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# SOLUTIONSplus

## D2.1 The SOLUTIONSplus Capacity Building Plan

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### **Dissemination and uptake**

To be used by all SOLUTIONSplus project partners.

D2.1 is a public deliverable and will be made available to the wider audience.

### **Short summary of results**

The main objective of this document is to set a clear framework for the capacity building activities that will take place throughout the implementation of the project, ensuring that relevant groups in the Cities acquire knowledge, skills and capacities necessary to successfully implement e-mobility actions within their mobility ecosystem.

### **Evidence of accomplishment**

Report

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## 1 Introduction

This document is developed as part of the SOLUTIONSplus (SOL+) project, which has received funding from the European Union's Horizon 2020, under the Grant Agreement number 875041.

SOLUTIONSplus is an international flagship project to support the global transition to sustainable mobility. In the context of the EU-funded SOLUTIONSplus project, 45 partners and over 100 associated partners work together on transformative change towards sustainable urban mobility through innovative and integrated electric mobility solutions. The team of local authorities, knowledge and finance partners, industry, networks and international organisations help to boost the availability of public and shared electric vehicles, foster the efficiency of operations and support the integration of different types of e-mobility in urban areas to meet the users' needs and local conditions in Europe, Asia, Africa and Latin America. The project implements e-mobility solutions such as electric two and three-wheelers (for first and last mile connectivity), electric buses and minibuses, innovative charging solutions and multimodal journey planners in the partner cities.

### 1.1 SOLUTIONSplus Project

The SOLUTIONSplus project brings together some of the leading networks, industry actors, knowledge and implementation organisations, as well as highly motivated cities to test innovative e-mobility solutions. The project consortium will develop, test and replicate innovative, intermodal e-mobility solutions to address the increased demand for passenger and freight transport. The focus for the project will be on shaping energy use, providing access for all, creating business opportunities and developing concepts that can make a direct contribution to a low-carbon development through e-mobility. The emphasis on shared and public transport fleets will also help address, among other things, urban congestion, access to jobs and services, and influence urban land-use. A core element of the implementation concepts will be an integrated and balanced approach that addresses social, economic and environmental issues. The project will work on the adaptation and integration of different solutions in three key areas of urban mobility:

- **Vehicles:** The demonstration actions support the introduction and integration of electric buses, mini-buses, taxis, 2- and 3-wheelers in partner Cities. The key focus for the international cooperation aspects will be on the collaboration between European industries and local companies, focussing on last-mile connectivity and testing the viability of e-logistics options.
- **Operation:** The demonstration actions will concentrate on e-mobility operations, including conventional and wireless, innovative charging solutions for different types of vehicles. The key focus for the international cooperation aspects will be on the provision and adaptation of innovative charging solutions for different use-cases in the partner cities.
- **Integration:** The demonstration actions will foster intermodal route planning, eco-routing, ticketing, trip planning, navigation, demand-responsive service and dispatching and will provide a white-label app for the adaptation to the local contexts.

The project encompasses city level demonstrations and will be complemented by a comprehensive toolbox, capacity development and replication activities. Demonstration actions will be launched in Hanoi (Vietnam), Pasig (Philippines), Lalitpur/Kathmandu (Nepal), Nanjing (China), Kigali (Rwanda), Dar

es Salaam (Tanzania), Quito (Ecuador), Montevideo (Uruguay), Madrid (Spain) and Hamburg (Germany), and replicated in twenty additional cities.

This project builds on the Urban Electric Mobility Initiative, which was launched by UN-Habitat at the UN Climate Summit 2014. It also closely cooperates with a sister project funded by the Global Environment Facility (GEF) and managed by the International Energy Agency (IEA) and UN Environment. Together, the two projects create a joint global urban e-mobility programme that will significantly boost the development of innovative solutions, their replication and scale-up. Through the regional training platforms, global working groups and local city support teams, the partners will develop highly effective and innovative approaches to urban e-mobility ensuring that mobility systems and interventions deliver on the Paris Agreement, meet the Sustainable Development Goals and address the New Urban Agenda.

Figure 1: SOLUTIONSplus Objectives



## 1.2 Purpose and structure of the document

The main objective of this document is to set a clear framework for the capacity building activities that will take place throughout the implementation of the project, ensuring that relevant groups in the cities acquire knowledge, skills and capacities necessary to implement e-mobility actions in their cities.

This deliverable (**D2.1**) sets the basis for **WP2** (Capacity Building, city-to-city cooperation and professional development), describes the capacity building outline that will be adopted within the framework of the project, **servicing as a living resource, which is to be updated throughout the project's implementation**. The deliverable fulfils the goal of providing the overall *approach* to capacity building actions in the project, under which all related training and knowledge exchange activities will be conceptualised and developed.

The departure point for the capacity building approach is the main outcomes of *the training needs assessment (TNA)*, which was performed in the early months of the project. The results of the TNA and the expertise in the partnership, led to the development of a *blended learning approach* to address the identified gaps, with tailor-made *capacity-building tools*, combining different learning formats, methods and activities to ensure a flexible, open and friendly capacity building framework.

The document also identifies the interconnection with other relevant Work Packages of the SOLUTIONSplus, through iterative processes (i.e. **WP1** Toolkit and evaluation), providing an overview of the tools and methodologies inventory developed therein.

Lastly, the document focuses on *specific training for partners and stakeholders*, through global and regional training, as conferences, training centres and other e-learning activities.

This document set the framework for **D2.2** (Capacity building tools and updates), which provides more detail on the methodologies and the tools WP2 will supply to the Toolbox, one of the main outputs of the project under WP1. D2.1 is also complementary to **D2.6** (Collection of good practices from SOLUTIONSplus capacity building activities in WP2). This deliverable puts forward the approach for the capacity building activities, to be built upon in **D4.1** (Demonstration Implementation Plans), which outlines the training needs of each SOLUTIONSplus demonstration city.

## 1.3 Reference/related documents

The following documents are made reference to in the drafting of the present document and/or will be matured through concepts developed herein:

- SOLUTIONSplus proposal
- Grant Agreement 875041 – SOLUTIONSplus
- SOLUTIONSplus Implementation Methodology
- Training Needs Assessment survey and analysis
- D2.2: Capacity building tools and updates
- D2.6: Collection of good practices from SOLUTIONSplus capacity building activities
- D4.1: (Demonstration Implementation Plans)

## **2 COVID-19: scenarios and mitigation measures**

Capacity building is an important pillar of the SOLUTIONSplus project and the consortium will ensure that trainings will be delivered despite the challenges created by the COVID-19 pandemic. In particular, in the first phase of the project this will lead to an even stronger emphasis of digital learning tools and decentralised trainings.

Some of the options that have been already envisaged and will be explored even further are:

- bilateral online exchange reinforced between cities, industry and start-up partners, more frequent and focused on technical and specific aspects;
- reinforced train-the-trainer online program, so as to facilitate trainings carried out by local experts, duly briefed by the project experts
- video reports, virtual visits, augmented reality, Digital Twins: if the project is "forced" to save on travel expenses, it can invest in technologies.

Furthermore, three preliminary scenarios for carrying out capacity building activities are outlined below, to be further developed on the basis of the evolution of the COVID-19 pandemic and taking into account the repercussions on the project in general.

### **2.1 Scenario 1: light impact**

The pandemic will subside and there will be no return mass infections in the autumn. In this case, the physical activities (peer-to-peer exchange, trainings) scheduled for September 2020 would be delayed of 4-5 months, but without a decisive impact on the project. The online activities would be privileged and anticipated, since they are complementary to the physical ones.

### **2.2 Scenario 2: medium impact**

The situation will remain uncertain and travel, especially intercontinental routes, will not be permitted or recommended. However, the demos will run regularly. In this case, the physical activities will be downsized, in particular the outbound site visits to external cities, and postponed after M18. The online activities would be anticipated and reinforced, replacing the physical ones as far as possible.

### **2.3 Scenario 3: heavy impact**

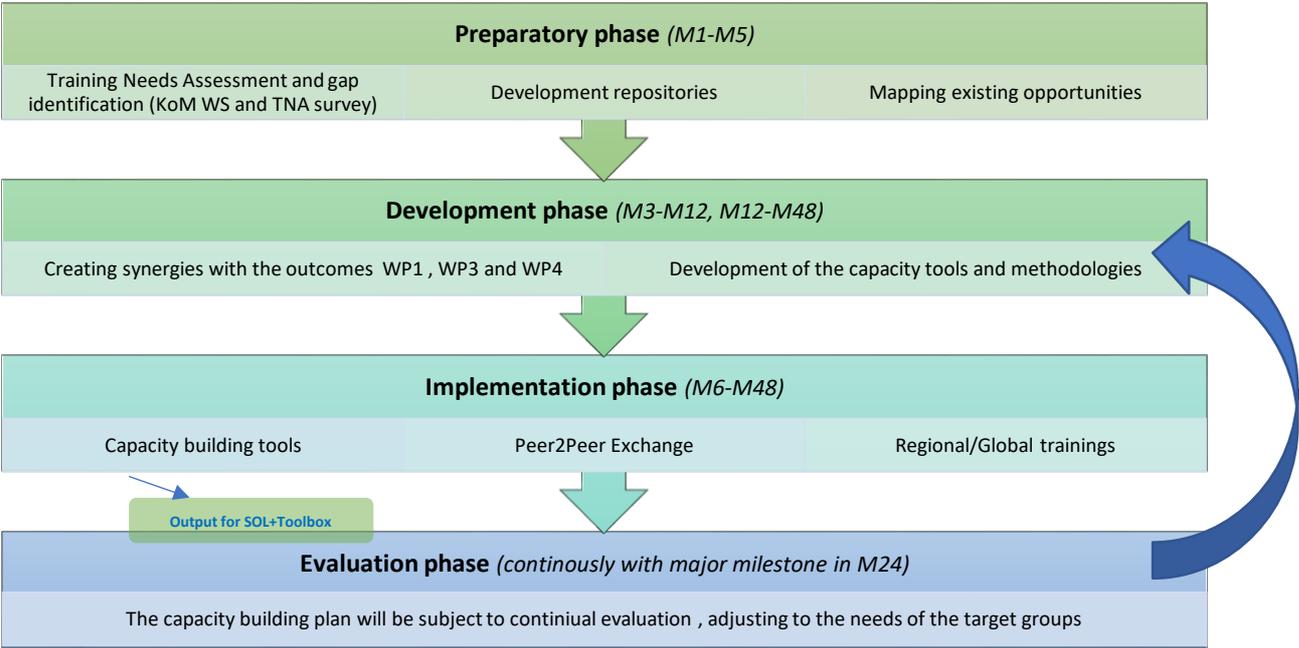
The pandemic will make the realization of the project itself difficult, putting at risk the demos and the application of e-mobility innovative solutions (e.g. for the decrease of subsidies for the purchase of electric vehicles, for the postponement of implementation of Low/Zero Emission Zones, etc.). In this case, capacity building activities will be carried out only if the project can be carried out regularly.

### 3 Capacity-building approach

The capacity building approach aims to create an encompassing capacity building framework for the SOLUTIONSplus city representatives, the primary target group. In addition, we will aim at targeting government (at national, regional and local levels), transport operators and authorities, the private sector (industry, SMEs and start-ups), civil society (particularly NGOs), research and innovation community (academia, research centres, etc.)

The capacity building approach embedded in the next chapters of this document is presented in the figure below.

Figure 2: SOLUTIONSplus capacity building approach



The preparatory phase (T2.1) is finalised with the submission of this deliverable. This phase started with the Kick-off meeting in January 2020. During a dedicated workshop, the first discussion on the TNA and the accompanying survey took place. In the following months, the survey questions have been developed by UN-Habitat, and the survey was open to the relevant stakeholders in the cities for their contribution. In addition to answering the survey, bilaterally more in-depth interactions took place in the form of interviews.

As a second step in the preparatory phase, POLIS has developed a repository categorising courses, trainings developed by the consortium partners or by third parties. All consortium members contribute to this overview.

Training needs for all partner cities will be described in more detail in Demonstration Implementation Plans (D4.1). This will create the direct link between the demonstration actions and related training needs, which will also consider aspects related to other Work Packages, such as tools and data (WP1), business models and partnerships (WP3), scale-up and finance (WP5).

In the next sections, more information will be provided on the TNA as well as on the identified existing opportunities in a detailed manner.

**The development phase (T2.2)** further develops the results from the preparation phase. Based on the results of the TNA, the existing capacity building tools and methodologies will be tailored to the needs of the cities participating in the SOLUTIONSplus project. Based on the gaps identified among the targeted groups, additional tools and methodologies will be developed. All the tools and methods developed under **T2.2** will be presented in one blended learning approach package.

The interaction with other WPs, in this and the following phases, is crucial and will be continuously ensured. The outcomes of the tool assessment exercise in **WP1** will play an important role during the development of the blended learning approach.

The repositories created in the first phase will be refined and updated under this phase.

**The implementation phase (T2.3, T2.4 and T2.5)** will put into practice the tools and methodologies identified and developed in the previous phases. This is the step in the capacity building when the targeted audience will have the opportunity to experience all existing tools in practice. Under this phase, a lot of attention will be placed on peer-to-peer exchanges as well as the global and regional trainings.

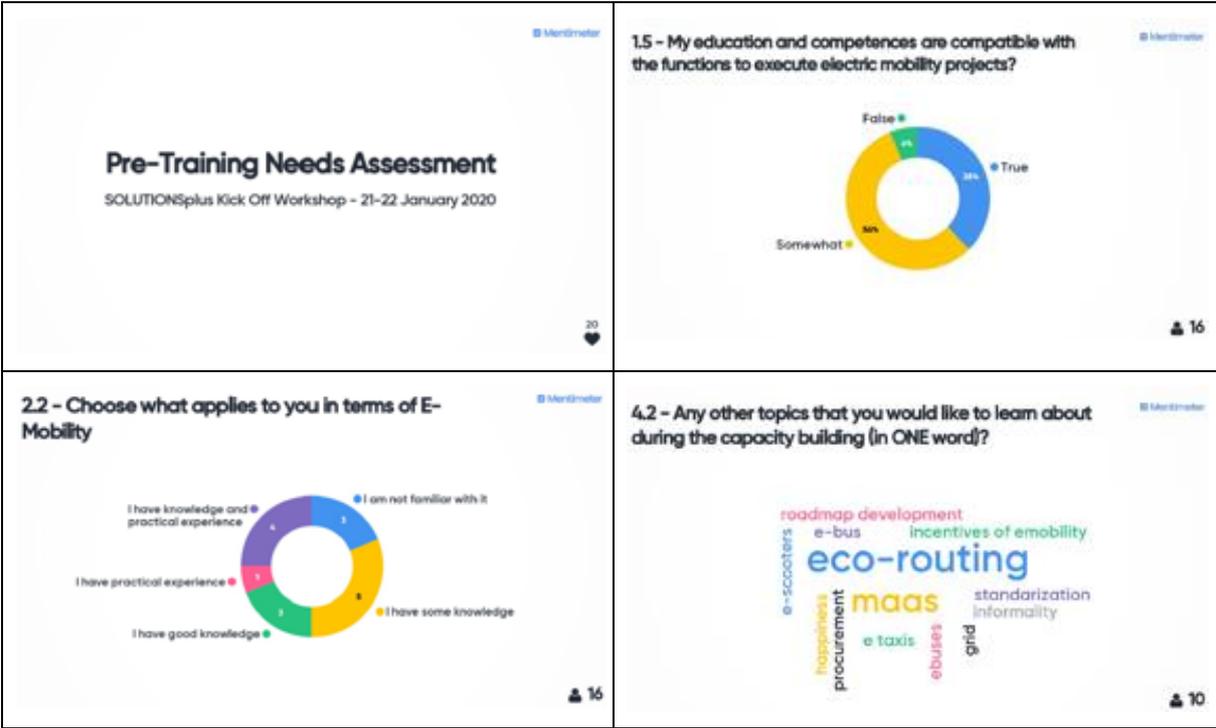
**The evaluation phase:** The capacity building framework has two main purposes: (1) to strengthen the knowledge and the skills of the participating city partners and (2) to ensure the transferability and applicability of the capacity building tools and methods to the stakeholders outside of the consortium. By monitoring, evaluating and improving the methods, we will ensure strong and continuously updated capacity building within the project and will leave the legacy to build on after the project is finalised.

## 4 Results from the Training Needs Assessment

### 4.1 Approach to the survey

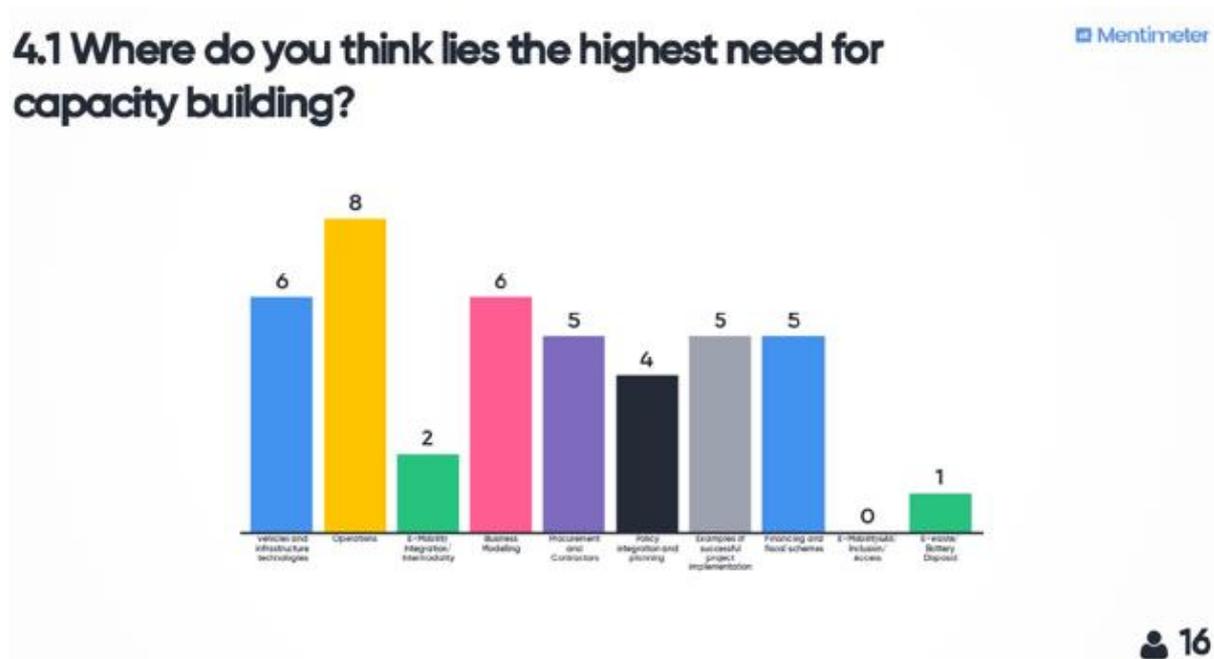
As part of the initial activities under WP2 of SOLUTIONSplus, a Training Needs Assessment (TNA) was conducted to provide an overview of the existing technical capacity, and identify areas for skills and knowledge development to streamline the implementation of sustainable transport, and in particular electric mobility, in the SOLUTIONSplus partner cities.

During the Kick-off workshop in Berlin, a Mentimeter<sup>1</sup> session was conducted to seek an initial input to the TNA. City representatives and project partners responded to the initial survey questionnaire and provided feedback. Their inputs were used to refine the questionnaire.



<sup>1</sup> An online application for measuring and obtaining feedback from audience. More info: <https://www.mentimeter.com/>

Figure 3: Screenshots of the pre-TNA during the Kick-Off workshop 21-22 January 2020



Following the pre-TNA, and the feedback received during the Berlin workshop, WP2 partners developed the final version of the TNA, assessing details of the city participants in the following categories:

- Educational background and technical qualifications,
- Awareness and perception about electric mobility,
- Ability to plan and implement e-mobility projects,
- Areas of training that will help the cities to deliver project successfully,
- Preferred modality of training,
- Criteria for selecting partner cities learning exchange,

The final questionnaire was conducted by UEMI colleagues prior and during the regional Kick-Off workshops, for which two approaches were taken:

- By sharing the link to the online TNA questionnaire: <https://nuacampus.org/tna-solplus/>
- Conducting interviews based on the questions of the TNA (See full results in the Deliverable's Annex)

#### 4.2 Main findings/conclusions from the TNA

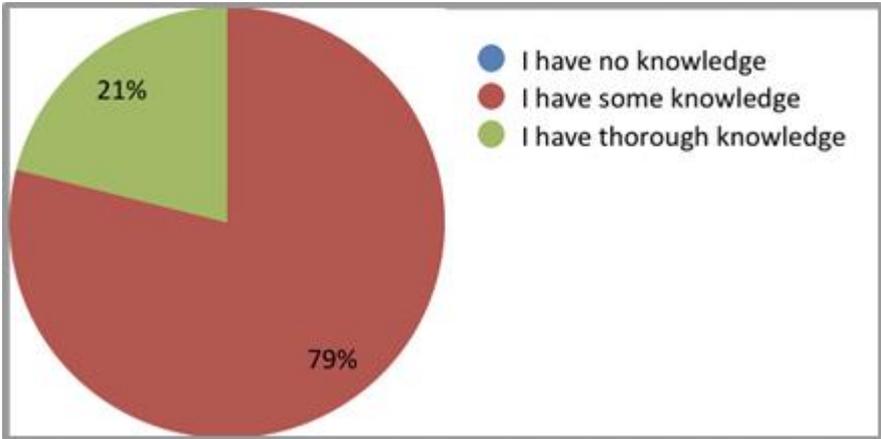
The online TNA identified the main capacity gaps in the SOLUTIONSplus partner cities that should be addressed through capacity building activities - and revealed insights into the most required skills that should be reinforced. In total, 18 respondents answered the online questionnaire incl. representatives from Dar es Salaam, Hamburg, Hanoi, Kathmandu, Kigali, Madrid, Montevideo, Pasig, and Quito.

In terms of **affiliation**, a considerable number of respondents are from the private sector - 39%, local government -22% and national government -17%, while 50% of respondents have **expertise** in engineering (transportation, civil or electrical).

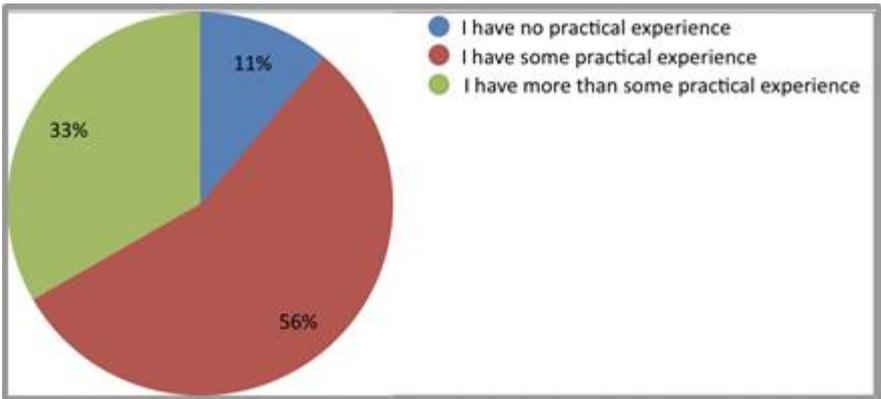
The respondents period of time working in the transport sector is as follows: 17% have less than 5 years experience, 44% have 5-9 years of experience, 28% have 10-14 years of experience and 11% have experience of 15 years and more.

