solutions they intend to replicate, the timeline and the steps they need to undertake. The implementation roadmaps translate the replication plans into concrete actions and are therefore detailed enough to monitor progress over time. An implementation roadmap template will be provided to the replicator cities.

Roles and responsibilities

Eurocities will prepare the implementation roadmap template and will guide the replicator cities in the process.

Replicator cities will prepare the implementation roadmaps.

2.5.7 Peer-learning webinars

Five peer learning webinars will be organised to share the most interesting and promising solutions stemming out of USER-CHI with external cities. These webinars will focus on the replication potential and will be theme based. External speakers from other cities, stakeholders advisory group members and linked initiatives (such as the USER-CHI sister projects eCharge4Drivers and INCIT-EV) might be invited to contribute to the peer learning webinars.

An indicative proposal of topics and contributors, based on an initial assessment, is summarised in the table below.

Table 12: Potential topics for peer-learning webinars

Topic	Subtopics	Possible contributors
User acceptance of charging infrastructure	How to involve the users in the process: experiences from USER-CHI, INCIT-EV and eCharge4Drivers	USER-CHI (IBV) INCIT EV eCharge4Drivers
	Examples of USER-CHI products designed for the user/city experience	USER-CHI product leader/cities
Parking policies for EVs	Incentives	USER-CHI cities
	Positive discrimination	External city
	Enforcement	European Parking Association
Charging points for shared vehicles	LEVs (e-bikes, e-scooters)	USER-CHI cities
	E-Taxis	External city
	Municipal fleets	

Topic	Subtopics	Possible contributors
RES integration	Technical aspects	USER-CHI (IPT/DSI)
	Legislative aspects	USER-CHI (IKEM)
Public space optimisation	Smart lamp posts	USER-CHI cities
	Mobility stations	External cities
	Battery swapping stations	GreenCharge
Electromobility and social inclusion	Charging infrastructure in social housing	Gewobag, TVT, VASO
	Users' perspective	IBV
	Gender dimension	IKEM

The peer learning webinars will take place between M24 and M48.

Roles and responsibilities

Eurocities will organise and facilitate the peer learning webinars with inputs from USER-CHI relevant cities and partners.

2.5.8 Replication workshops

Two replication workshops will complement and act as a follow-up to the peer-learning visits to further guide demonstrator and replicator cities in the implementation of their measures, support them with the definition of the key enablers, barriers, solutions, issues, and strategies to overcome them. They will take place between M24 and M46.

Roles and responsibilities

Eurocities will organise and facilitate the replication workshops.

Demonstrator and replicator cities, as well as relevant partners will contribute to the discussions.

2.5.9 Replication booklet

A replication booklet will be prepared in M42 to provide an overview of the different technologies and strategies that have been tested by the demonstrator cities and to offer technical and strategic guidelines to other cities on how to successfully transfer these solutions. It will have a digital format to increase its accessibility.

Roles and responsibilities

Eurocities will develop the replication booklet with inputs from the demonstrator and replicator cities, as well as from product leaders and other relevant technical partners.

2.5.10 Policy recommendations

Policy recommendations will be drafted for the EU, national and local decision makers with a view to address the technical user-centric issues, optimise the deployment of charging infrastructure, strengthen the interoperability of the network, support smart grid integration and advance sustainable business and market models. The policy recommendations will rely on the outcomes of the project (users research analysis, legal and technical requirements analysis, etc.), as well as input from the USER-CHI stakeholders' advisory group, and other feedback from experts from the Eurocities working groups and panels. They will be produced along the whole duration of the project, and they will be summarised in a final publication in M42.

Roles and responsibilities

Eurocities will draft the policy recommendations with inputs from the project partners, work package leaders, stakeholders advisory group members and other city experts.

2.6 Timeline

As above mentioned, the replication activities in the four replication building blocks will not take place in a strictly consecutive way. As shown in Figure 3 below, the four building blocks will run in parallel in some phases.