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In terms of **knowledge and experience in implementing electric mobility solutions**, 21% of respondents indicated they have thorough knowledge of electric mobility solutions while 79% have some knowledge.

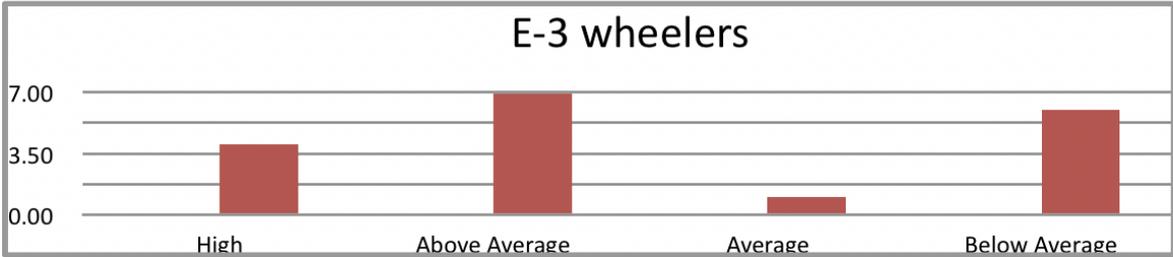


Assessing the **practical experience in implementing electric mobility solutions**, 56% of the respondents said they have some practical experience in implementing electric mobility solutions, 33% said they have more than practical experience while 11% do not have practical experience.



In terms of **specific knowledge on the type of e-mobility solution**, knowledge was assessed in 5 categories from “high”, “above average”, “average”, “below average”, and “none”.

The collective knowledge of the respondents for electric 3-wheelers is “Above Average”, as shown in the figure below.



Regarding E-Buses, E-scooters, E-Bicycles, E-Bicycle Sharing, and E-Charging, knowledge is “average”.

For E-minibuses, e-taxis, e-car sharing, e-logistics (e-trucks), and e-waste collection options, the respondents indicated knowledge that is “below average”, hence a strong need for capacity building can be detected.

When asking for **Actions that have been taken to contribute to a transition to e-mobility**, the respondents could choose from the following ratings.

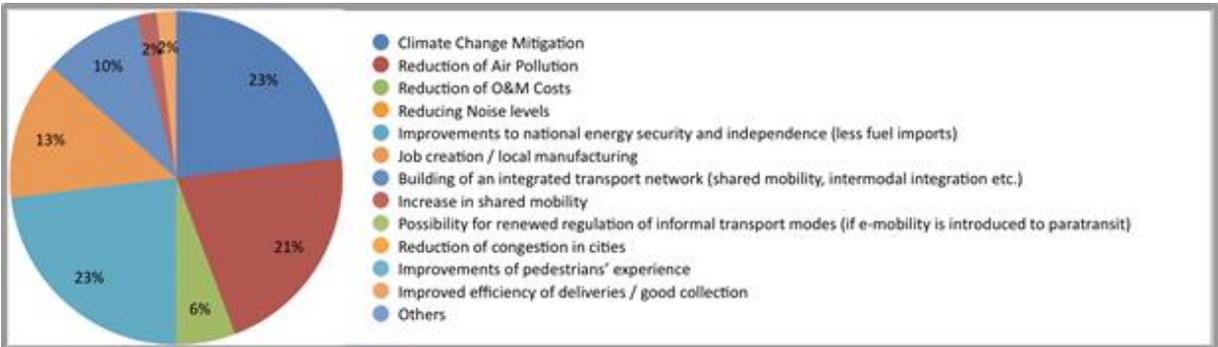
All necessary action	Above average action	Average action	Below average action
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All respondents indicated “average action” has been taken in the following categories: developing an enabling national regulatory framework; local e-mobility strategy; multi-level coordination (national - local government); coordination with the energy sector; project implementation; non-fiscal incentives; and advocacy and promotion.

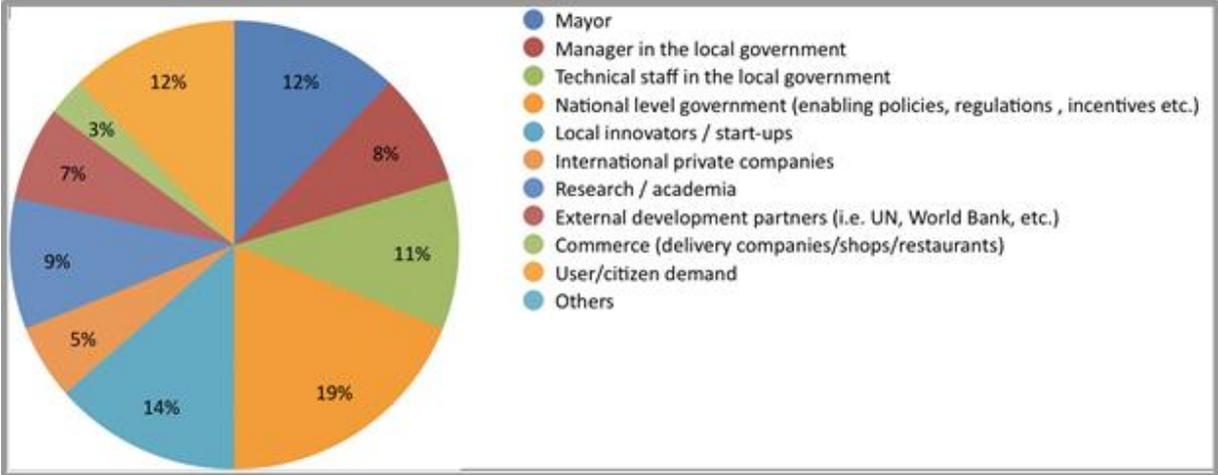
The respondents indicated “below average action” in the following categories: alignment of the e-mobility Strategy to the SUMP; fiscal incentives; involvement of local manufacturing/ startups; making charging infrastructure available; making financing mechanisms available; and developing business models.

These results indicate a need for further engagement of the SOLUTIONSplus project in the listed categories - to encourage further action in the partner cities and countries - aligned to local interests and needs.

Another question assessed the **Motivations for the institution to work on e-mobility**. These are the results: Climate change mitigation- 23%, less fuel imports (Improvements to national energy security and independence)- 23 % and reducing air pollution- 21%



Opting to understand the **main enabler for a transition to e-mobility** in the cities, the following results were derived: National government (policies)- 19%, Startups and local innovators- 14%, Mayor and Citizen demand -12%.



In terms of identifying **main obstacles that could slow down a transition of e-mobility**, the following ratings were provided to the respondents.

Major Obstacle	Large Obstacle	Medium Obstacle	Minor Obstacle
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As a collective the respondents indicated the following as a “large obstacle”:

- Insufficient personnel,
- Limited knowledge/ skills on e-mobility,
- Limited Financial Means; and High upfront investment cost.

These answers clearly emphasise the need for further skill development and technical advice on e-mobility in the partner cities, with a focus on financial and fiscal measures.

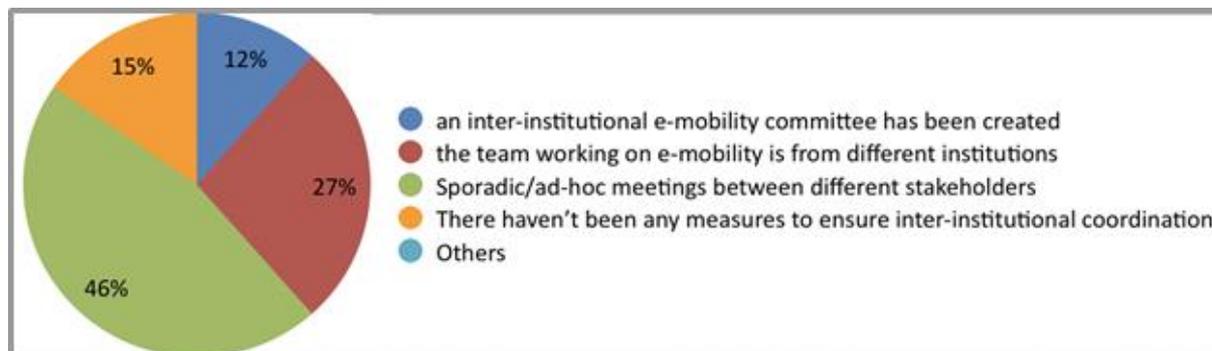
As a “medium obstacle”, the following answers were provided: Lack of intersectoral coordination (transport/ energy/ planning); Lack of collaboration between public and private sector; Lack of political will; Lack of enabling policy and regulatory framework; Lack of suitable technologies; Lack of private actors initiating projects; Limited knowledge on business cases; Reluctance of transport operators (due to fear of job loss and lack of knowledge); Public authorities reluctant to decrease fuel tax revenues; Complex governance (intersectoral / energy & transport); Insufficient policy and regulatory framework; Reticence from local commerce/ delivery companies; Cumbersome maintenance (spare part availability) ; Difficult supply of batteries/ battery materials and Limited maturity of technology.

In terms of identifying “Minor Obstacles”, the following were revealed from the answers: Difficulty / resistance of passengers to adapt to new technology (e.g. range anxiety); Lack of demand; Limitations of the electric utility grid.

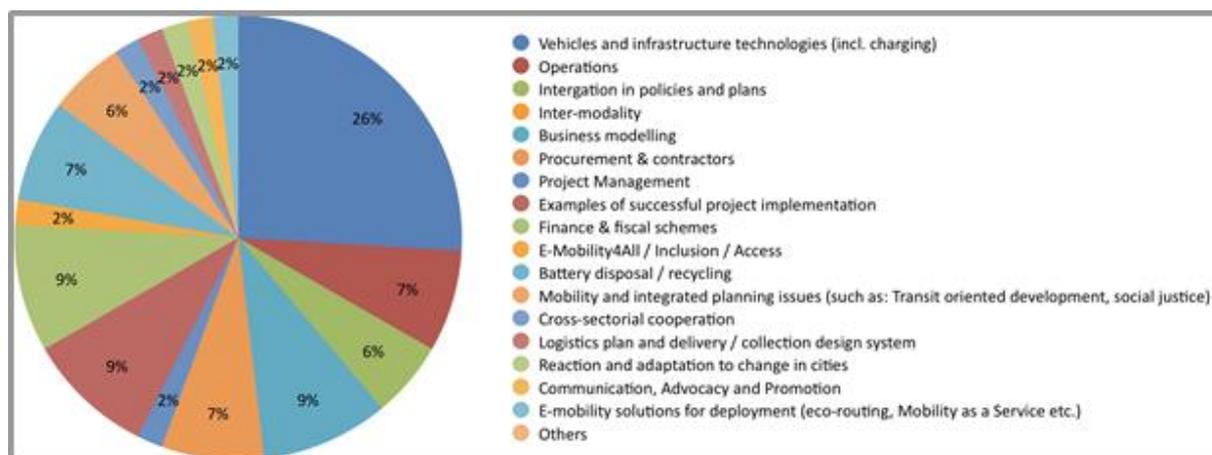
Assessing the prevailing **Institutional Coordination**, the respondents said that they facilitate inter-institutional coordination to develop and implement the e-mobility strategy in their city by 46% sporadic/ad-hoc meetings between different stakeholders, 27% indicated that the team working on e-

mobility is from different institutions, 15% said there have not been any measures to ensure inter-institutional coordination, and 12% indicated that inter-institutional committee had been created.

This answer translates to the need for guidance and technical support in setting up mechanisms for institutional coordination in the partner cities - which could be one activity of the SOLUTIONSplus capacity building.



As per the question on **highest training needs in their organisation**, answers include: Vehicles infrastructure- 26%, business modelling- 9%, Finance and fiscal schemes-9%, examples of successful project implementation- 9%.



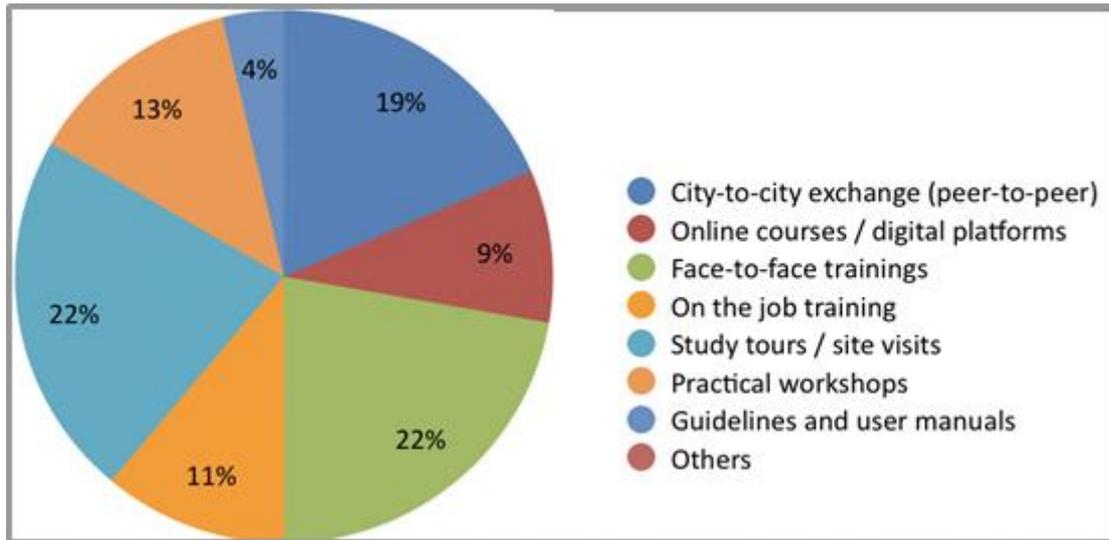
The results of the TNA furthermore revealed the **specific need for strengthened capacity in the following categories: Technology, Operations, Procurement and Financing, Infrastructure, Policies and Regulations, Businesses.** The ratings to choose from were:

Highly necessary	Necessary	Average need	Little need	No need
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The results below indicate that there is a need for capacity building in all categories. To gain further insights, it might be of interest to look at specific city results, or results per region, to better understand local needs and be able to target local or regional capacity building activities accordingly. City specific analysis will be provided in the resepective sections of the Demomstration Implementation Plan (D4.1).

<b>1. Technology</b>
Technology specifications (necessary)
Batteries (necessary)Difference between buses and providers (average)
<b>2. Operations</b>
Electricity grids (average)
E-mobility solutions for deployment (necessary)
Maintenance of EVs (necessary)
<b>3. Procurement and Financing</b>
ToRs development (necessary)
Financing Options (necessary)
Financing Requirements (necessary)
Procurement and contractors (average)
<b>4. Infrastructure</b>
EV charging (necessary)
E-bus charging (necessary)
Charging Standards (necessary)
Charging Plans (necessary)
Electricity Grid Needs (average)
<b>5. Policies and Regulations</b>
Fiscal incentives (average)
Other incentives (non-fiscal) (average)
Cross-sectoral cooperation (average)
Integration of e-mobility in SUMP (necessary)
Communication, advocacy, and promotion (average)
Logistics plan and delivery (average)
Mobility and integrated planning issues (TOD, urban design, land value capture, etc.) (necessary)
Intermodality (average)
<b>6. Businesses</b>
Business Models (necessary)
Attracting Start-ups (necessary)
Developing frameworks that encourage private sector involvement (necessary)

The top three **preferred forms of capacity building activities** are Face to Face meetings- 22%, Study tours/ site visits- 22% and city-to-city exchange (peer to peer) – 19%. However, as indicated in other sections of this document, training modalities will need to be carefully assessed considering the current COVID-19 pandemic, and related travel restrictions.



Importance of the following **criteria in selecting a partner city for learning exchanges** including peer to peer, study tours, site visits. The following ratings were available:

Very important	Important	Somewhat important	A little important	Not important
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Among the “Important” criteria are:

50% of respondents indicated it as important, and 39% as very important:

- Common sustainable mobility objectives/ challenges
- Similarity in terms of types of vehicles/technology, to be implemented in their city;

33% of respondents indicated it as very important, and 33% as important:

- Similar levels of budget available for planned e-mobility innovations
- Similar levels of economic welfare (indirectly affecting ticketing prices, possibility of upgrades of vehicles by private operators)

39% of respondents indicated it as important, and 28% as very important:

- Long-term experiences of the partner city with specific transportation modes;

44% of respondents indicated it as somewhat important, and 28% as very important:

- Similar geographic features of a city (flat land, hilly area, wetlands);

33% of respondents indicated it as very important, and 28% as somewhat important:

- Status of a city as international leader/ best practice in e-mobility.

Among the “Somewhat Important” criteria are:

- Geographical Proximity;
- Similar importance of informal/paratransit operators within transportation sector;
- Similar scope and stage of the implementation of an e-mobility project;

- Similar type of urban environment and planning context (such as urban sprawl, housing densities, road infrastructure, size);
- Similar characteristic of modal split in a partner city;
- Similar levels of traffic congestion;
- Planning and implementation structures (for instance: top-down, decentralised, participatory);
- Convenience in terms of adapting existing solutions into your context (availability of documentation, external facilitation of the process etc.)

The category of “A Little Important” was allocated to *Pre-existing relations with a city*, which does not seem to be a strong criterion when selecting a partner city for learning exchanges.

City-specific findings and gaps will be reflected in the Demonstration Plans to tailor the training to the needs of the demo cities in view of the particular e-mobility solutions to be implemented

## 5 SOLUTIONSplus Blended Learning approach

### 5.1 The Blended Learning Concept

Capacity building should enable all key actors to manage and deploy electric mobility innovations, as well as to adapt to changing conditions in their own local contexts. The SOLUTIONSplus project will develop a series of learning activities that are aimed to equip local and national policy makers, practitioners, entrepreneurs, and operators with the skills and knowledge required to develop, implement and operate successfully innovative urban electric mobility solutions. The objective is to establish long-lasting capacities and capabilities at all levels and for all key stakeholders to successfully support the transition to electric mobility.

Topics will be related to the demonstration projects, electric mobility innovations and technologies, business models, finance options, foresight, emerging ecosystems, policy frameworks, among other topics, that are provisionally listed in Table 1: Provisional overview of e-courses.

The learning activities are targeted to those key stakeholders who are involved in the management, development, implementation and operation of electric mobility solutions in partner cities. This includes technical staff working in the city administration, policy makers (from different departments, such as planning, operations, implementation), advisors, practitioners, entrepreneurs, subcontractors, consultants, operators as well as the political level. The groups can be extended to include groups from different government levels (local, metropolitan, provincial, national), as well as universities and knowledge organizations.

Our aim is to provide an open, friendly and flexible learning environment with a **combination of online components and offline activities – blended learning** – aligned to the SOLUTIONSplus transition towards low-carbon urban mobility worldwide. We do this by:

- providing clear, concise, easy to understand **information on electric mobility-related topics** as well as links to relevant case studies, examples and other resources;
- helping participants to **look at their local context** critically, identify challenges and opportunities and apply information gained through course participation;
- gain knowledge not only on the technicalities of different electric mobility solutions, but also on the **policy frameworks and enabling contexts** required for a successful deployment of such innovations;
- offering **face-to-face learning opportunities**, which will take place in the form of trainings, workshops and other interactive formats with content tailored to the regional, national and local context of the target city partner and complementing the e-learning components (e-courses, webinars);
- offering **online courses** (e-courses) with a moderated discussion forum where participants can share, exchange and learn from one another (peer-to-peer learning);
- providing **tasks throughout the e-courses**, which are designed to create a win-win situation for individual learning as well as for the application in the local electric mobility transitions;
- providing **follow-up, feedback and a certificate** to participants to strengthen learning and keep motivation up along learning activities;
- **building networks** that sustain after a course has ended;

- including **'practice sessions'** which could be online or offline, serving as a platform for lively exchange on case studies, examples and good practices;
- providing **supporting material as preparation** for online or offline activities (pre-event surveys, evaluation forms etc), and to summarise key content in the form of factsheets;
- developing a **concept that can be used for regular replication** in the future, incorporating the lessons learned from the first courses.

## 5.2 Approach and components

Our approach combines different learning formats, methods and activities to ensure a flexible, open and friendly capacity building framework that suits the needs of the different key stakeholders, at all levels and in different regions. This approach is similar to an **'Open University'** that integrates a whole suite of learning activities in a **Blended Learning Programme for the course of the four years** that the SOLUTIONSplus project is running. This approach also enables the incorporation of new training needs, demands, feedback and lessons learned in an ongoing basis.

A **summary of the various learning components** and exchange opportunities can be seen in the list below:

- **Face-to-face trainings and workshops** bringing together experts, practitioners, decision-makers and operators into physical trainings not only to enhance learning, but also exchange and network building;
- **Moderated E-learning courses** for the thematic areas outlined in the table "Topics and Expert Organisations" below (*minimum 2 for each of the six thematic and cross-cutting topics*). E-learning courses will include detailed content, examples, best practices, tools, tasks, and a moderated forum for discussion and exchange;
- **Webinars** will be organised together with e-courses for its the Kick-off and another one more relating to the content of the e-course;
- **Practice sessions** will be hosted in between e-courses with the aim to showcase successful examples and best practices from SOL+ partners;
- **Materials and factsheets** to support and assess the interaction with participants: pre-event surveys, evaluation forms etc.; factsheets consisting of key concepts and business options related to available e-mobility solutions (available in D3.1 Catalogue of e-mobility solutions)
- **Study tours** to be organised by forerunner and follower SOL+ city partners, supported by technical inputs from the project partners;
- **Peer-to-peer exchange**, including secondment and staff-exchange programme between partner cities, site visits and on-the-job training;
- **Global and Regional trainings and events**, for global synergies with the GEF-7 project and local and tailor-made training about specific requirements concerning technical aspects such as installation;
- **Database of expert trainers** from within the SOLUTIONSplus partnership, and beyond, indicating regional availability and thematic expertise;

The following graph shows how the components are linked together in the Blended Learning Programme.



One of the most interesting features of the Blended Learning Programme is the flexibility that it offers to build upon components and adjust to the specific local / regional needs. Some learning activities such as e-courses will have already a proposed structure of components with the objective to exploit as much as possible the synergies, yet there is room for flexibility to include further components if required. Other learning components are also flexible to adapt to the specific local context. Besides, the TNA will provide an initial input on the topics on which learning activities will focus and the preferred formats. Additionally, a regular interaction with the target audience (with the main focus on the city representatives) will provide feedback to adjust the Blended Learning Programme based on the demands and training needs along the 4-year program.

For more detailed description, please refer to **D2.2** that will be developed by **WP2** partners due in Month 12 of the project.

**5.3 Considerations for Phase 2**

The TNA will inform the development of the Capacity Building Framework further in detail in the phase 2, and in a regular basis to make sure new training needs and demands are met in following learning activities.

A detailed description of the learning components will be further elaborated under **D2.2**.

## 6 SOLUTIONSplus integrated e-learning programme

### 6.1 Overview of e-learning programme

The SOLUTIONSplus integrated e-learning programme will be organised on the **Mobility Academy**<sup>2</sup>, an international moodle-based learning platform developed and coordinated by Rupprecht Consult. The Mobility Academy already features more than 40 online courses from 13 different projects, covering a wide range of mobility-related topics, amongst them are: active transport, traffic management, e-mobility, public transport, city logistics, eco-driving and SUMP. All courses have been developed as part of recent European or international projects (e.g. CIVITAS and Horizon 2020), ensuring innovative, high-quality and up-to-date content. The SOLUTIONSplus e-learning courses will also be made available through other relevant portals.

For SOLUTIONSplus a separate wing will be created on the Mobility Academy, specifically designed in the project's visual identity to ensure easy access and navigation for participants.

Rupprecht Consult will develop an **e-learning course guidance document** for partners developing courses and will supervise/ guide the course development processes. This will ensure consistency among different materials to be developed as well as the inclusion of all relevant partners.

Courses will be actively promoted on well-established and widely-used **dissemination channels** (e.g. ELTIS, CIVITAS) as well as through the SOLUTIONSplus partners to attract a wide audience.

Courses will have an **active runtime** of roughly 1 month, depending on the actual number of modules. This refers to the runtime in which an active moderation will be provided, whereas the courses will be accessible beyond that. Course modules will be released on a weekly basis. While courses are running, they will be actively moderated by SOLUTIONSplus experts. Rupprecht Consult will be responsible for the quality control of course contents and coordinate the organisation of courses with SOLUTIONSplus partners.

Courses will be designed in a way that ensures **high user interactivity**. Specific tasks will be given to course participants in each module in order to ensure that users reflect on the course contents and relate this to their own situation. A forum will allow for course participants interacting with each other and reacting to other's questions and inputs. This will ensure the project's community building.

Rupprecht Consult will include **user surveys** at the end of courses in order to assess user satisfaction and collect feedback on how the project can improve its e-learning activities. Rupprecht Consult will also provide **statistical analyses** and visual usage overviews on how courses have been running and how active learners have participated. Based on user feedback, Rupprecht Consult will also provide lessons learnt.

After completion of courses, the SOLUTIONSplus project will provide **certificates of course completion** to incentivise the active participation in courses and attract a wider audience.

<sup>2</sup> <https://www.mobility-academy.eu/>

Courses will be developed in an interoperable format, which means that, after completion, courses can be easily **integrated into other platforms**. The NUA Campus<sup>3</sup> will act as a repository for collecting the courses that have been completed on the Mobility Academy. The eLearning courses will be also made available through platform of other SOLUTIONSplus, e.g. ITS Ertico, UN Habitat, UITP.

The NUA Campus is an e-learning platform aimed at developing skills necessary to tackle the main challenges identified in the New Urban Agenda<sup>4</sup>. It provides free online courses and webinars to urban practitioners. Storing the learning material, produced in the framework of SOLUTIONSplus, will enable the courses to be available even after the completion of the project and be reached by cities and other stakeholders outside the project scope. Similarly, the project will make use of eLearning platforms of SOLUTIONSplus partners. All partners, associated partners and interested parties are welcome to use, reuse and build upon the eLearning courses developed by SOLUTIONSplus.

## 6.2 Outline of e-courses:

The following is a *first outline* of how the e-learning programme in SOLUTIONSplus could be structured. The exact contents and structure will be developed depending on the actual outcomes of the TNA.

**Table 1: Provisional overview of e-courses**

Timing	Course title	Potential modules	Project partner to contribute
Aug/ Sept 2020	1. Integrated planning for electric mobility	<ul style="list-style-type: none"> <li>• Module I: SUMP introduction</li> <li>• Module II: Introduction in e-mobility - vehicles, operation, integration of e-mobility</li> <li>• Module III: The e-mobility eco-system</li> <li>• Module IV: City and operator needs</li> <li>• Module V: E-mobility and air quality</li> <li>• Module VI: Policy measures and incentives to support the electrification of transport</li> <li>• Module VII: Inter-sectoral / system integration of e-mobility solutions (urban planning, energy, charging infrastructure, etc.)</li> <li>• Module VIII: Planning ahead</li> </ul>	Rupprecht Consult, Polis, WI, UNH, UEMI, UITP
Dec/ Jan 2020	2. Introduction into e-mobility: e-vehicles, e-mobility operation and integration	<ul style="list-style-type: none"> <li>• Module I: E-vehicles (intro to different e-vehicles, market overview and uptake, scenarios, good practices, ...)</li> <li>• Module II: E-mobility operation (charging approaches, fleet management, good practices, ...)</li> <li>• Module III: E-mobility integration (MaaS, intermodality, route planning, ticketing, grid integration, good practices, ...)</li> <li>• Module IV: cost-benefit analysis, e-mobility strategies, e-mobility requirements</li> </ul>	WI, VTT, ERTICO, FIER, UEMI, UNEP

<sup>3</sup> <https://nuacampus.org/>

<sup>4</sup> <http://habitat3.org/wp-content/uploads/NUA-English.pdf>

Apr/ May 2021	3. Electrification in public transport	<ul style="list-style-type: none"> <li>• Module I: Introduction into the electrification of buses and charging approaches</li> <li>• Module II: In-motion charging of hybrid-trolleybuses</li> <li>• Module III: Eco-driving schemes and green-driver assistance systems in public transport fleets</li> <li>• Module IV: Using e-bus planning tools for upscaling the electrification of fleets</li> <li>• Module V: Multi-purpose charging using existing public transport grids</li> </ul>	UITP, Volvo, T-Systems, Rupprecht,
Aug/ Sept 2022	4. E-mobility in city logistics and freight	<ul style="list-style-type: none"> <li>• Module I: Introduction into the electrification of logistics and freight</li> <li>• Module II: Emission-free city logistics and urban vehicle access regulations</li> <li>• Module III: Eco-logistics and e-mobility solutions for city logistics</li> <li>• Module IV: Logistics hubs and consolidation</li> <li>• Module V: Charging approaches for e-freight</li> </ul>	ZLC, FIER, ICLEI, Polis, RC, WI
Dec/ Jan 2022	5. Cooperative business models and partnerships	<ul style="list-style-type: none"> <li>• Module I: Introduction into e-mobility business models</li> <li>• Module II: Costs and benefits of e-mobility, appraisal methods for quantification of environment, social and economic impact</li> <li>• Module III: Start-up activities/ global e-mobility incubator</li> <li>• Module IV: Financing e-mobility</li> <li>• Module V: City-industry dialogues</li> <li>• Module VI: Innovations from the industry</li> </ul>	ERTICO, DTU, VTT, TNO, FIER, Dymiq, industry partners
April/ May 2022	6. Global overview of e-mobility solutions	<ul style="list-style-type: none"> <li>• Module I: Africa</li> <li>• Module II: Asia</li> <li>• Module III: Latin-America</li> <li>• Module IV: Europe</li> </ul>	SOLUTIONSplus demo cities and partners, UITP, ...
August/ Sept 2022	7. Charging approaches	<ul style="list-style-type: none"> <li>• Module I: Introduction to charging approaches</li> <li>• Module II: Charging of e-cars</li> <li>• Module III: Charging in public transport, depot charging, opportunity charging, IMC</li> <li>• Module IV: Charging of electric two-and three-wheelers</li> <li>• Module V: the possibilities of (ultra)fast-charging infrastructure</li> <li>• Module VI: Using existing systems and (PT) grids for the charging of EVs</li> <li>• Module VII: Grid integration and smart charging infrastructure</li> <li>• Module VIII: V2G preparation, procurement, installation, and operation phase</li> </ul>	ABB, Volvo, Polis

Dec 2022/ Jan 2023	8. The social dimension of e-mobility	<ul style="list-style-type: none"> <li>• Module I: Introduction</li> <li>• Module II: inclusion, affordability and public acceptance</li> <li>• Module III: E-Mobility &amp; gender</li> </ul>	
2022-2023	9. Replication of e-mobility innovations	<ul style="list-style-type: none"> <li>• Showcasing of SOLUTIONSplus actions and guidance towards replication and adaptation</li> </ul>	UEMI, WI, UITP
2022-2023	10. Scale-up and finance	<ul style="list-style-type: none"> <li>• Overview of available financing mechanisms domestic and international</li> <li>• Project development and conceptualisation</li> </ul>	UNEP, UEMI
<ul style="list-style-type: none"> <li>• Additional courses will be developed to respond to specific requests from partners.</li> </ul>			

### 6.3 Practice sessions and webinars

Practice sessions are online or offline sessions where key SOL+ partners can showcase successful examples and best practices. These are proposed to be scheduled between e-learning courses aiming to keep participants active while courses are over.

The following list provides an overview of potential practice sessions in correspondence with e-learning courses.

Practice session I	Vision building for e-mobility in cities and regions
Practice session II	Developing integrated e-mobility strategies
Practice session III	Planning for electrification in public transport: simulation and fleet planning
Practice session IV	Customer provider workshop/ industry-city dialogue
Practice session V	Transferability workshop

Webinars are also planned to be a key part of the e-learning courses as they can attract a large number of participants, even beyond the project cities, and enable discussion and exchange upon a topic. A kick-off webinar is planned at the beginning of each e-course with the objective to guide participants on the contents of the course. In addition, a second webinar on related topics is proposed to be held during the course.

### 6.4 SOL+ Factsheets

Factsheets on specific topics are also an integral part of the e-learning courses. These are developed in WP3 and will be integrated into the e-learning programme as complementary course materials for those interested in gaining more knowledge.

## 6.5 Inputs from WP1 Toolbox

A scalable and harmonised toolbox for efficient electric mobility solutions, to be developed within **WP1** (Toolkit and evaluation), will directly contribute to the capacity building material created in **WP2**.

In fact, the interconnection between the **WP1** toolbox and the material created in **WP2** will be based on an iterative feedback loop between the two WPs. The toolbox and its corresponding two modules (*Models and Assessment* and *Planning and Implementation*), departing from other projects, will be utilised for trainings and peer-to-peer activities in **WP2**. In turn, the capacity materials developed, primarily to operationalise the tools included in the toolkit and endow the involved cities with practical knowledge, will then be included in the final version of the toolbox.

The **Models and Assessment** module will consist of an inventory of state of the art and openly accessible simulation models to address strategic transport and energy systems modelling that include planning, management, optimization and impact evaluation of electric vehicles services and infrastructure. It will cover topics such as:

*Air quality impact assessments, Multi criteria analysis, Cost benefit assessments, E-logistics, Heavy duty vehicles, Energy assessment and management, vehicle testing, E-buses, charging and operation, Efficient e-bus operations, Vehicle to grid solutions, Prototype development, Mobility services, Access, Electric 2 and 3 wheelers, User acceptance, economic opportunities.*

The **Planning and implementation** module will consist of business plans, good practice examples, operation, planning and management tools, covering topics such as:

*Business plans, Good practice examples, Operation, Planning and management tools.*

Given that ultimately the Work Packages follow slightly different paths with regards to the modules and specific thematic issues addressed, the trainings to be developed within WP2 will not be specifically dedicated to the aforementioned modules, but instead to the different cluster of the WP2 repository. The methodology on which the interaction between WP1 and WP2 will take place is conceptualised in the following steps:

- The different tools listed within the scope of **WP1** will be divided into groups or segments, and are matched with different clusters of the repository. The same tool might, in fact, be useful for the learning modules of different clusters.
- Then, within the learning module, one (or more) specific “sessions” will be created, dedicated to the presentation and guidance on how to implement the tools in the local contexts.

For this to be possible, once **D1.1** is concluded, an analysis of the most suitable tools and subsequent matchmaking with each cluster needs to be carried out. In any case, this process will have several iterations throughout the project, as the toolbox, as well as potentially the different clusters will be regularly updated to stay up to date with key trends and new tools available.

The development of the repository has started in the preparatory phase. The table below is an illustration of how the repository looks like. It is based on 2 pillars (Thematic issues and Cross-cutting issues) and 6 clusters (Vehicles, operations, integration, business modelling and planning, policy integration and finance, e-mobility for all). Under each cluster, a number of topics relevant to be covered in the capacity building within SOLUTIONSplus have been identified. For each of these learning modules, we have identified the material existing and in development by the consortium partner.

Given the multidisciplinary and cross-cutting nature of the consortium, this list contains already very useful, well-elaborated and ready-to-use material.

Under the development phase, we will perform an analysis of this repository by (1) taking the results of the TNA survey and (2) projecting them on the identified existing material. In case of any significant gaps, we will further explore how to address these gaps and develop specific modules needed to ensure a successful deployment of the e-mobility solutions in the cities.

As an illustrative example, by performing the analysis of the TNA and the existing training modules, we have identified the need to have a specific e-learning course that will address e-mobility within the wider framework of the SUMP. Rupprecht Consult will be responsible for the development of this training course. As a consequence, this new course, developed under the framework of the SOLUTIONSplus project will be later added to the Toolbox.

## 7 Peer-to-peer exchange programme for SOLUTIONSplus cities

The SOLUTIONSplus project aims at establishing mechanisms for transfer and uptake of innovative e-mobility solutions, by facilitating mutual learning between peers.

The SOLUTIONSplus partner cities shall benefit from an intense and focused peer-to-peer exchange programme that allows for the development of a deeper understanding of issues, as well as practical skills, through experience building and exchange between cities dealing with the same challenges. This involves the following components:

- **Secondment and staff-exchange** programme between partner cities
- **Site visits** to and **on-the-job training** by experienced cities & bringing experts to the partner cities.

Peer-to-peer exchange activities, in the same way as all the other Capacity Building activities, are based on the results of the TNA. The various possibilities are listed below, and will be modulated according to the needs and priorities of the cities, and also in relation to the developments of the COVID-19 pandemic. Their number, frequency and timeline also depend on the combination of these factors.

A demand-driven approach will therefore be adopted to define the contents, the format and the focus of the activities. This is not only done through the TNA, but also thanks to the inputs of:

- **Regional Platforms (WP4)**, which are in direct contact with local stakeholders and can monitor the evolution of needs and priorities
- **Associated partners and experts**, who have a global vision of each topic and can signal trends and opportunities for cities
- **Existing e-mobility material and solutions**, for example tools (WP1) and factsheets, which SOLUTIONSplus constantly collects in its repositories.

At this stage of the project (M5), a provisional list of the themes on which the activities will take place has been identified in Table 1. However, the repositories in Annex, which are living documents, together with the components mentioned above, will allow to adapt and correct the activities

### 7.1 Secondment and staff-exchange programme between partner cities

To provide the basis for the demos implementation and give deeper insights into experiences in different cities, a secondment and staff-exchange programme will be set up. This ‘hands-on’ learning experience will allow professionals from local authorities and public transport operators to work alongside their peers in one of the partner cities, but also a relevant external city, that leads in their specific area of interest.

The objective is to transfer practical knowledge and expertise on specific and technical measures, e.g. infrastructure interventions for e-mobility applications, procurement procedures, communication strategies, etc.

A direct partnership among cities will be facilitated both at technical and at the political level. The primary target of the Secondment and staff-exchange programme placements are urban mobility

planners and practitioners dealing with e-mobility. However, politicians are also encouraged to join and will be peered with local politicians and policy-makers.

As part of *Task 2.3 Peer to peer exchange*, which begins in month 6, the task leaders POLIS and UITP will define guidelines for the correct execution of the Secondment and staff-exchange programme and clarify activities and expectations of the participants. In order to facilitate a smooth dialogue and preparation, a preliminary online meeting will be organised between hosting and visiting cities.

## **7.2 Site visits to experienced cities & bringing experts to the partner cities**

SOLUTIONSplus cities are invited to take part in site visits of other SOLUTIONSplus demo sites, but also of external cities leading on topics and applications that are relevant for them.

These site visits will entail a comprehensive set of activities, including visits and tours to see the applications of the solutions in real contexts, such as streets, depots, control centers, etc; but also presentations of best practices, meetings with politicians and key stakeholders, and interactive sessions where experts give their advice to the cities on the best ways to replicate the solution investigated. This way, the good practices and examples of e-mobility will help in avoiding implementation errors and will feed into the toolbox (WP1) and to transferability guidelines (WP6). Upon request, bilateral meetings with the partners responsible for the local implementation can be organized for the exclusive benefit of visiting cities.

The city experts and local implementation stakeholders will go through:

- **Outbound site visits** to bring the SOLUTIONSplus partner cities to visit host (experienced) cities and experts in their field of interest, where they can access local implementation stakeholders and end-users and find answers to questions on how to plan and implement EV solutions that partners cities seek to implement.
- **Inbound site visits** to bring experts and external cities to the SOLUTIONSplus partner cities to support local planning and implementation. They will provide insights and advice tailored to the local context and conditions. Site visits will be combined with trainings, while reaching out to other regional SOLUTIONSplus partners and interested cities.

Also in this case, as part of *Task 2.3 Peer to peer exchange*, POLIS and UITP will define guidelines for site visits, which will take place in 1-2 days and will be ideally combined with Global / Regional trainings and key events such as conferences, workshops, etc. The individual peer-to-peer capacity building targets will be laid down for each SOLUTIONSplus city and the activity will be reported in the deliverable **D2.3** (*Peer-to-peer Capacity Building on EV innovation – activity report*).

In addition, the priorities of the participants will be collected through a preparatory survey, so that the offer of the study visit will be tailored based on their expectations.

A specific repository has been developed in which, under each of the e-mobility relevant topics, a match between SOLUTIONSplus cities and experienced/external city has been identified. This is a living document that all partners are requested to fill in. At a second stage, cities will be selected and twinned, also taking into account some selection criteria.

Table 2: List of SOL+ and external cities for peer-to-peer exchange programme (screenshot of living document)

Peer-to-peer exchange	<i>Signal more experienced cities, both European and non-European</i>	
Topic	SOL+ Cities	Experienced cities (EU, global)
E-2- and 3-wheelers	Kathmandu, Kigali, Dar es Salaam, <b>Hanoi</b> , Hamburg, Pasig, Quito	Kochi
		Lisbon
		Utrecht
		Rome
		Trikala
		Malaga
		Berlin
		Genoa
		Bari
E-Buses, e-taxis	Kathmandu, Quito, <b>Hanoi</b> , Montevideo, Kigali, Madrid	Noord-Brabant (Arnhem-Nijmegen)
		Madrid
		Bremen
		Gothenburg
		Barcelona
		Eindhoven
		Amsterdam
		Marrakech
		Santiago, Chile
		Amsterdam
		Oslo
		Stockholm
E-bikes	Pasig (cargo-bikes), Kigali, Quito (bikes + cargo-bikes)	London
		Paris
		Nanjing
		Milan
		Brussels
		Amsterdam & Rotterdam (e-cargo bikes)
E-vans, trucks	Quito, Montevideo	Amsterdam
		Rotterdam
		Madrid
		Bremen
		Utrecht
		Gothenburg
E-charging infra + E-hubs	Montevideo, Quito, Nanjing, Madrid	Leuven (e-mobility hub)
		Barcelona
		Oslo
		Gothenburg
		The Netherlands (charging infrastructure)

### 7.3 The development of a matrix for the definition of a strategy for the matchmaking of the cities

The framework is intended to support the process of matching cities for peer-to-peer and learning exchanges within SOLUTIONSplus project as well as to learn from this process with an intention of creating a development cooperation tool relevant for future initiatives.

Conventionally learning exchanges happen on an ad-hoc basis and are based on the immediate needs of partner institutions such as timely implementation of a specific technology. However, a more nuanced approach may be required for the adaptation of holistic approaches and systemic solutions. This type of knowledge transfer should reflect on different criteria such as geographic context, urban morphology, financial capacities of implementing body or the stage of implementation of a specific technical solution as well as its appropriateness in a local context.

The framework will elaborate and systematise a set of criteria for peer-to-peer exchanges based on the internal analysis of the needs and approaches relevant for the SOLUTIONSplus partner institutions. Additionally, a set of indicators will be identified resulting in a matrix, which will enable matching of cities in terms of their expertise as well as different criteria relevant for learning exchanges. This will be systematised as a development cooperation tool adaptable for external context and new initiatives.

The process of the development of the framework involves:

- Training needs assessment survey – by M6
- Follow up interviews with expert organisations and partner cities – by M1
- Secondary research on potential city indicators - by M14
- Indicators workshop(s) - by M16 (dependant on the COVID pandemic)
- Data analysis and matrix development - by M20

The TNA revealed important **criteria in selecting a partner city for learning exchanges** such as peer to peer, study tours, site visits:

- Common sustainable mobility objectives/ challenges;
- Similar levels of the budget available for planned e-mobility innovations;
- Similar levels of economic welfare (indirectly affecting ticketing prices, the possibility of upgrades of vehicles by private operators);
- Similarity in terms of types of vehicles/technology, to be implemented in their city; Long-term experiences of the partner city with specific transportation modes;
- Similar geographic features of a city (flat land, hilly area, wetlands);
- Status of a city as international leader/ best practice in e-mobility. Details can be found in the Annex.

## 8 Trainings for partners and external stakeholders

A global capacity building program will be developed in close collaboration with the GEF-7 sister project. Selected conferences, in which SOLUTIONSplus members are active, are targeted as platforms for regional and global trainings, such as Clean Air Asia's Better Air Quality (BAQ), ITF/OECD's International Transport Forum (ITF), SLoCaT's Transport and Climate Change Week, UN Environment and UN Habitat Assemblies, World Urban Forum, the climate Conference of Parties (COP), UITP's Global Public Transport Summit, Transport Research Arena, Transport Research Board, ITS congresses and others. A complete list is developed jointly with Task 6.2 and available for all partners' inputs.

Under this task, SOLUTIONSplus partners will also select training centres and involve them in the process to develop their methodology and knowledge for future interventions.

The *train-the-trainer* activities will involve potential trainers among local associations and networks (e.g. through ERTICO ITS Academy and the UITP regional training centres).

Table 3: Training and eLearning platforms (screenshot of living document)

Training centres and eLearning platforms	<i>Partners to suggest training / eLearning platforms that can be used for the SOL+ trainings (global &amp; regional)</i>	
Name	Training centre / eLearning platform / both	Partner(s) involved
UITP Regional Training Centres	both	UITP
GEF sustainable cities programme	Training Centre	
ZLC Academy	Training Centre	ZLC
MOOC Mobility	Training Centre	CODATU
Nanjing Cities and Logistics (research)	Training Centre	
Nanjing University of Science and technology	Training Centre	
Viangsu International	Training Centre	
Ruanda: Training Officials on Logistics	Training Centre	
Senegal: Training Officials on Logistics	Training Centre	
African Association of Planning Schools (academic network)	Training Centre	
Africa Urban Research Initiative - AURI (research network)	Training Centre	
Jiangsu Center of International Technology	Training Centre	
NUA Campus – E-Learning Resource for the New Urban Agenda	e Learning platform	UEMI, WI
UEMI SOLUTIONS - FUTURE-RADAR	e Learning platform	UEMI, WI, RC
RC Mobility Academy: 40+ online courses wide range of mobility related topics	e Learning platform	RC
CIVITAS eLearning centre	e Learning platform	RC, Polis
ERTICO Academy: eLearning platform CAPITAL	e Learning platform	ERTICO
CoE-SUFS Peer-to-Peer Exchange Program	e Learning platform	
Move Latam e-mobility seminars	e Learning platform	CMM, UNEP
IBAQ Learning Portal for Air Quality Management	e Learning platform	CAA

**8.1 Global Trainings**

In close cooperation with the GEF7 sister project and other global e-mobility initiatives, global capacity building opportunities will be identified in conjunction with selected global conferences, in which SOLUTIONSplus partners are active. A list of these events is collected in collaboration with WP6 (Communication and Dissemination). These global events will provide opportunities for face-to-face (but also online) global or regional trainings, conducted by SOLUTIONSplus partners who are attending. This list has to be constantly updated, which is particularly important as the current situation with COVID-19 is unpredictable and conferences are being cancelled, postponed or conducted online. All partners are responsible to regularly update the list with information of conferences that they are involved in.