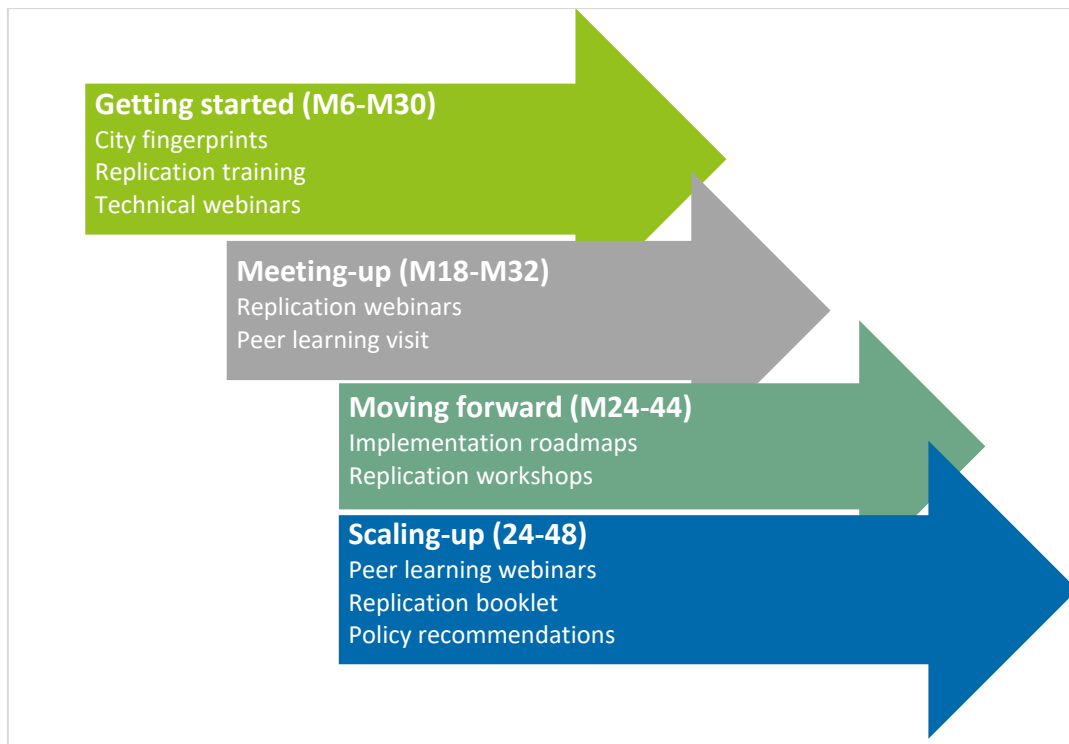


Figure 4: Replication timeline

2.7 The figure identifies windows of time for those replication activities to take place, but exact timing will be agreed more precisely or adjusted to the project's needs and to take the most of opportunities that might rise.

Targets

Two key indicators and related targets have been identified in the proposal stage to measure the impact of the USER-CHI replication activities.

- **N. of cities incorporating learnings into their strategies: 30.** This target refers to the number of cities incorporating the knowledge acquired through USER-CHI activities, namely the technical and peer learning webinars, as well as the peer learning visits, into their city plans. In USER-CHI, we esteem that at least 30-50 cities will take inspiration from the solutions designed and tested in USER-CHI and apply those in their city context. This target will be measured through action plans developed by external cities after the participation in USER-CHI replication activities, and/or other follow-up actions (request for further information, email exchanges, follow-up calls or meetings, replication of solutions, etc..) undertaken by external cities as a result to participating in the USER_CHI replication activities.

- **N. of policy recommendations provided: 20.** The USER-CHI policy recommendations will be based on the input collected from USER-CHI cities, partners, stakeholder advisory group members and other city experts during the course of the project. They will target local, national and EU decision makers and will aim at suggesting ways of fostering the electromobility market across Europe, thanks to the USER-CHI findings. We esteem we will collect at least 20 valuable recommendations that we will advocate towards the relevant audience. This target will be measured by the final list of policy recommendations collected, published by the project, and presented to the relevant audience.

Other indicators and related targets might be identified in the framework of WP7 cross-site evaluation and impact assessment.



3. Conclusion

This document has set the framework for all peer-to-peer exchange activities that will be carried out within the project. It was its intention to describe the replication activities and timeline, as well as the objectives, processes, methodologies, and expected outputs, clearly distinguishing the roles and responsibilities for each of the project partners and cities involved.

The replication strategy will remain available for consultation by partners and by interested cities, that will be recruited in the replication process. It will serve as a reference to USER-CHI and interested cities to prepare for the transfer and adoption of the e-Mobility measures and strategies.

Nevertheless, the strategy will remain flexible to respond with resilience to the challenges and opportunities that will emerge during the project implementation, or that might be posed by the current COVID-19 epidemic situation. For instance, the topics of the technical and peer learning webinars might be adapted to better respond to the most pressing issues encountered by the cities, or the in-person activities will be moved online, if necessary. Should the latter be the case, the interaction and participatory approach - that is one of the added values of physical meetings - will be ensured as much as possible, and contingency measures will be further proposed.



Acronyms

Acronym	Meaning
AC	Alternate Current
AMB	Area Metropolitana de Barcelona – Barcelona Metropolitan Area
CLICK	Charging infrastructure Location and Holistic Planning Kit (product of the project)
CP	Charge Point
CPO	Charge Point Operator
D	Deliverable
DC	Direct Current
DoA	Description of Action
EC	European Commission
EV	Electric Vehicle
GA	Grant Agreement
IBV	Instituto de Biomecanica de Valencia
ICT	Information and Communication Technology
IKEM	Institut fur Klimaschutz Energie und Mobilitat-recht, Okonomie und Politik Ev
IPT	IPT Technology
LEV	Light Electric Vehicle
M	Month
PV	Photovoltaic
RSM	Roma Servizi per la Mobilita
VMZ	VMZ Berlin Betreibergesellschaft mbH (project partner)
WP	Work Package



References

Cascade cities project: www.cascadecities.eu [Last accessed: 16/12/2020]

Covenant of Mayors: www.covenantofmayors.eu [Last accessed: 16/12/2020]

Green Digital Charter, Guidebook, January 2018. Available at:
<http://www.greendigitalcharter.eu/wp-content/uploads/2012/03/GDC-Training-guidebook-web.pdf> [Last accessed: 10/11/2020]