**8.2 Regional Trainings**

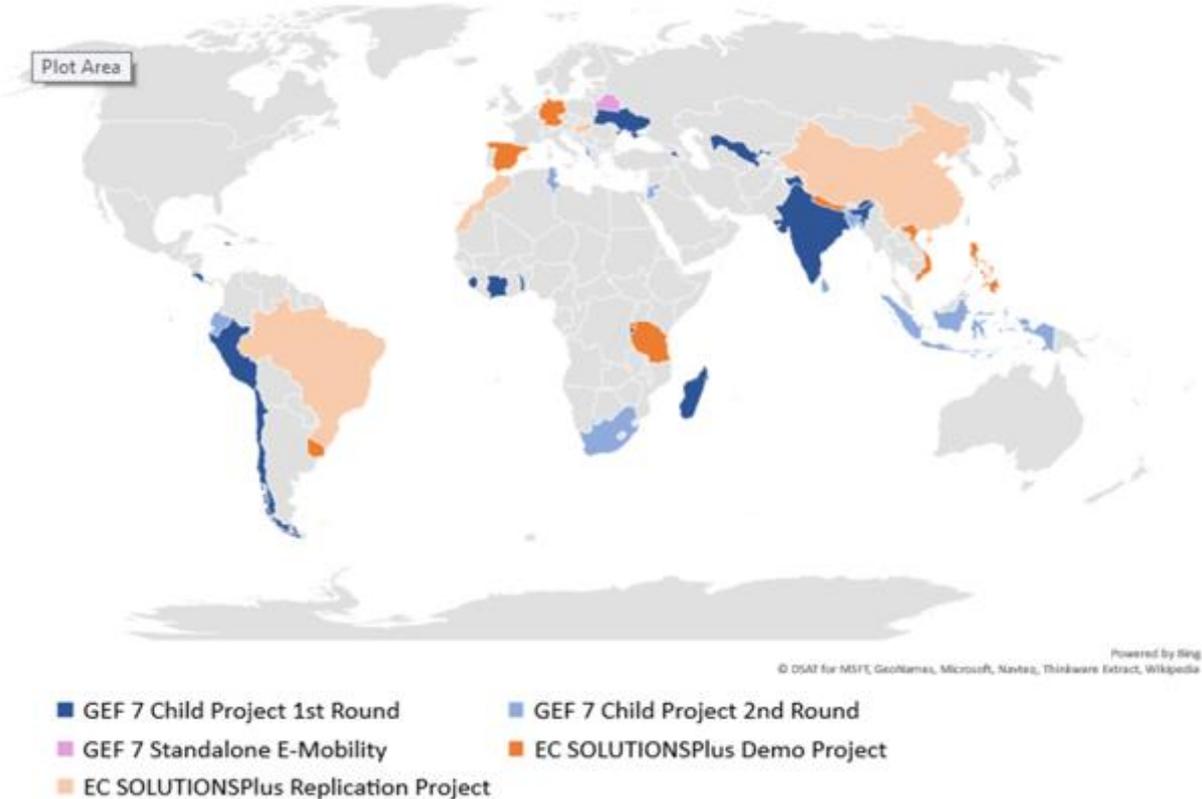
SOLUTIONSplus foresees to organise regional training and exchange, while linking the capacity building directly to other key activities of the project, including business model development and the demonstration actions. The regional platforms – that will be established in WP4 – will facilitate the regional capacity building activities and link them directly to the demonstration actions in cities/countries. In strong alignment with the GEF-7 sister project, the following regional platforms will facilitate the deployment of the regional trainings.

**Figure 4: SOL+ / GEF-7 Regional platforms and respective coordinators**

<p><b>Africa</b></p> <p>(UNEP under GEF 7) (ITDP under SOL+)</p>	<p><b>Asia</b></p> <p>(ADB under GEF7) (CAA under SOL+)</p>	<p><b>Central &amp; Eastern EU, West Asia &amp; Middle East</b></p> <p>(EBRD under GEF7) (UITP under SOL+)</p>	<p><b>Latin America &amp; the Caribbean</b></p> <p>(CMM Chile under GEF7) (WI, IDIADA under SOL+)</p>
----------------------------------------------------------------------	-----------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------

Collectively, the **two programmes (SOLUTIONSplus and GEF-7) will bring together a network of 40 projects in 38 countries** (see map below) working on e- mobility policies, business models, financial schemes and demonstration preparing for accelerated introduction and scaling up of electric mobility.

Figure 5: SOL+ / GEF-7 complementary outreach



Through joint development of capacity building activities and trainings, the two programmes are expected to achieve increased impact and country coverage, efficient use of funds, and to reduce overlap and duplication. An important aspect of synergy and complementarity is the focus of the **SOLUTIONSplus Programme on cities and a stronger emphasis on research**, both of which will complement well the **GEF-7 Programme’s focus on government policy, infrastructure planning and market deployment**.

Figure 6: Coverage of regional areas for each SOL + / GEF-7 project

Africa		Asia		Central Europe & Eastern Europe, West Asia & Middle East		Latin America & the Caribbean	
Madagascar	UNEP	Maldives	UNEP	Ukraine	UNEP	Antigua & Barb.	UNEP
Burundi	UNEP	India	UNEP	Armenia	UNEP	Chile	UNEP
Sierra Leone	UNEP	Indonesia	UNDP	Uzbekistan	UNDP	Saint Luda	UNEP
Seychelles	UNEP	Phillipines	UNIDO/EC SOL+	Albania	UNIDO	Costa Rica	UNEP
Togo	UNEP	Sri Lanka	UNEP	Jordan	UNIDO	Peru	UNDP
Ivory Coast	UNEP	Bangladesh	UNDP	Belarus	UNDP	Jamaica	UNDP
Tunisia	UNIDO	Mauritius	UNDP	Germany	EC SOL+	Grenada	UNEP
South Africa	DBSA	Nepal	EC SOL+	Spain	EC SOL+	Ecuador	UNEP/EC SOL+
Tanzania	EC SOL+	Vietnam	EC SOL+	Hungary	EC SOL+	Uruguay	UNEP/EC SOL+
Rwanda	EC SOL+	China	EC SOL+			Brazil	EC SOL+
Morocco	EC SOL+						

GEF 7 1st round	GEF 7 2nd round	GEF 7 Standalone	EC SOL+ Demo	EC SOL+ Replc.
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The leading regional partners of GEF-7 and SOLUTIONSplus will be working side by side in coordinating the following tasks of the regional platforms – in collaboration with other project partners:

- Dissemination of knowledge developed in Working Groups (under GEF7) and toolbox (GEF7 and SOLUTIONSplus WP1)
- Trainings and Capacity Building
- Exchange between SOLplus partners and local level actors in the region
- On-demand technical assistance: Regional teams will create links between projects and thematic experts
- Creating Regional Community of Practices
- Matching financiers with projects (ADB, AfDB etc.)
- Bringing industries to platforms
- Support to Living Labs
- Support to Country projects
- Replication

Various events are being planned for the Regional Platforms, each providing an opportunity to link a training or capacity building activity to it.

The Regional Platforms will act as “helpdesks” for the regional partners and stakeholders – being a central point where GEF7 and SOLUTIONSplus projects can ask for support for the implementation of their respective e-mobility project/ Living Labs. The Regional Platforms’ staff will also be planning trips to each country project for technical in-person assistance.

Each Regional Platform will develop a joint framework and schedule for regional trainings. **Under the lead of SOLUTIONSplus, at least 4 regional trainings shall be organised** (deliverables: D2.4 – Regional Training Activity Report, M24 and M48) in each region. A **regional trainings planning for each reach region** will be jointly sketched between WP2 and WP4 partners, in line with Task 4.1 ‘Demonstration implementation plans and set-up of regional platforms’ and related **Deliverable 4.1** ‘Nine demonstration implementation plans’.

Moreover, the demonstrations prepared and executed under Task 4.2 will require **specific technical training**. The regional teams assigned to each of the participating geographic areas (see Figure 4) will develop local and tailor-made training concerning very specific requirements on technical aspects, such as installation, etc..

Additional **associated partners**, that have endorsed the project, will also contribute to trainings and co-organise capacity building activities at regional level. These will also be specified at a later stage, in deliverables *D2.2 Capacity building tools and updates* due December 2020 (Month 12). and *D4.1 Nine demonstration implementation plans* due June 2020 (Month 6).

Table 4: E-mobility trainings & tools relevant for SOL+ training materials (screenshot of living document)

Mapping of tools & training opportunities	<i>Partners to suggest other tools / training programmes on e-mobility that could be used for the SOL+ training materials</i>
Tool / training module	Partner(s) involved
Swedish Electromobility Centre Summer School 2020	
TIDE e-learning course	Polis
SOLUTIONS 1.0 Capacity Building	Polis, WI
MobiliseYourCity Capacity building	CODATU
SIMUS workshops on e-moto	SIMUS
Zero Emission Bus Rapid-deployment Accelerator (ZEBRA): TCO + Financial tool	CMM (+ICCT and C40)
CIVITAS ECCENTRIC	EMT
ELTIS PORTAL	Polis
Energy Training Week (IEA)	
GFEI trainings	CMM Chile and UNEP
ZEEUS Project: courses on e-mobility; training knowledge on e-bus training	UITP
ASSURED project	UITP, Polis
ELIPTIC project: decision support tool	UITP, Polis
UITP E-bus training	UITP
E-Learning Programme on SUMP's for Latin America	RC
Academy of Sustainable Urban Mobility	UN-Habitat
Sustainable Urban Mobility Course Africa	UN-Habitat
MOVE Latam	CMM Chile and UNEP
ZEBRA (Zero Emission Bus Rapid Accelerator)	ICCT and CMM Chile
CAPITAL Online Training Platform	ERTICO
AfD e-mobility capacity building programme LATAM	CODATU, GIZ, GCF
TUMI Volt	UN-Habitat, ICLEI
EUROCLIMA+ (LATAM)	AFD (CODATU), GIZ
Air Quality Management	CAA

### **8.3 The Toolbox Training Programme for young professionals**

The TUB will facilitate a dedicated training programme for young professionals involved with the partner cities. The programme will be composed of two main modalities:

- PhD and Master projects directly related to activities of partner cities including the demonstration projects
- Summer schools

#### **8.3.1 PhD and Master projects**

##### **Urban Change Maker PhD group**

A dedicated PhD group - Urban Change Makers Group (UCMG) has been established in early 2020 in affiliation with the Habitat Unit at the Technical University Berlin. In close cooperation with the UN-Habitat as well as the Urban Pathways programme at the Wuppertal Institute, the group analyses the sectorial linkages between mobility, energy and resources and will assess the socio-economic, institutional and political aspects that affect the adoption of mobility solutions in cities in Europe, Asia, Africa and Latin America. The group focuses on selected urban development measures that fit to the local context and could provide useful insights for other cities in the region. The group aims to accelerate the deployment of sustainable mobility solutions. The main objective of the research group is to develop and test business models and policy packages that help to create a maximum of co-benefits between air quality, climate change and other sustainable urban development goals. Assessments include an identification of the socio-economic, legal, financial, political and institutional feasibility of integrated urban transition strategies.

The group brings together ca. 20 researchers located in partner cities and institutions within the broader network of the SOLUTIONSplus project. While the group is based at the TUB, the individual research projects are embedded at various academic institutions worldwide. Based on pre-existing relations and networks, the researchers will work in a direct cooperation with partner cities and international organizations affiliated with the SOLUTIONSplus. This relationship is envisaged as a form of demand driven, embedded research collaboration, which can support conceptualization, implementation and evaluation of specific local projects.

The group organises systematic bi-monthly meetings, which focus on the development of individual research projects, creation of joint papers, data collection methods and fieldwork plans. The tentative schedule of the group includes:

- by December 2020 - finalizing of all research proposals, completion of individual institutional administrative requirements, definitions of supervision structure for individual projects.
- 2021-2022 - data collection and fieldwork stage
- 2023-2024 - write-up phase and submission of the academic papers/dissertations.

##### **Master projects**

A number of dedicated master projects will be conducted in the course of the SOLUTIONplus. These will be realised within the framework of several master courses at the TUB, including: masters in Urban Management, Urban Design, Architecture. Several international students participating in these

courses will be identified and recruited to prepare master theses in relation to the projects in SOL+ partner cities.

The recruitment will be carried out through courses implemented in relation to SOL+ project. This includes dedicated design studios concentrating on specific partner cities as well as at Urban Management masters.

### **Design studios**

A number of Design Studios will be realised at the TUB with an intention of supporting the partner cities in creation of concepts for the integration of e-mobility solutions in the broader urban planning context. The first studio – focusing on conceptualisation of multimodal nodes is realised in summer semester 2019/2020 for Pasig City and Quito.

### **8.3.2 Summer schools**

The summer schools will be the main modality of the Toolbox Training Programme for young professionals. Based on the needs assessment different thematic areas will be selected as a core theme of a specific summer school. These themes will be decided on an yearly basis in linkage with the location of the planned summer school and the core expertise of the local counterparts of the event.

#### **Summer school 2020**

Due to the COVID-19 pandemic the first summer school in 2020 will be realized online with a focus on overarching theme of Policy Integration and Finance. This will concentrate on a sustainable mobility planning encompassing the principles of Avoid-Shift-Improve approach in the transitioning process towards low-carbon mobility. Specific attention will be given to relevant policy mechanisms such as:

- Sustainable Urban Mobility Plans (SUMPs)
- National Urban Mobility Policies & Investment Programmes (NUMPs)
- cross-sectorial cooperation
- integration of policies and plans
- e-mobility policies
- support measures including broader urban planning approaches.

#### **Format and timeframes**

The standard summer schools are envisaged as an intensive one-week engagement combining theoretical sessions, site visits and dedicated workshop tasks to be delivered by the course participants. In 2020 the summer school is going to take place online and stretch over a two to three weeks period in July, August or September in order to enable flexible attendance of the participants, in parallel to their academic and professional activities. While the event will incorporate a set of obligatory lectures, ca. 50% of the activities will be offered as voluntary engagements covering specific thematic sub-areas.

#### **Recruitment**

Each summer school will include ca. 25 participants, with an overall number of participants reaching minimum 100 during the whole SOLUTIONSplus project. Part of the places will be reserved for the core

group of the Urban Change Maker PhD group, specifically including researchers/practitioners cooperating with SOLUTIONSplus partner cities and organisations. The remaining places will be offered to young professionals recruited through partner cities' networks.

**Course conveyors**

The summer schools will be delivered by the core network of the SOLUTIONSplus under the supervision of the Technical University of Berlin and UEMI and with the input from WP2 leaders. Specific thematic contributions will be delivered by experts identified within the SOLUTIONSplus network.

**Funding**

Participation in the summer courses will be free of charge. Potential travel costs and accommodation for individuals from the partner cities will be covered directly from the respective SOLUTIONSplus budgets. The participation of the UCMG PhD group members will be covered from external funding sources.

## 9 Complementary resources of the capacity building ecosystem

As detailed in section 5, the overall approach to the SOLUTIONSplus capacity building framework is built following a blended learning approach. The implementation of a blended learning approach will allow for fully seizing the potential of different resources and learning methodologies, providing a 360-degree overview scope for each of the training modules, within the pre-defined thematic issues and clusters.

However, the suitability and full potential of the blended learning approach, particularly for SOLUTIONSplus, is further co-substantiated by the **ecosystem** around which it will be conceptualised and deployed. Specifically, the richness of resources, knowledge, and networks at the disposal of the SOLUTIONSplus consortium, which in itself, allows for the capacity building ecosystem to ensure that the most pressing challenges related to the development, test and replication of innovative, intermodal e-mobility solutions are addressed, alongside the most thought-provoking contents for the learning process. In other words, the capacity building plan relies and capitalises on the exploitation of synergies and resources within (and beyond) the SOLUTIONSplus natural network.

This exercise will particularly focus on the exploitation of synergies with the GEF-7 sister projects, as well as with the UN and its regional offices. Particularly, the cooperation with the GEF-7 project, led by International Energy Agency and UN Environment, will ensure that this partnership will become the leading global platform on urban electric mobility, combining their strengths and building on each other's work.

It is also worth mentioning, that additional synergies with other complementary initiatives will be explored (MobiliseYourCity, Euroclima+, IntraACP and Decarbonising Transport). Further details about building on international partnerships are described in deliverable *D6.1 'Dissemination, exploitation and replication strategy' due June 2020 (Month 6.)*

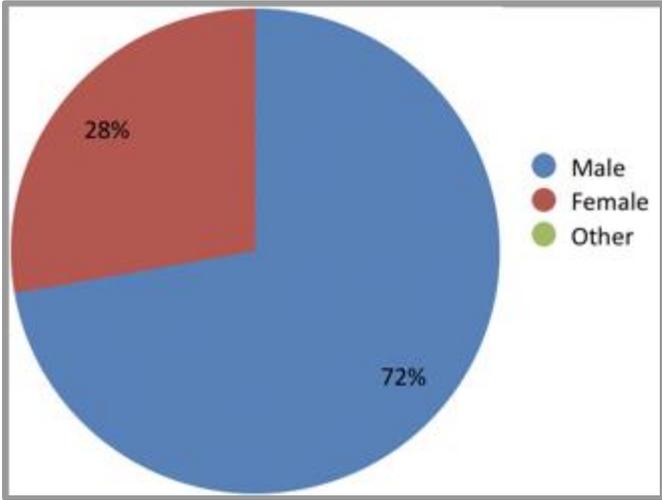
The participants of the knowledge sharing activities of the SOLUTIONSplus project will join an online community, where they will have the opportunity to share their experiences with other participants and query experts on electric mobility. This **Community of Practice (CoP)** will maintain a database of experts, organisations and businesses categorised into their specific electric mobility offering.

### ANNEX: TNA as of 05 May 2020

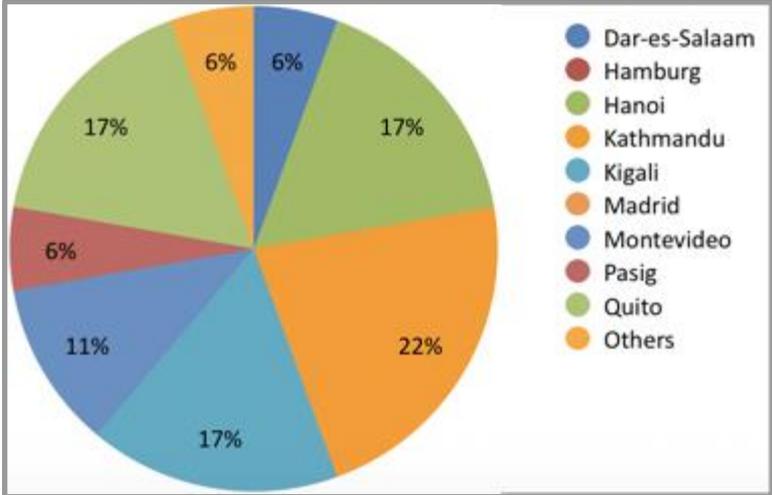
Online Form- <https://nuacampus.org/tna-solplus/>

Male	13
Female	5
Total	18

Gender Distribution of Respondents

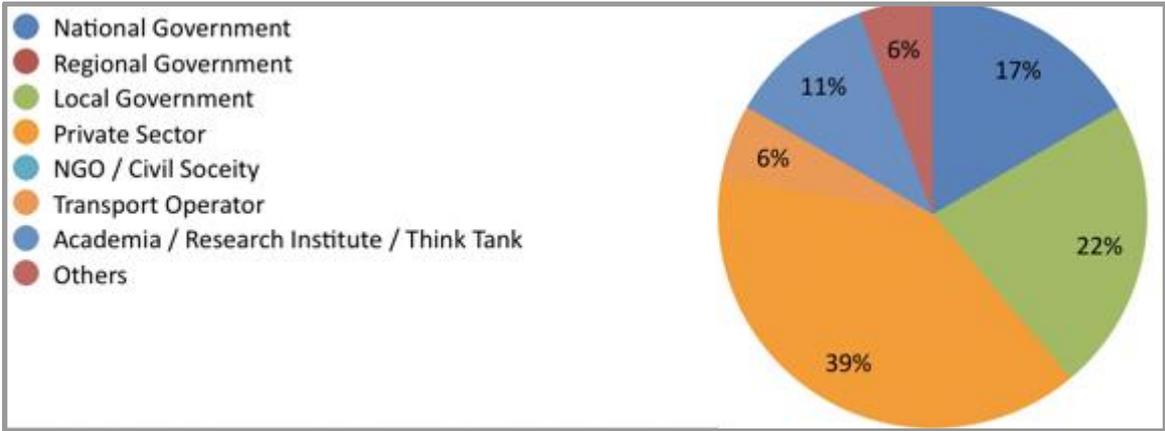


**Participating Cities:** Kathmandu (4), Quito (3), Kigali (3), Montevideo (2), Dar-es-salaam, Hanoi (3), Pasig, Others



**Affiliation of the respondents**

Majority of the respondents are in the private sector- 39%, local government- 22% and national government-17%, while over 50% have expertise in engineering (transportation, civil or electrical).



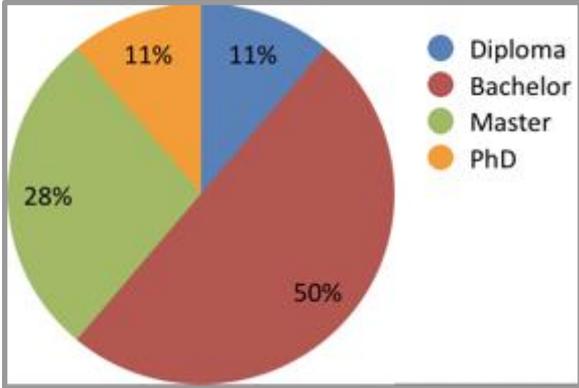
**Area of Expertise of the Respondents**

50% of the respondents have a background in Engineering- Transport, civil or electrical, 22% have a background in transport planning and 11% have a background in environmental science.



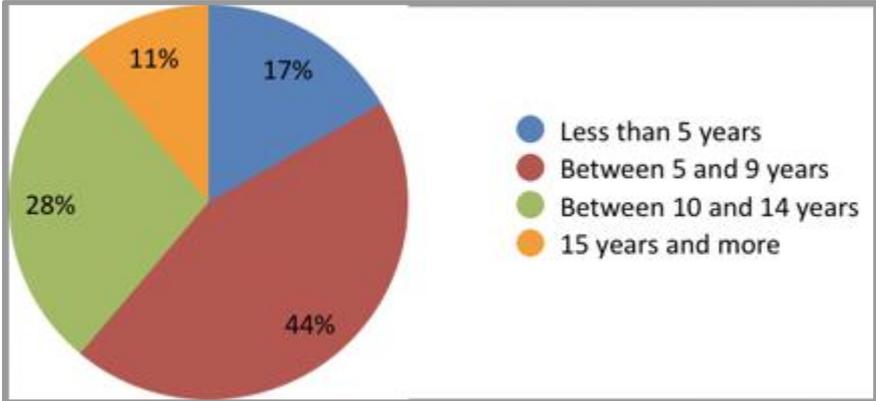
**Education level**

50% of respondents have a bachelor's degree, 27.8% have a Masters degree and 11% have a diploma.

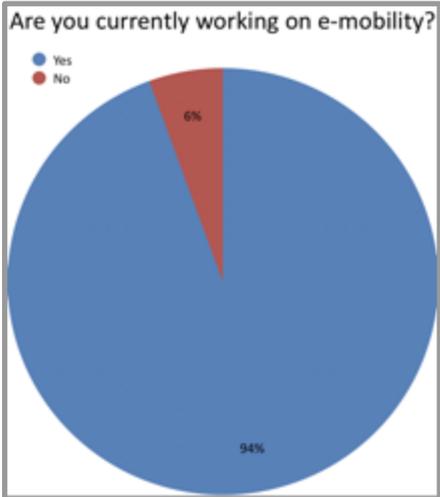


**Period working in the transport sector**

44% of the respondents have worked in the transport sector for 5-9 years, 28% for 10-14 years, 17% less than 5 years and 11% for 15 years and more.

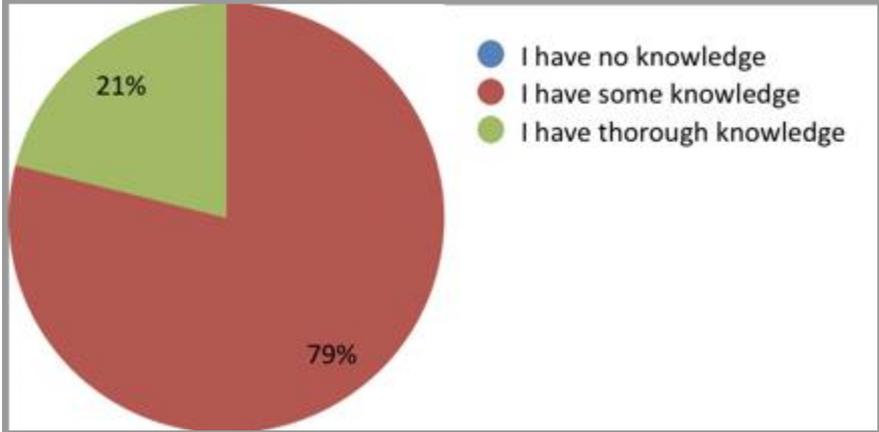


Question 5: 94% of the respondents are currently working on mobility



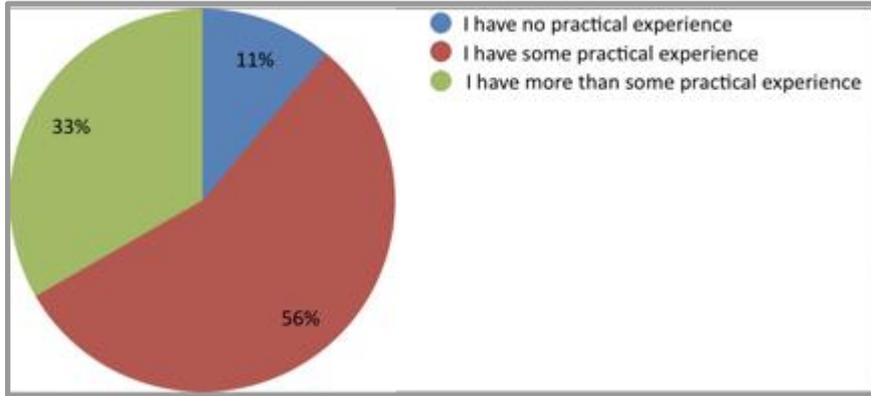
**Knowledge and experience in implementing electric mobility solutions.**

21% of respondents indicated they have thorough knowledge of electric mobility solutions while 79% have some knowledge.



**Practical experience in implementing electric mobility solutions.**

56% of the respondents said they have some practical experience in implementing electric mobility solutions, 33% said they have more than practical experience while 11% do not have practical experience.

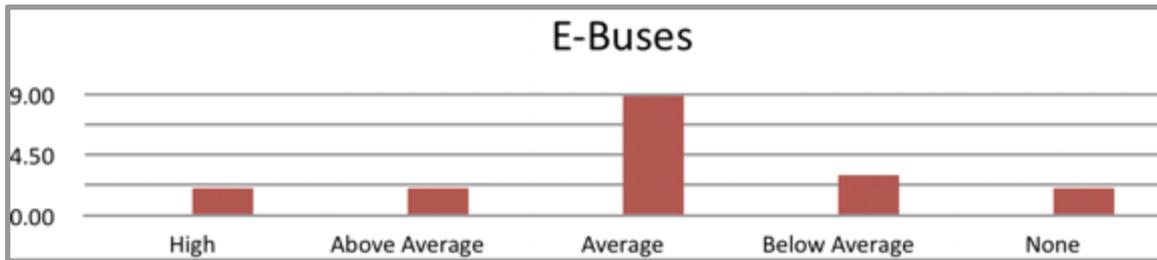


Question 8

Respondents rated their knowledge on following items represented below:

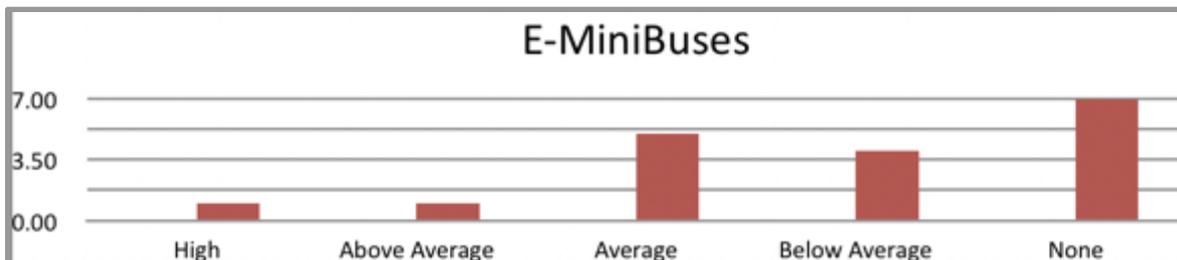
E-Buses

50% respondents rated their knowledge of E-Buses as average while 17% rated their knowledge as below average. As a whole the collective knowledge of the group regarding E-Buses is Average.



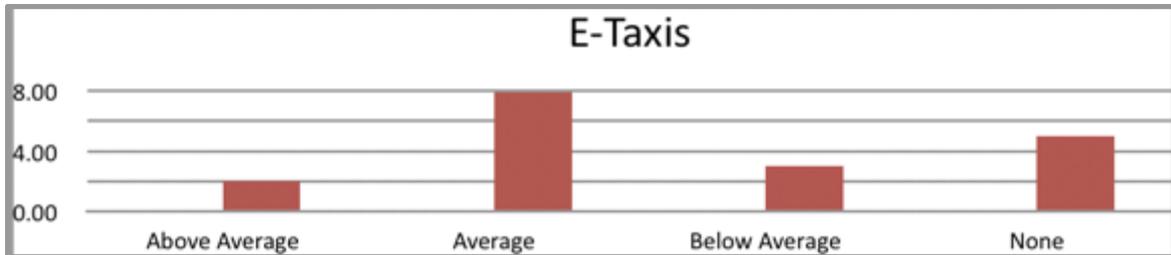
E-minibuses

39% respondents indicated that they had no knowledge of E-minibuses, 28% rated their knowledge as Average while 22% rated their knowledge as below average. As a whole the collective knowledge of the group regarding E-minibuses is below average.



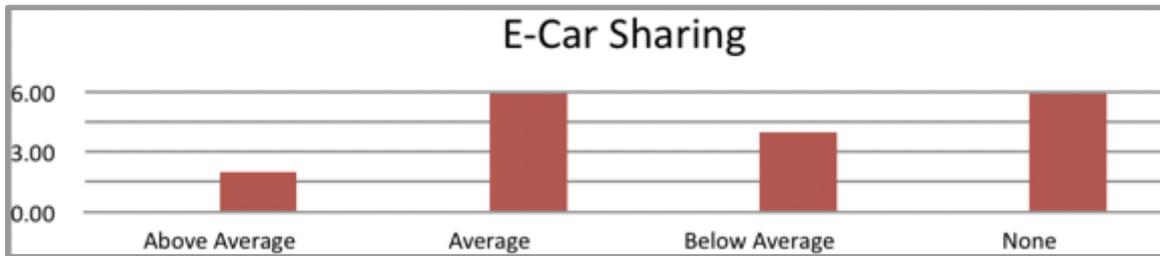
E-Taxis

44% respondents rated their knowledge of E-Taxis as average, 28% indicated they had no knowledge of E-Taxis while 17% rated their knowledge as below average. As a whole the collective knowledge of the group regarding E-Taxis is below average.



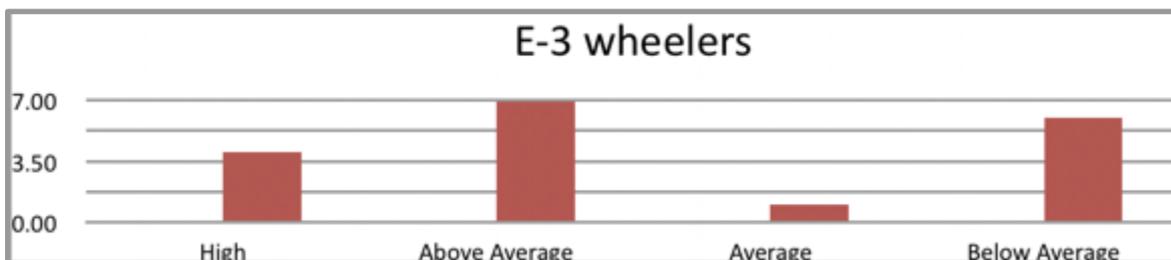
E-Car Sharing

33% respondents rated their knowledge of E-Car Sharing as average while 33% indicated they had no knowledge of E-Car Sharing, 22% rated their knowledge as below average. As a whole the collective knowledge of the group regarding E-Car sharing is below average.



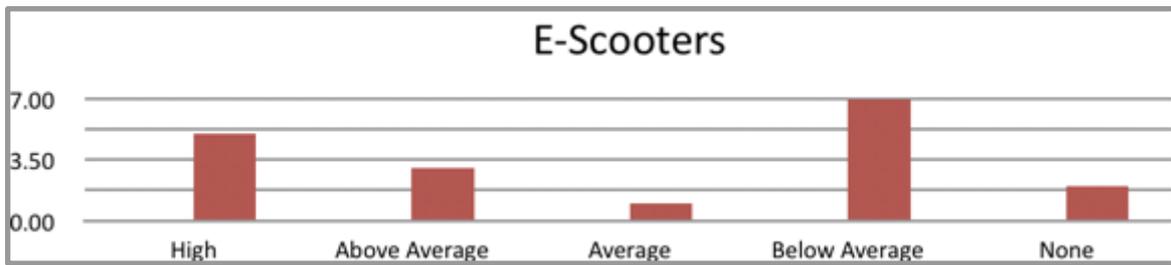
E-3 wheelers

39% respondents rated their knowledge of E-3 wheelers as above average while 33% rated their knowledge as below average, 22% rated their knowledge of E-3 wheelers as high. As a whole the collective knowledge of the group regarding E-3 wheelers is above average.



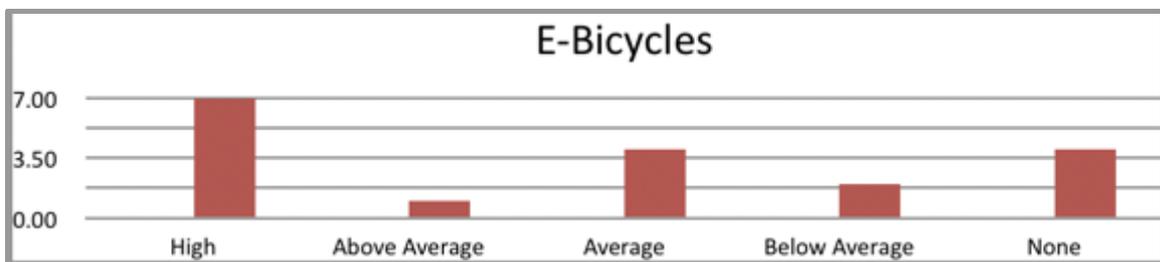
E-Scooters

39% respondents rated their knowledge of E-Scooters as below average, 28% rated their knowledge as high, while 17% rated their knowledge of E-Scooters as above average. As a whole the collective knowledge of the group regarding E-Scooters is average.



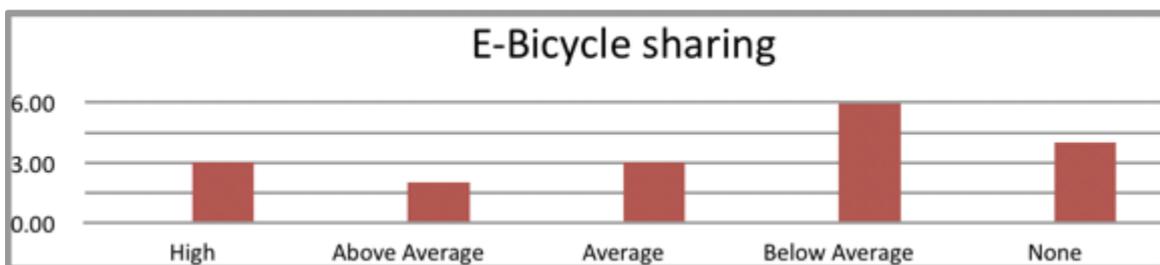
### E-Bicycles

39% respondents indicated their knowledge of E-Bicycles as high, 22% indicated their knowledge as average, while 22% indicated they had average knowledge of E-Bicycles. As a whole the collective knowledge of the group regarding E-Bicycles is average.



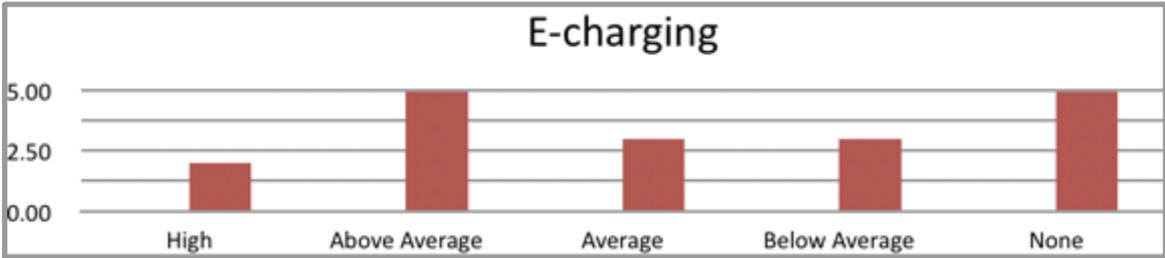
### E-Bicycle sharing

33% respondents indicated their knowledge of E-Bicycle sharing as below average, 22% indicated they had no knowledge of E-Bicycle sharing, while 17% indicated they had average knowledge of E-Bicycles and another 17% indicated they had a high knowledge of E-Bicycle sharing. As a whole the collective knowledge of the group regarding E-Bicycle sharing is average.



### E-Charging

28% of respondents indicated they had average knowledge of E-Charging and another 28% indicated they had a high knowledge of E-Charging, 17% indicated they had average knowledge of E-Charging and another 17% indicated they had below average knowledge of E-Charging. As a whole the collective knowledge of the group regarding E-Charging is average.



E-Logistics (e-trucks)

50% of respondents indicated they had no knowledge of E-Logistics and 28% indicated they had below average knowledge of E-Logistics and another 22% indicated they had average knowledge of E-Logistics. As a whole the collective knowledge of the group regarding E-Logistics is below average.



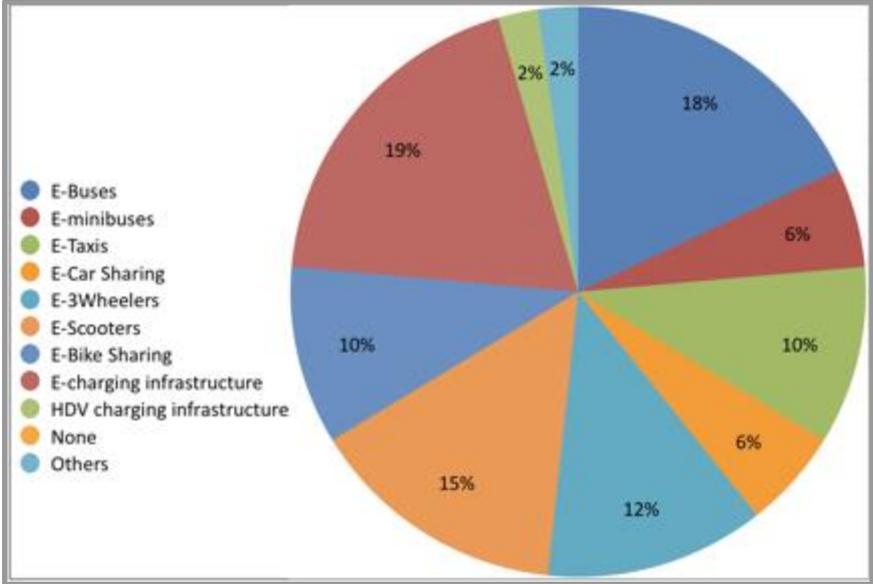
Waste Collection Options

55% of respondents indicated they had no knowledge of E-Waste collection options and 28% indicated they had below average knowledge. As a whole the collective knowledge of the group regarding E-Waste collection options is below average.



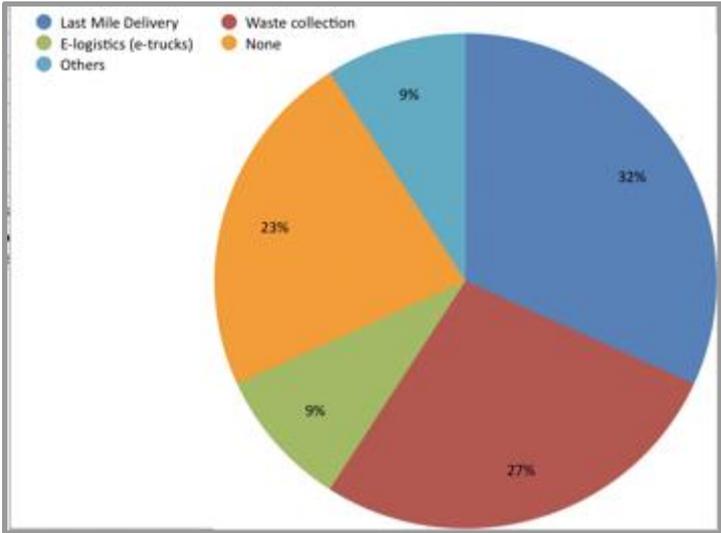
**"Passenger Transport" actions that are or will be implemented in the respective cities.**

The popular actions include: E-charging infrastructure, E-buses and E-Scooters



**The most common freight actions that are or are going to be implemented in their city include:**

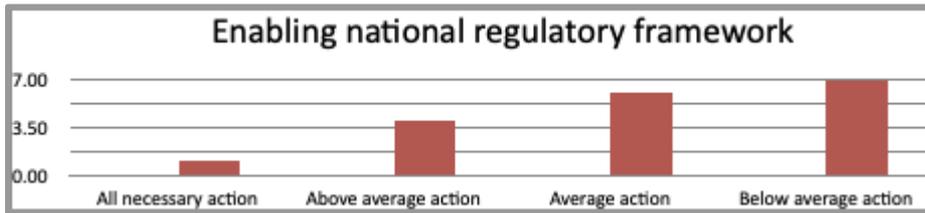
Last mile delivery- 32% and waste collection-27%



**Actions that have been taken to contribute to a transition to e-mobility**

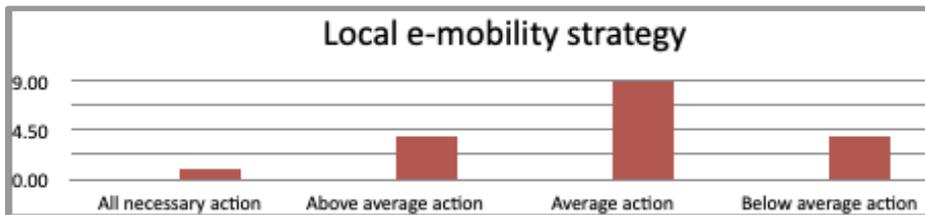
**National Regulatory Framework**

39% of respondents indicated that below average action has been taken to enable national regulatory framework, 33% indicated average action has been taken. As a collective the respondents indicated average action has been taken to contribute to a transition to e-mobility.



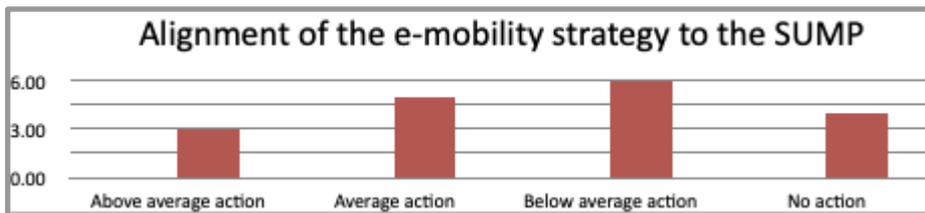
Local E-mobility Strategy

50% of respondents indicated that average action has been taken to enable a local e-mobility strategy. As a collective the respondents indicated average action has been taken.



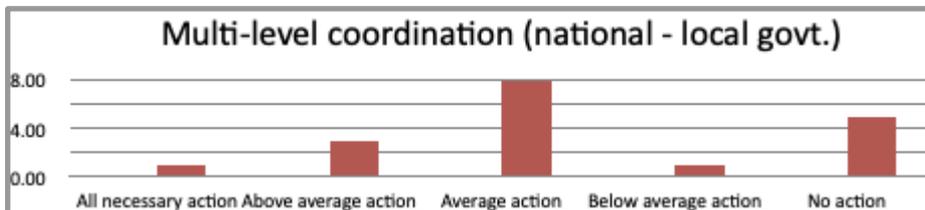
Alignment of the e-mobility Strategy to the SUMP

33% of respondents indicated that below average action has been taken to align the e-mobility Strategy to the SUMP, 28% indicated average action has been taken. As a collective the respondents indicated below average action has been taken to align the e-mobility Strategy to the SUMP.



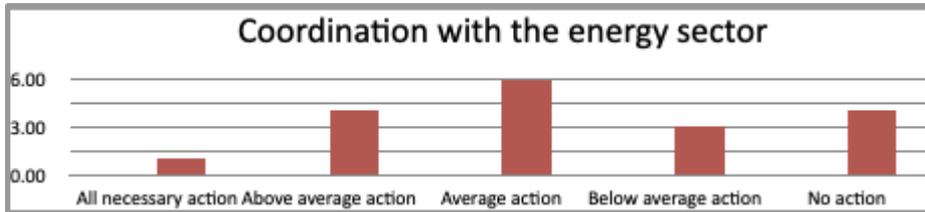
Multi-level coordination (national - local govt.)

44% of respondents indicated that average action has been taken on multi-level coordination (national - local govt.), 28% indicated no action has been taken. As a collective the respondents indicated average action has been taken on multi-level coordination (national - local govt.).



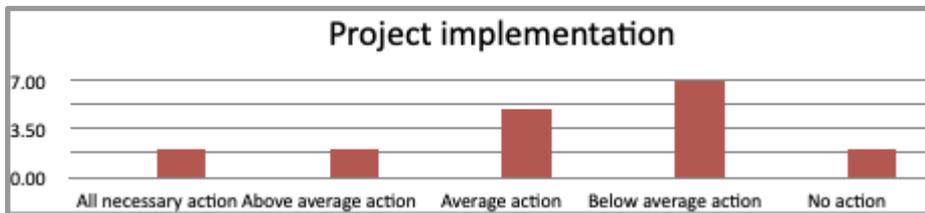
Coordination with the energy sector

33% of respondents indicated that average action has been taken on coordination with the energy sector, 22% indicated no action has been taken. As a collective the respondents indicated average action has been taken on coordination with the energy sector.



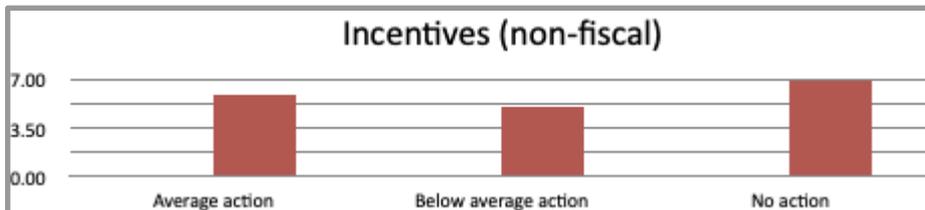
### Project Implementation

39% of respondents indicated that below average action has been taken on project implementation, 28% indicated average action has been taken. As a collective the respondents indicated average action has been taken on project implementation.



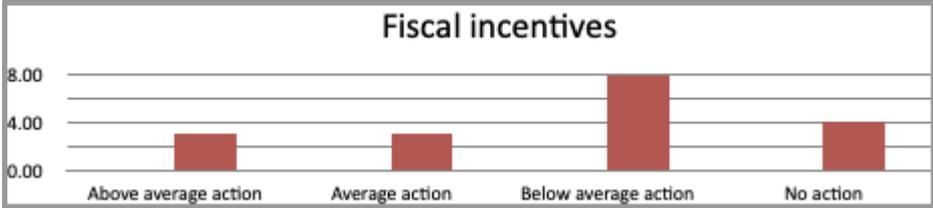
### Incentives (non-fiscal)

39% of respondents indicated that no action has been taken on incentives (non-fiscal), 33% indicated average action has been taken. As a collective the respondents indicated average action has been taken on incentives (non-fiscal).



### Fiscal Incentives

44% of respondents indicated that below average action has been taken on fiscal incentives, 22% indicated no action has been taken. As a collective the respondents indicated below average action has been taken on fiscal incentives (non-fiscal).



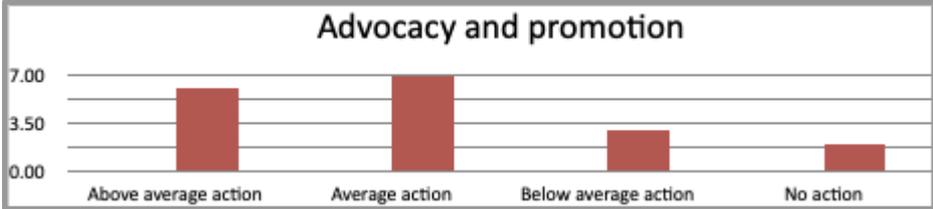
**Involvement of local manufacturing/ startups**

44% of respondents indicated that below average action has been taken on involvement of local manufacturing/ startups, 39% indicated average action has been taken. As a collective the respondents indicated below average action has been taken on involvement of local manufacturing/ startups.



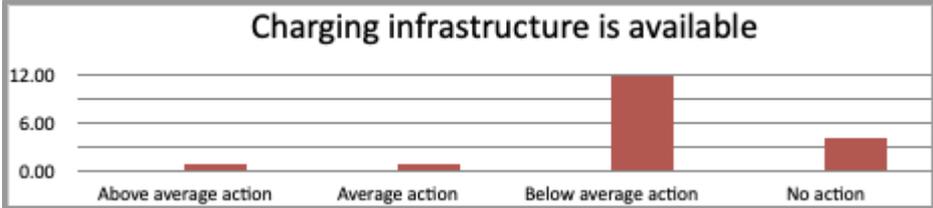
**Advocacy and promotion**

39% of respondents indicated that average action has been taken on advocacy and promotion, 33% indicated above average action has been taken. As a collective the respondents indicated average action has been taken on advocacy and promotions.



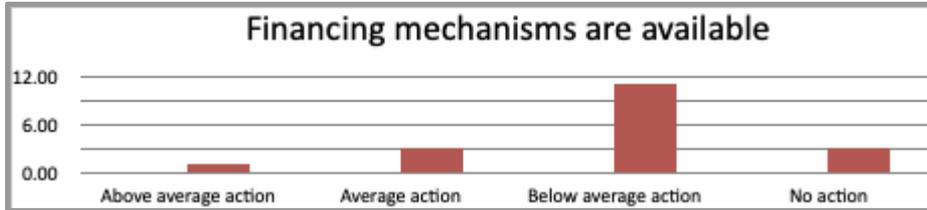
**Charging infrastructure is available**

67% of respondents indicated that below average action has been taken on making charging infrastructure available, 22% indicated no action has been taken. As a collective the respondents indicated below average action has been taken on making charging infrastructure available.



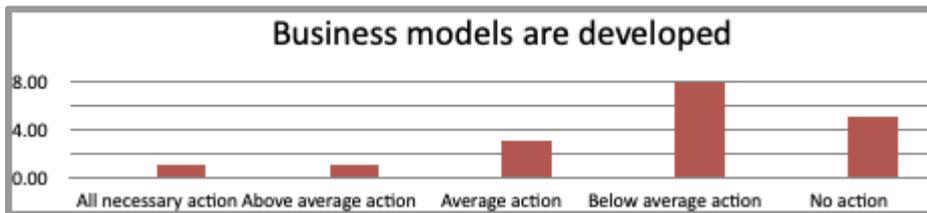
**Financing mechanisms are available**

61% of respondents indicated that below average action has been taken on making financing mechanisms available, 16% indicated average action has been taken while 16% indicated no action has been taken. As a collective the respondents indicated below average action has been taken on making financing mechanisms available.



**Business models are developed**

44% of respondents indicated that below average action has been taken on developing business models, 27% indicated no action has been taken. As a collective the respondents indicated below average action has been taken on developing business models.



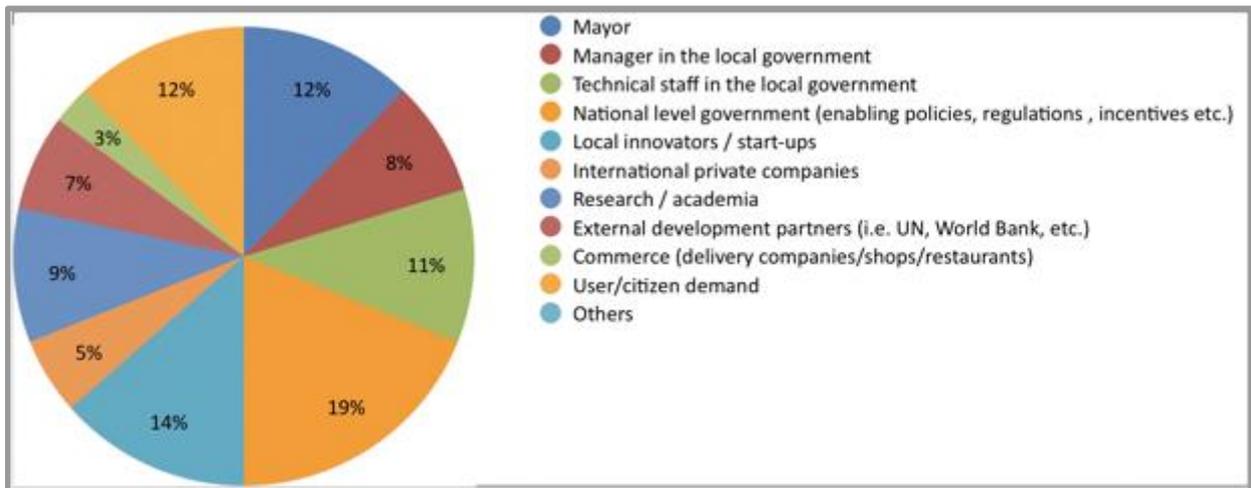
**Motivations for the institution to work on e-mobility:**

Climate change mitigation- 23%, less fuel imports (Improvements to national energy security and independence)- 23 % and reducing air pollution- 21%



**Main enabler for a transition to e-mobility:**

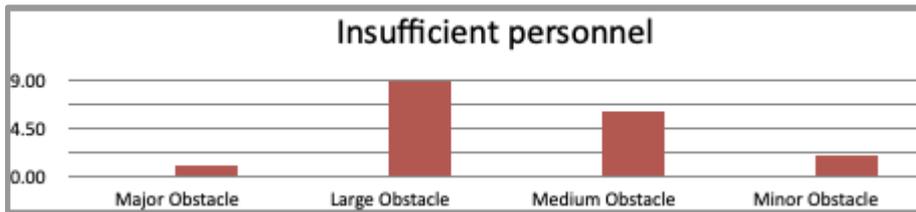
National government (policies)- 19%, Startups and local innovators- 14%, Mayor and Citizen demand - 12%



**The main obstacles that could slow down a transition of e-mobility**

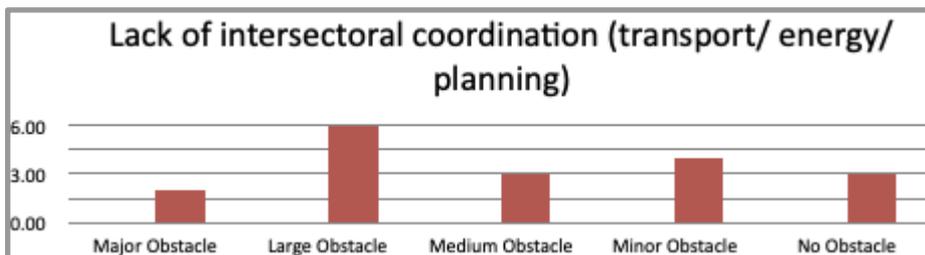
**Insufficient personnel**

50% of respondents indicated that insufficient personnel was a large obstacle, 33% indicated that it was a medium obstacle. As a collective the respondents indicated insufficient personnel as a large obstacle.



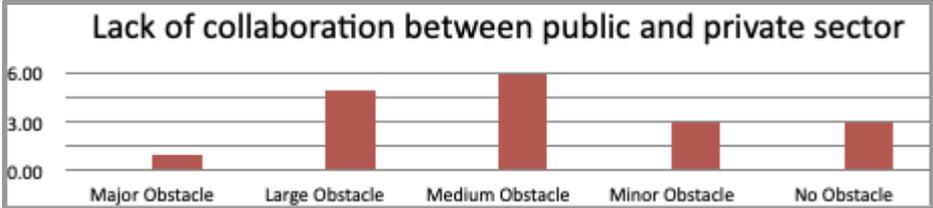
**Lack of intersectoral coordination (transport/ energy/ planning)**

33% of respondents indicated that lack of intersectoral coordination was a large obstacle, 22% indicated that it was a minor obstacle. As a collective the respondents indicated lack of intersectoral coordination as a medium obstacle.



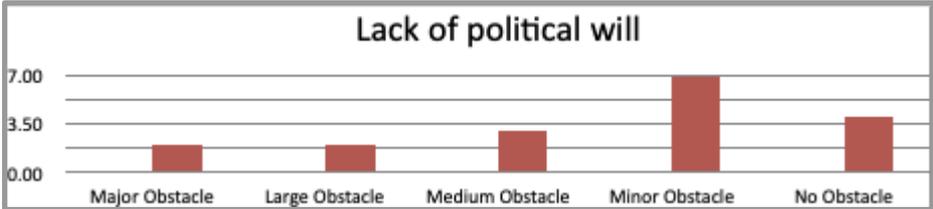
Lack of collaboration between public and private sector

33% of respondents indicated that lack of intersectoral coordination was a medium obstacle, 28% indicated that it was a large obstacle. As a collective the respondents indicated lack of intersectoral coordination as a medium obstacle.



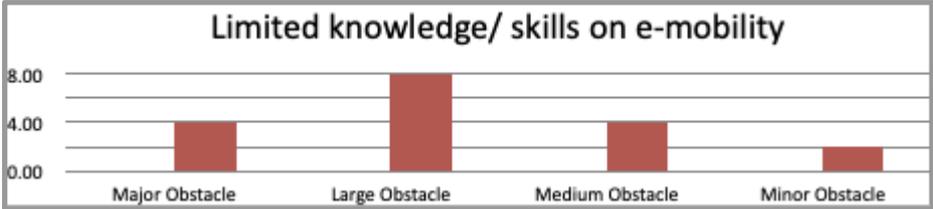
Lack of political will

39% of respondents indicated that lack of political will was a minor obstacle, 22% indicated that it was not an obstacle. As a collective the respondents indicated lack of political will as a medium obstacle.



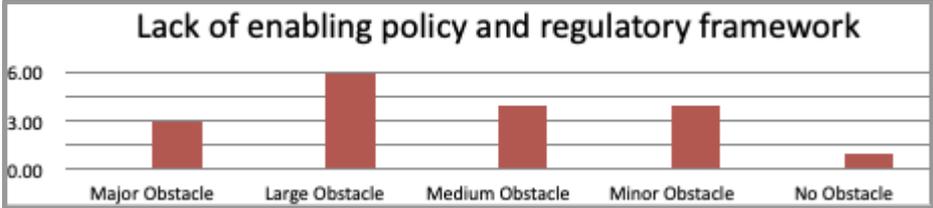
Limited knowledge/ skills on e-mobility

44% of respondents indicated that limited knowledge/ skills on e-mobility was a large obstacle, 22% indicated that it was a major obstacle and another 22% indicated it was a medium obstacle. As a collective the respondents indicated limited knowledge/ skills on e-mobility as a large obstacle.



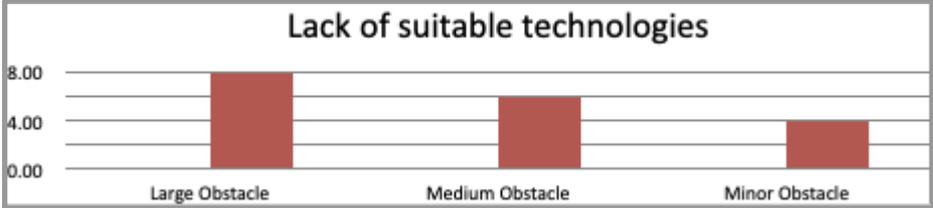
Lack of enabling policy and regulatory framework

33% of respondents indicated that lack of enabling policy and regulatory framework was a large obstacle, 22% indicated that it was a medium obstacle and another 22% indicated it was a minor obstacle. As a collective the respondents indicated lack of enabling policy and regulatory framework as a medium obstacle.



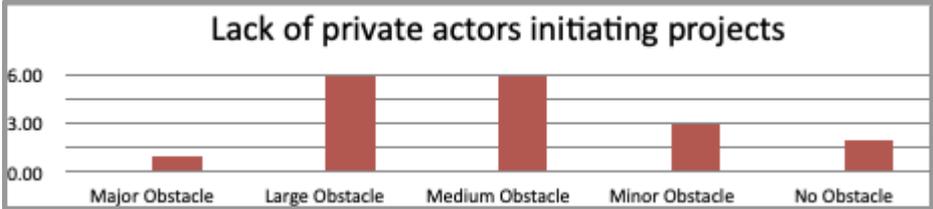
Lack of suitable technologies

44% of respondents indicated that lack of suitable technologies was a large obstacle, 33% indicated that it was a medium obstacle and another 22% indicated it was a minor obstacle. As a collective the respondents indicated lack of suitable technologies as a medium obstacle.



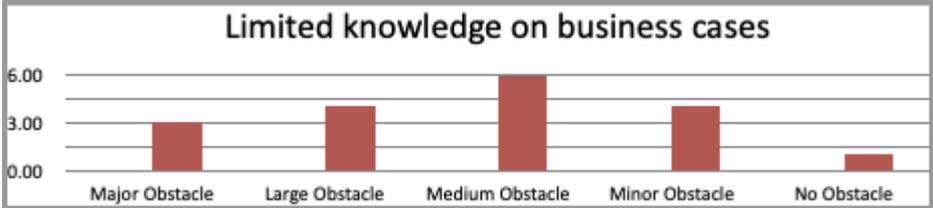
Lack of private actors initiating projects

33% of respondents indicated that lack of private actors initiating projects was a large obstacle, another 33% indicated that it was a medium obstacle and 17% indicated it was a minor obstacle. As a collective the respondents indicated lack of private actors initiating projects as a medium obstacle.



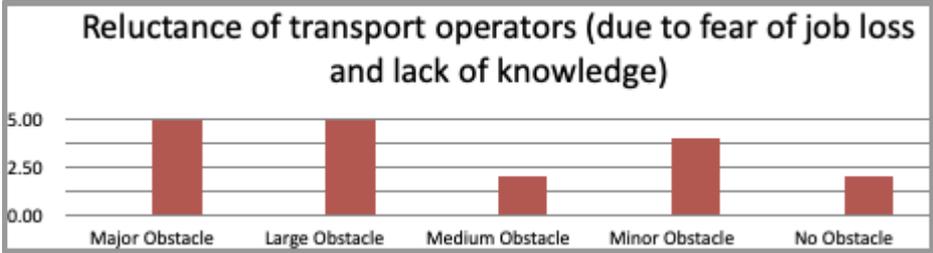
Limited knowledge on business cases

33% of respondents indicated that limited knowledge on business cases as a medium obstacle, 22% indicated that it was a large obstacle and another 22% indicated it was a minor obstacle. As a collective the respondents indicated limited knowledge on business cases projects as a medium obstacle.



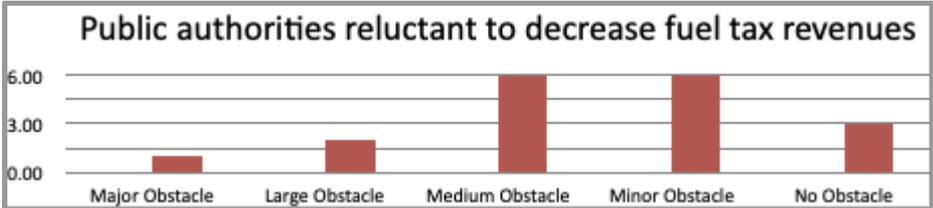
Reluctance of transport operators (due to fear of job loss and lack of knowledge)

28% of respondents indicated that reluctance of transport operators as a major obstacle, another 28% indicated that it was a large obstacle and another 22% indicated it was a minor obstacle. As a collective the respondents indicated reluctance of transport operators as a medium obstacle.



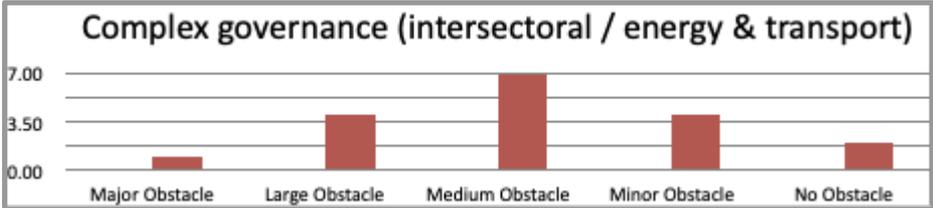
Public authorities reluctant to decrease fuel tax revenues

33% of respondents indicated that public authorities reluctance to decrease fuel tax revenues as a medium obstacle, another 33% indicated that it was a minor obstacle and 16% indicated it was not an obstacle. As a collective the respondents indicated public authorities reluctance to decrease fuel tax revenues as a medium obstacle.



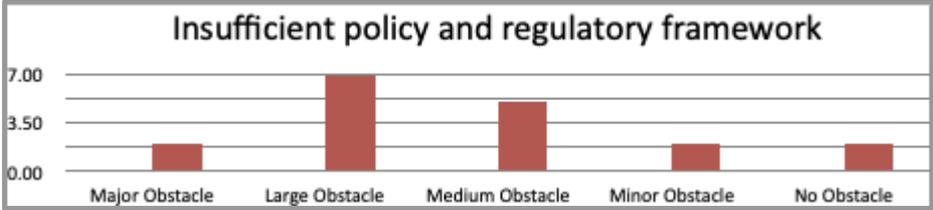
Complex governance (intersectoral / energy & transport)

39% of respondents indicated that complex governance as a medium obstacle, 22% indicated that it was a large obstacle and another 22% indicated it was a minor obstacle. As a collective the respondents indicated complex governance as a medium obstacle.



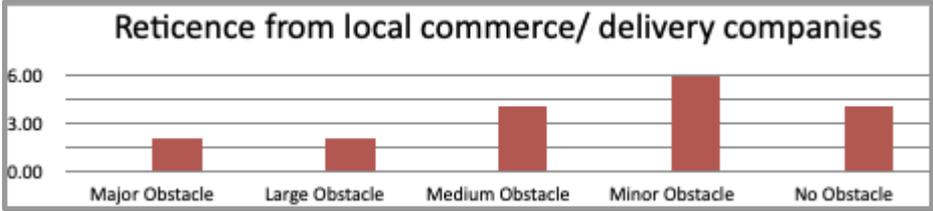
Insufficient policy and regulatory framework

39% of respondents indicated that insufficient policy and regulatory framework as a large obstacle, 28% indicated that it was a medium obstacle. As a collective the respondents indicated insufficient policy and regulatory framework as a medium obstacle.



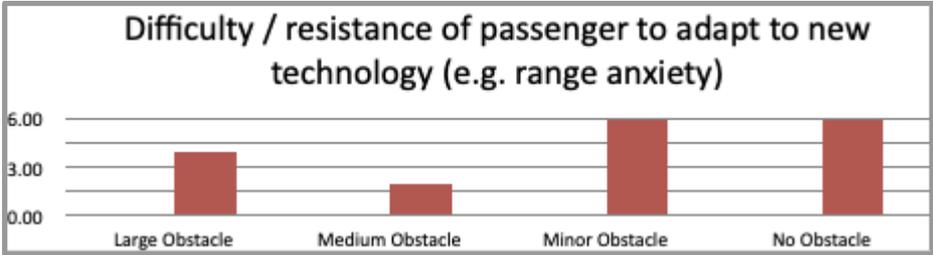
Reticence from local commerce/ delivery companies

33% of respondents indicated that reticence from local commerce/ delivery companies as a minor obstacle, 22% indicated that it as a medium obstacle and another 22% indicated it is not an obstacle . As a collective the respondents indicated reticence from local commerce/ delivery companies as a medium obstacle.



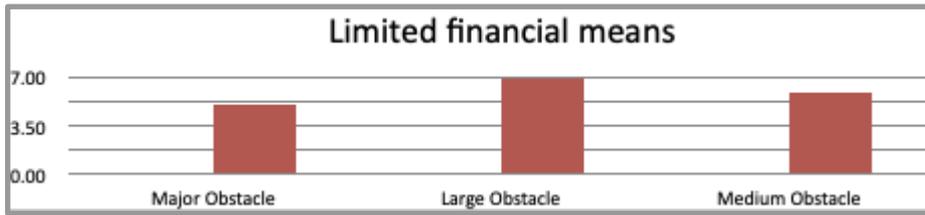
Difficulty / resistance of passenger to adapt to new technology (e.g. range anxiety)

33% of respondents indicated that difficulty / resistance of passengers to adapt to new technology as a minor obstacle, another 33% indicated that it is not an obstacle while 22% indicated it is a large obstacle. As a collective the respondents indicated difficulty / resistance of passengers to adapt to new technology as a minor obstacle.



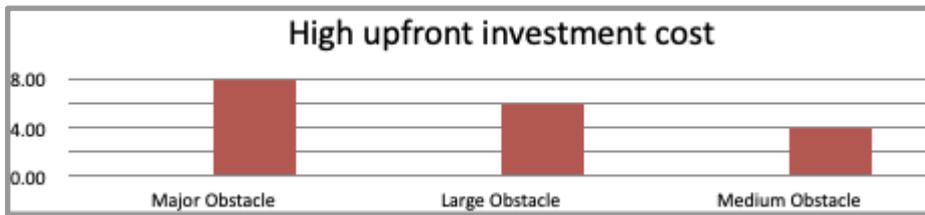
Limited financial means

39% of respondents indicated that limited financial means as a large obstacle, 33% indicated that it is a medium obstacle while 28% indicated it is a major obstacle. As a collective the respondents indicated limited financial means as a large obstacle.



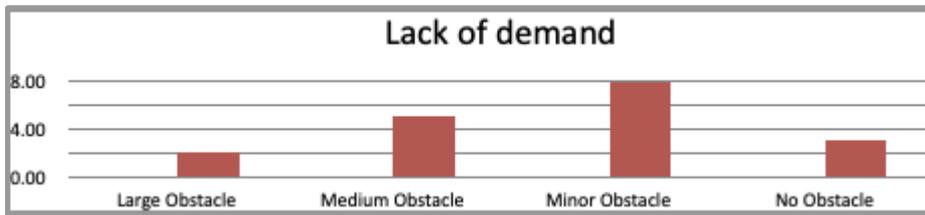
High upfront investment cost

44% of respondents indicated that high upfront investment cost as a major obstacle, 33% indicated that it is a large obstacle while 22% indicated it is a medium obstacle. As a collective the respondents indicated high upfront investment cost as a large obstacle.



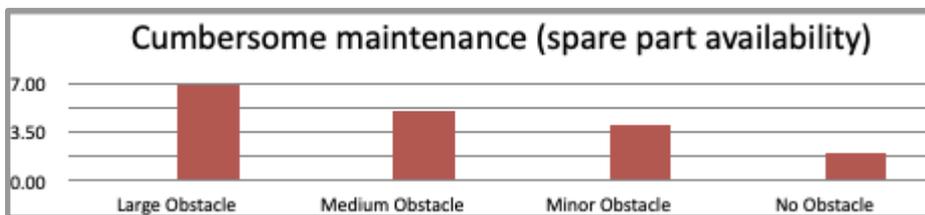
Lack of demand

44% of respondents indicated that lack of demand cost as a minor obstacle, 28% indicated that it is a medium obstacle while 28% indicated it is a medium obstacle. As a collective the respondents indicated lack of demand as a minor obstacle.



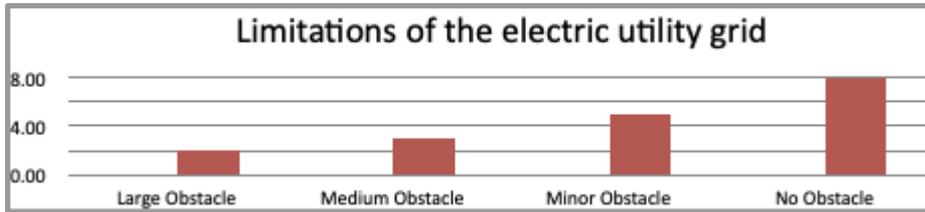
Cumbersome maintenance (spare part availability)

39% of respondents indicated that cumbersome maintenance as a large obstacle, 28% indicated that it is a medium obstacle while 22% indicated it is a minor obstacle. As a collective the respondents indicated cumbersome maintenance as a medium obstacle.



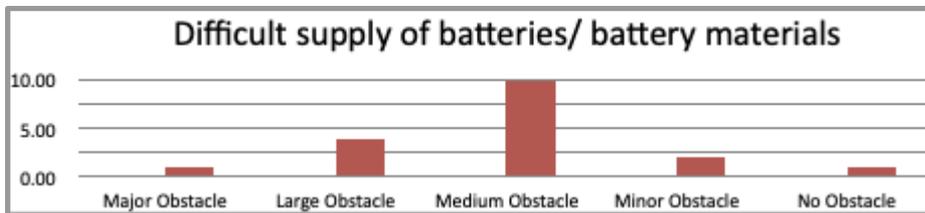
Limitations of the electric utility grid

44% of respondents indicated that limitations of the electric utility grid as no obstacle, 28% indicated that it is a minor obstacle. As a collective the respondents indicated limitations of the electric utility grid as a minor obstacle.



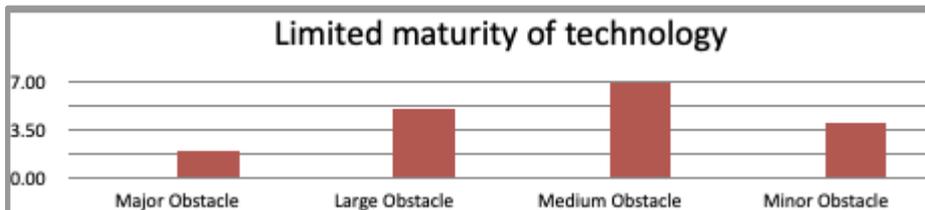
Difficult supply of batteries/ battery materials

56% of respondents indicated that difficult supply of batteries/ battery materials as a medium obstacle, 22% indicated that it is a large obstacle. As a collective the respondents indicated difficult supply of batteries/ battery materials as a medium obstacle.

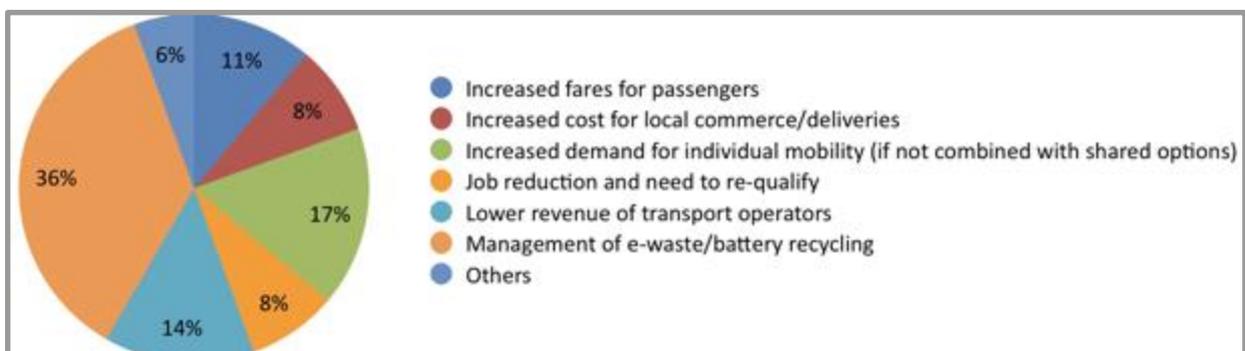


Limited maturity of technology

39% of respondents indicated that limited maturity of technology as a medium obstacle, 28% indicated that it is a large obstacle. As a collective the respondents indicated limited maturity of technology as a medium obstacle.

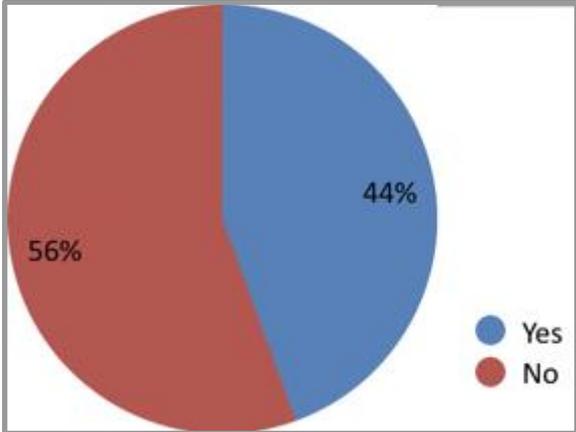


The two biggest risks and negative impacts of a transition to e-mobility in your city



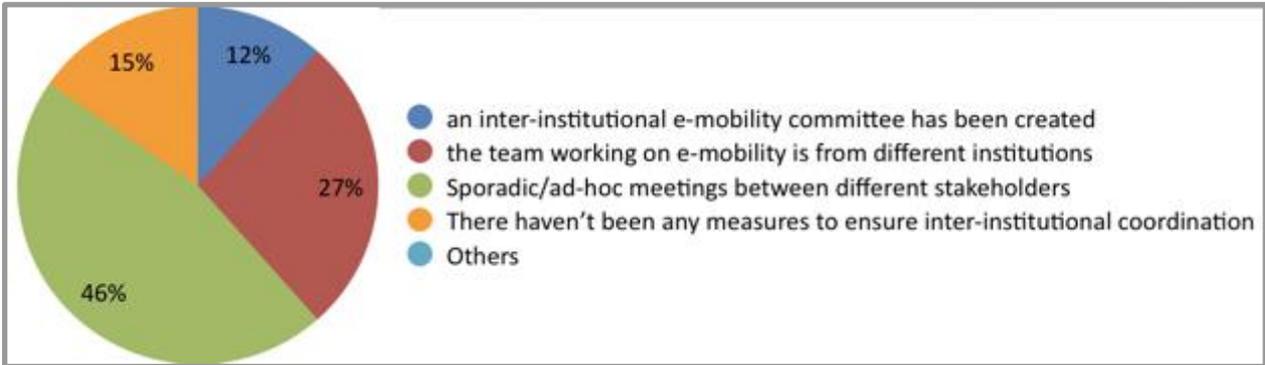
**E-mobility team composition**

44% of the respondents confirmed that there is a specific team in their city assigned to the development and implementation of the e-mobility strategy. 56% indicated that their cities did not have a specific e-mobility team.



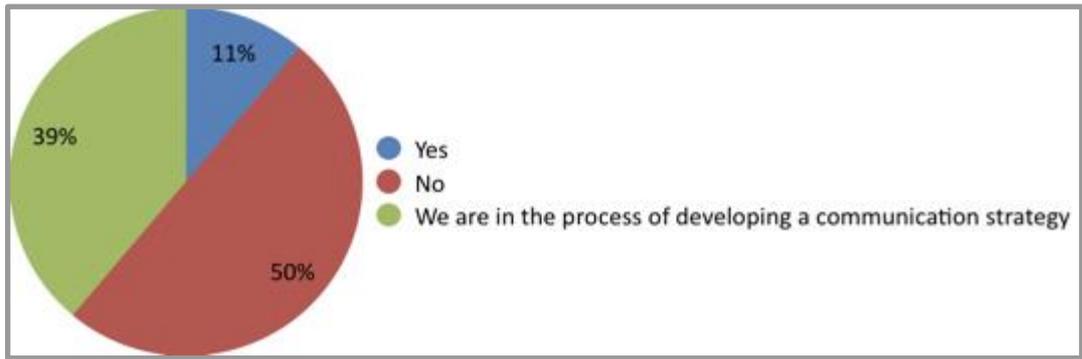
**Institutional Coordination**

The respondents said they ensure inter-institutional coordination to develop and implement the e-mobility strategy in their city by 46% sporadic/ad-hoc meetings between different stakeholders, 27% indicated that the team work on e-mobility is from different institutions, 15% said there haven't been any measures to ensure inter-institutional coordination, and 12% indicated that inter-institutional committee had been created.



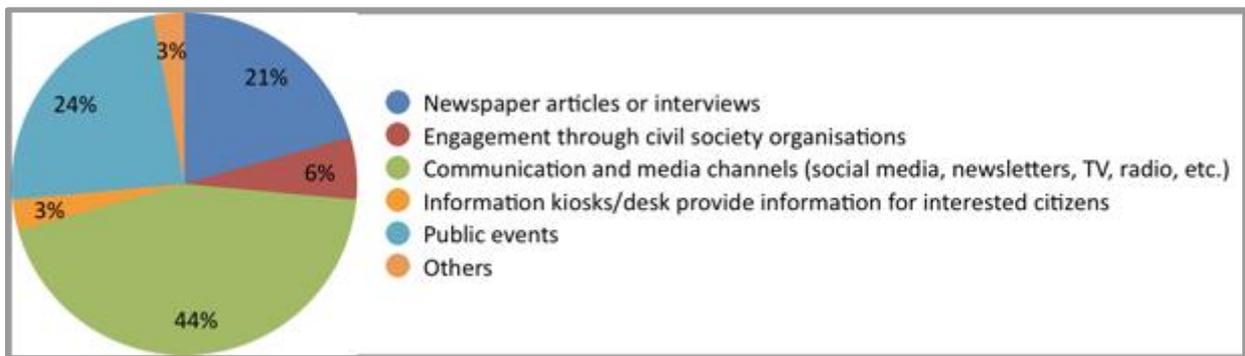
**Communication strategy for E-mobility**

50% of the respondents said their organisation does not have a communication strategy for e-mobility, 39% said they were in the process of developing a communication strategy and 11% indicated that they do have a communication strategy for e-mobility.



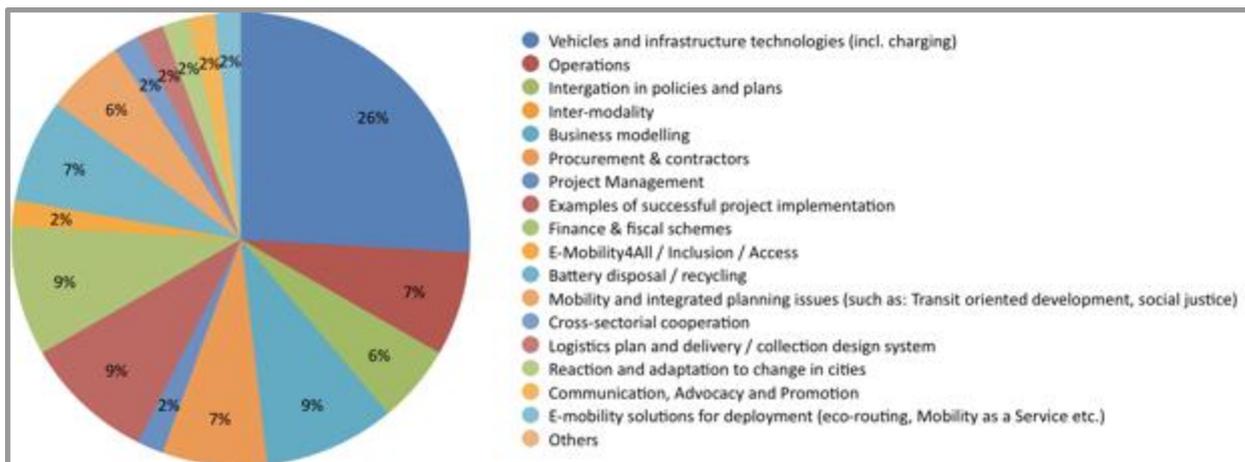
**Most common means for organisations to spread the information on e-mobility to the public**

44% of the organisations spread information on e-mobility to the public through communication and media channels (social media, newsletters, TV, radio), 24% through public events, and 21% through newspaper articles or interviews



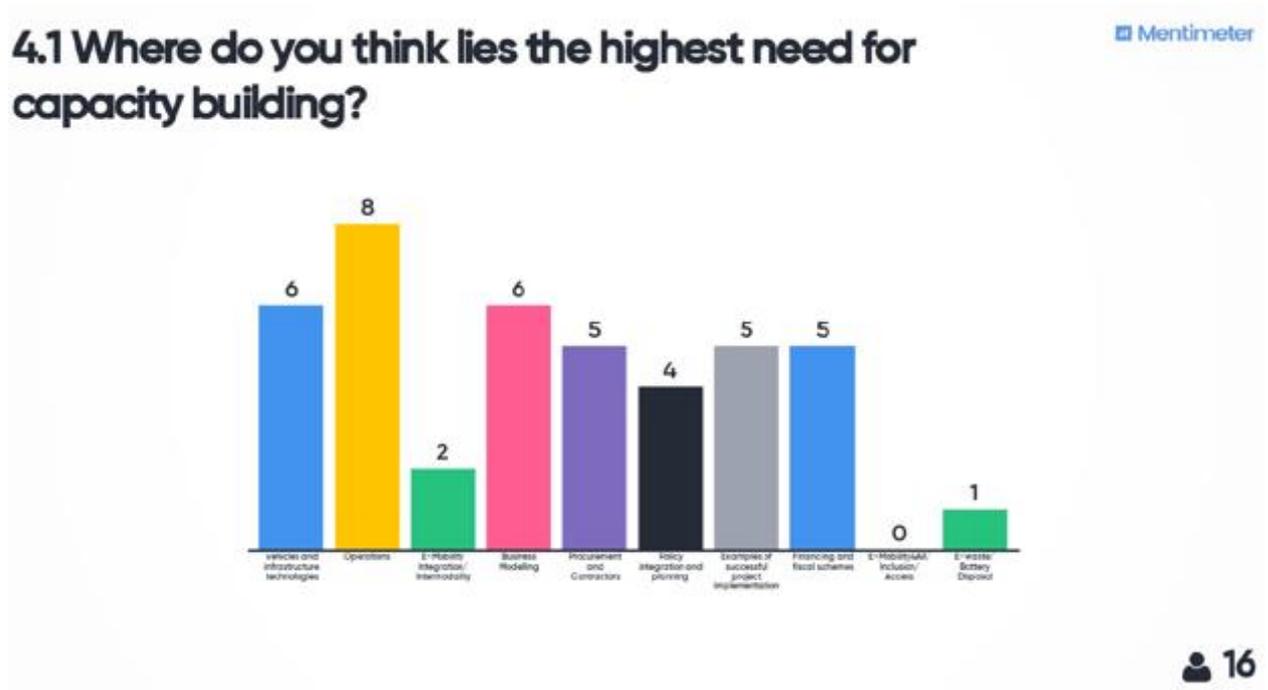
**The highest training needs in their organisation identified include:**

Vehicles infrastructure- 26%, business modeling- 9%, Finance and fiscal schemes-9%, examples of successful project implementation- 9%



This differs from the results of the same question during the Kickoff workshop held in January 2020 where the respondents identified operations.

### 4.1 Where do you think lies the highest need for capacity building?

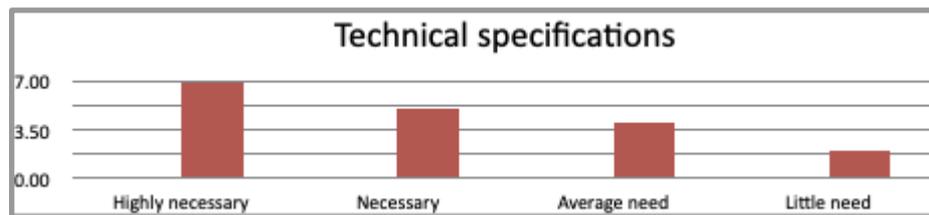


The need for capacities on the following topics: technology specifications, operations, infrastructure, policies and regulation, procurement and financing and business

#### Technology

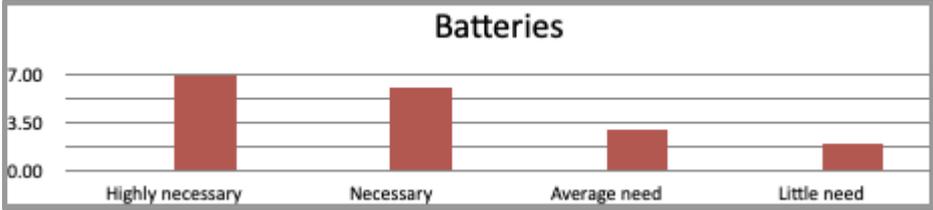
##### Technology Specifications

39% of respondents indicated that there is a highly necessary need to build technology capacity. As a collective the respondents indicated that there is a necessary need to build technology capacity.



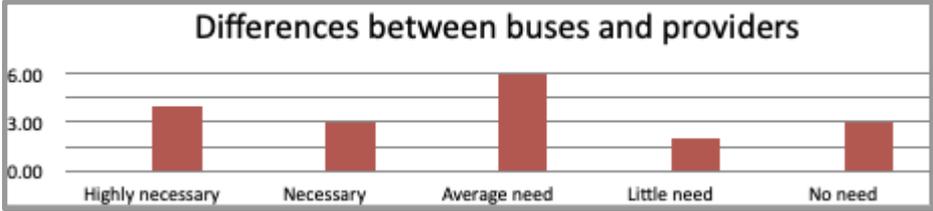
#### Batteries

39% of respondents indicated that there is a highly necessary need to build capacity in batteries. As a collective the respondents indicated there is a necessary need to build capacity in batteries.



Difference between buses and providers

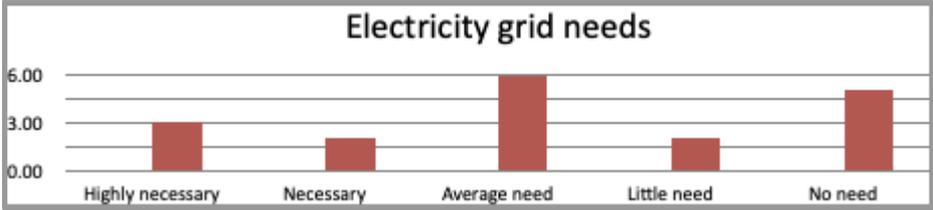
33% of respondents indicated that there is an average need for capacity in the difference between buses and providers, 22% of respondents indicated that it is highly necessary. As a collective the respondents indicated that there is an average need for capacity in the difference between buses and providers.



Operations

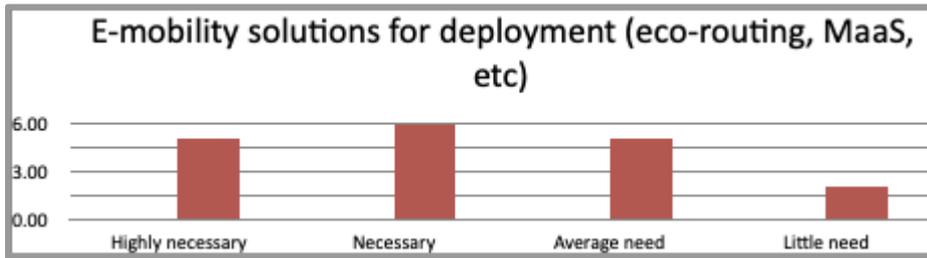
Electricity grid needs

33% of respondents indicated that there is an average need for capacity on electricity grids, 28% of respondents indicated that there is no need. As a collective the respondents indicated that there is an average need for capacity on electricity grids.



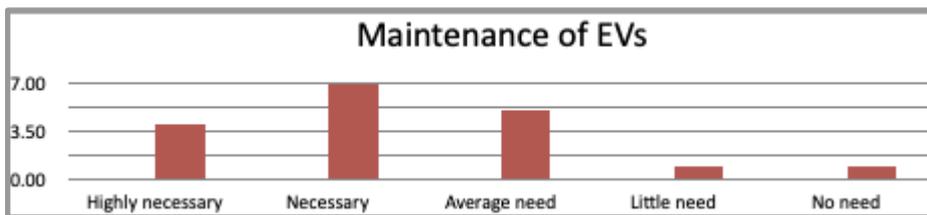
E-mobility solutions for deployment

33% of respondents indicated that it is necessary to build capacity for e-mobility solutions for deployment, 28% of respondents indicated that the capacity need is highly necessary and 28% expressed average need. As a collective the respondents indicated that there is a necessary need for capacity on e-mobility solutions for deployment.



**Maintenance of EVs**

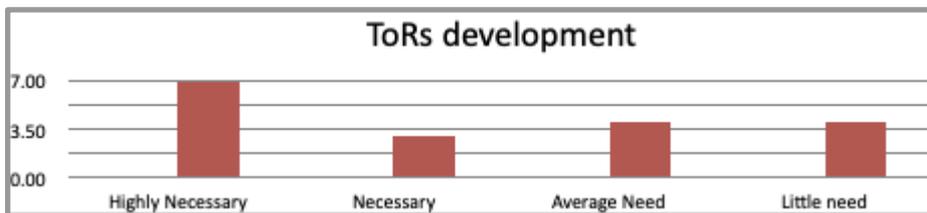
39% of respondents indicated that it is necessary to build capacity on maintenance of EVs, 28% of respondents indicated that the capacity need is average. As a collective the respondents indicated that there is a necessary need for capacity on maintenance of EVs.



**Procurement and Financing**

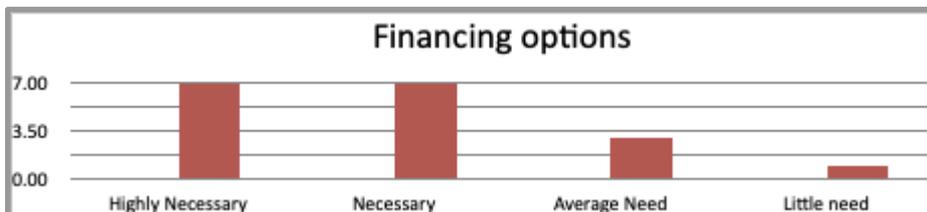
**ToRs Development**

39% of respondents indicated that it is highly necessary to build capacity on ToRs development. As a collective the respondents indicated that there is a necessary need for capacity on ToRs development.



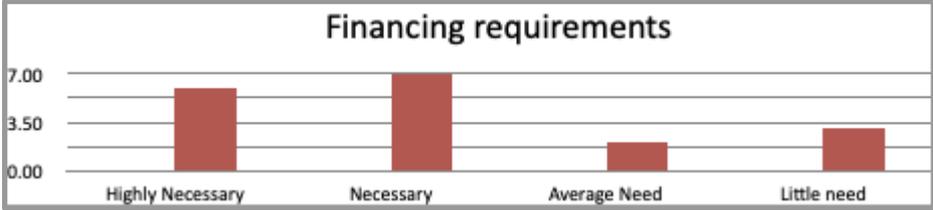
**Financing Options**

39% of respondents indicated that it is highly necessary to build capacity on financing options while 39% indicated that it is necessary. As a collective the respondents indicated that there is a necessary need for capacity on financing options.



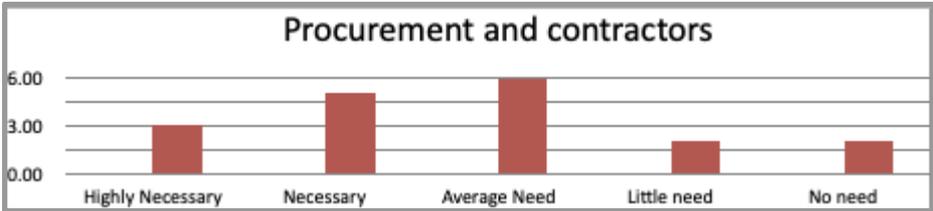
**Financing Requirements**

39% of respondents indicated that it is necessary to build capacity on financing requirements while 33% indicated that it is highly necessary. As a collective the respondents indicated that there is a necessary need for capacity on financing requirements.



**Procurement and contractors**

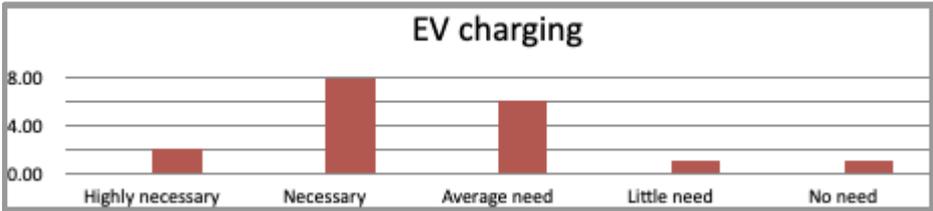
33% of respondents indicated that there is an average need to build capacity on procurement and contractors while 28% indicated that it is necessary. As a collective the respondents indicated that there is an average need for capacity on procurement and contractors.



**Infrastructure**

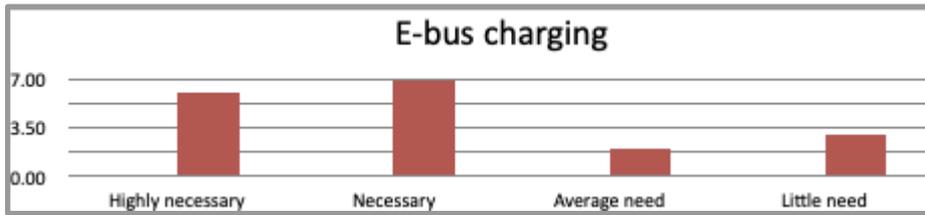
**EV Charging**

44% of respondents indicated that there is a necessary need to build capacity on EV charging while 33% indicated there is an average need. As a collective the respondents indicated that there is a necessary need for capacity on EV charging.



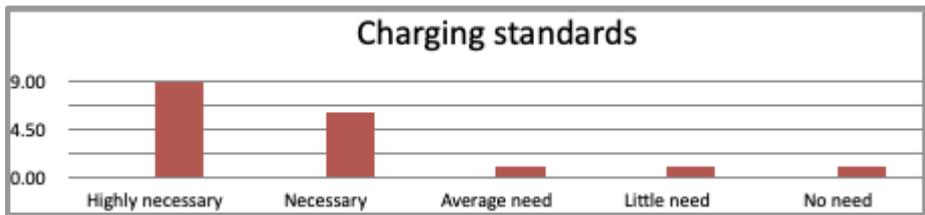
**E-bus charging**

39% of respondents indicated that there is a necessary need to build capacity on E-bus charging while 33% indicated there is a highly necessary need. As a collective the respondents indicated that there is a necessary need for capacity on E-bus charging.



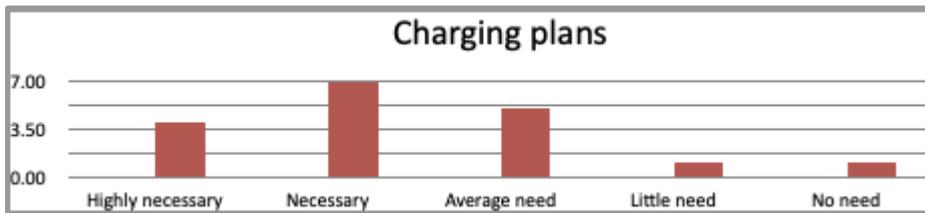
**Charging Standards**

50% of respondents indicated that there is a highly necessary need to build capacity on charging standards while 33% indicated there is a necessary need. As a collective the respondents indicated that there is a necessary need for capacity on charging standards.



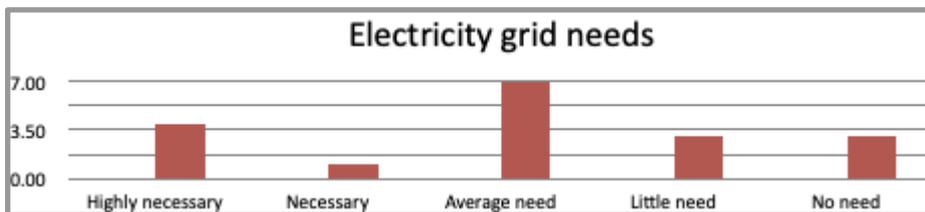
**Charging Plans**

39% of respondents indicated that there is a necessary need to build capacity on charging plans while 28% indicated there is an average need. As a collective the respondents indicated that there is a necessary need for capacity on charging plans.



**Electricity Grid Needs**

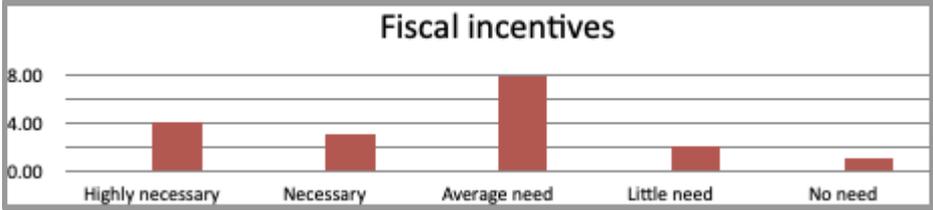
39% of respondents indicated that there is an average need to build capacity on electricity grid needs while 22% indicated there is a highly necessary need. As a collective the respondents indicated that there is an average need for capacity on electricity grid needs.



**Policies and Regulations**

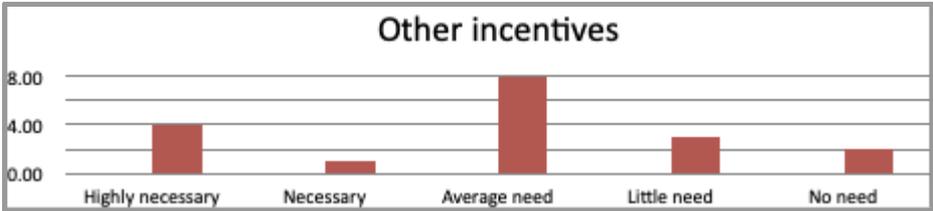
**Fiscal incentives**

44% of respondents indicated that there is an average need to build capacity on fiscal incentives while 22% indicated there is a highly necessary need. As a collective the respondents indicated that there is an average need for capacity on fiscal incentives.



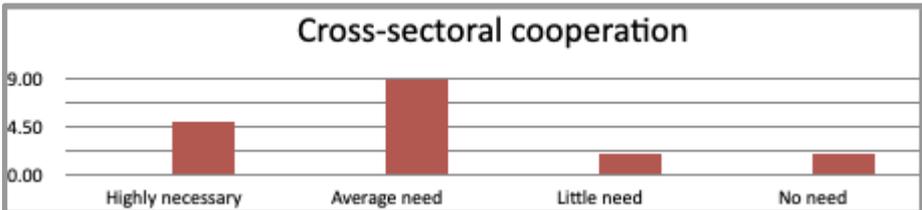
**Other incentives**

44% of respondents indicated that there is an average need to build capacity on other incentives while 22% indicated there is a highly necessary need. As a collective the respondents indicated that there is an average need for capacity on other incentives.



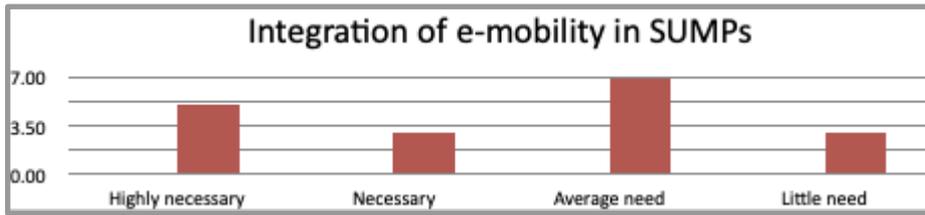
**Cross-sectoral cooperation**

50% of respondents indicated that there is an average need to build capacity on cross sectoral cooperation while 28% indicated there is a highly necessary need. As a collective the respondents indicated that there is an average need for capacity on cross sectoral cooperation.



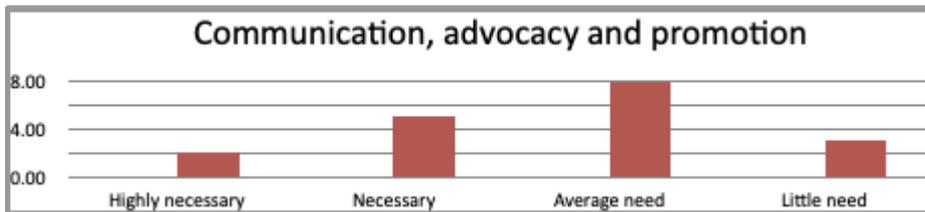
**Integration of e-mobility in SUMP**

39% of respondents indicated that there is an average need to build capacity on integration of e-mobility in SUMP while 28% indicated there is a highly necessary need. As a collective the respondents indicated that there is a necessary need for capacity on integration of e-mobility in SUMP.



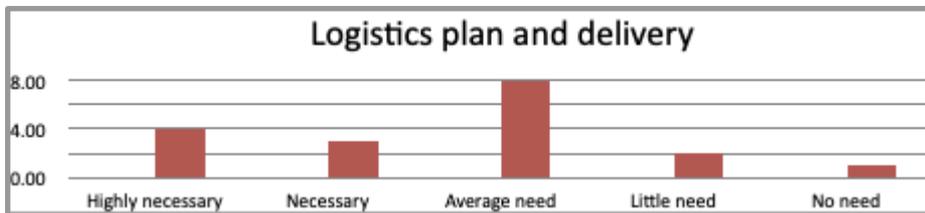
Communication, advocacy and promotion

44% of respondents indicated that there is an average need to build capacity in communication, advocacy and promotion while 28% indicated there is a necessary need. As a collective the respondents indicated that there is an average need for capacity in communication, advocacy and promotion.



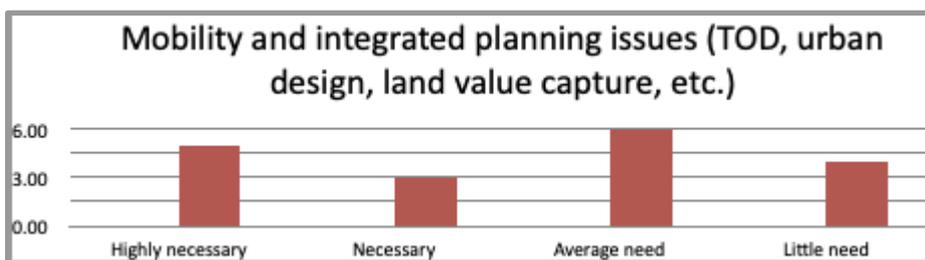
Logistics plan and delivery

44% of respondents indicated that there is an average need to build capacity on logistics planning and delivery while 22% indicated there is a highly necessary need. As a collective the respondents indicated that there is an average need for capacity on logistics plan and delivery.



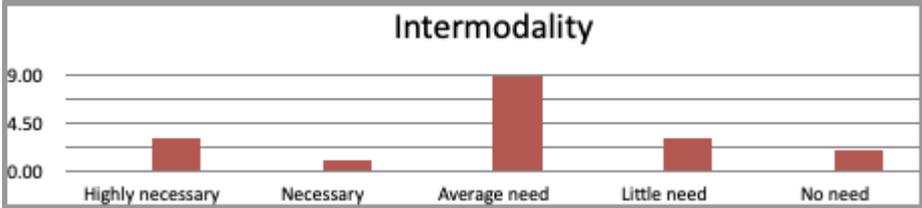
Mobility and integrated planning issues (TOD, urban design, land value capture, etc.)

33% of respondents indicated that there is an average need to build capacity in mobility and integrated planning issues while 28% indicated there is a highly necessary need. As a collective the respondents indicated that there is a necessary need for capacity in Mobility and integrated planning issues.



Intermodality

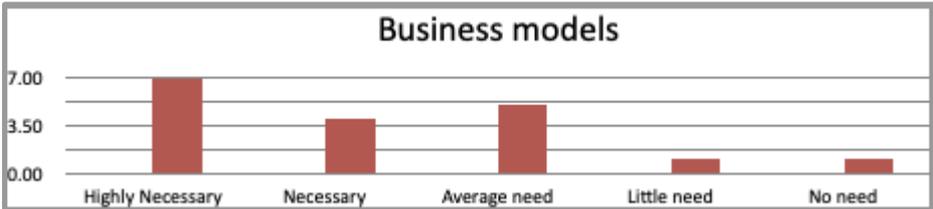
50% of respondents indicated that there is an average need to build capacity on intermodality while 17% indicated there is a highly necessary need and 17% that there is little need for the capacity. As a collective the respondents indicated that there is an average need for capacity on intermodality.



Businesses

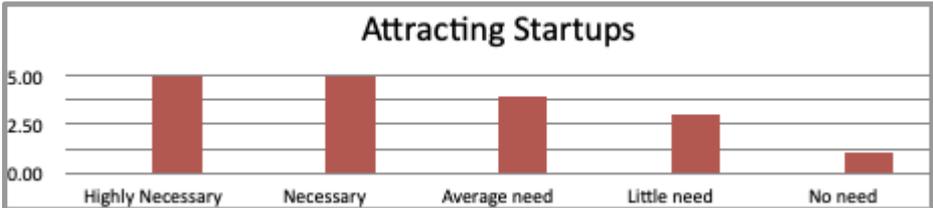
Business Models

39% of respondents indicated that there is a highly necessary need to build capacity on business models while 28% indicated there is an average necessary need and 22% that there is a necessary need. As a collective the respondents indicated that there is a necessary need for capacity on intermodality.



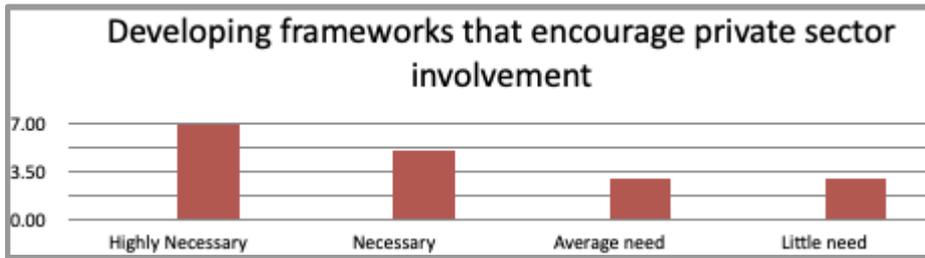
Attracting Startups

28% of respondents indicated that there is a highly necessary need to build capacity on attracting startups while 28% indicated there is a necessary need and 22% that there is an average need. As a collective the respondents indicated that there is a necessary need for capacity on attracting startups.



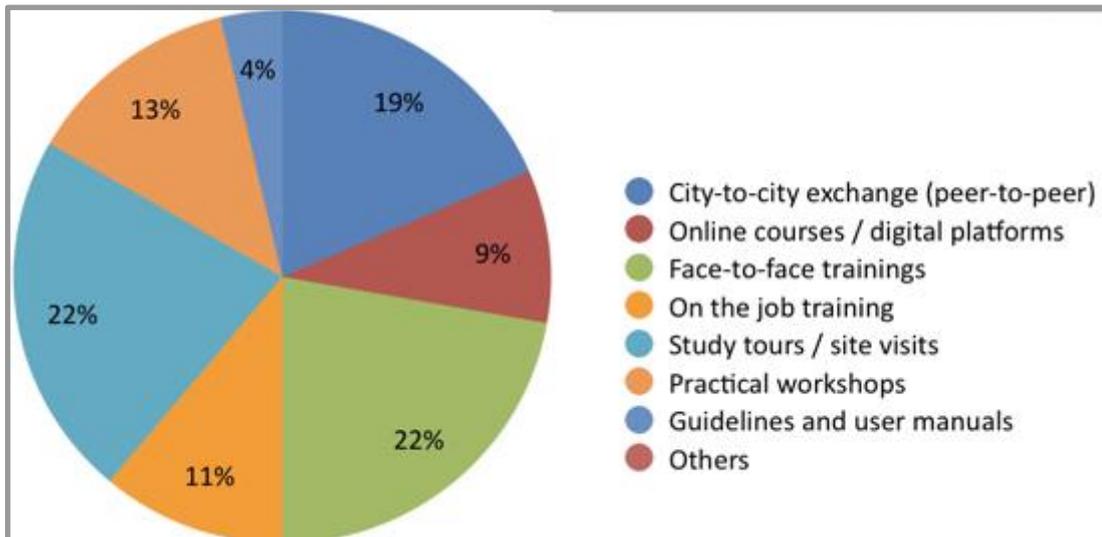
Developing frameworks that encourage private sector involvement

39% of respondents indicated that there is a highly necessary need to build capacity on developing frameworks that encourage private sector involvement while 28% indicated there is a necessary need. As a collective the respondents indicated that there is a necessary need for capacity on developing frameworks that encourage private sector involvement.



**Preferred Capacity Building Activities**

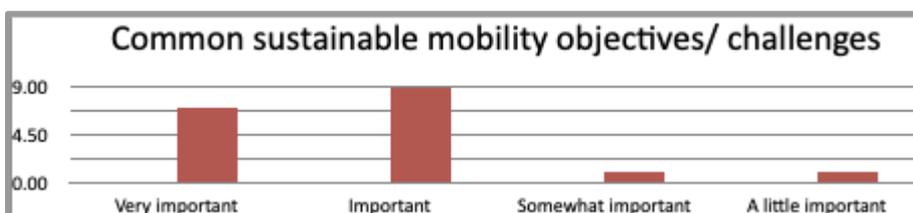
The top three preferred forms of capacity building activities are Face to Face meetings- 22%, Study tours/ site visits- 22% and city-to-city exchange (peer to peer)



Importance of the following criteria in selecting a partner city for learning exchanges incl. peer to peer, study tours, site visits

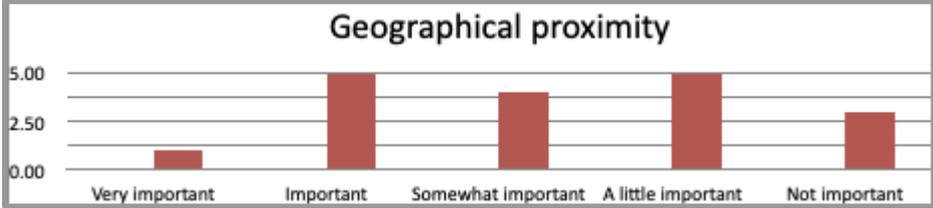
**Common sustainable mobility objectives/ challenges**

50% of respondents indicated that it is important to have common sustainable mobility objectives/ challenges while 39% indicated that it is very important. As a collective the respondents indicated that it is important to have common sustainable mobility objectives/ challenges.



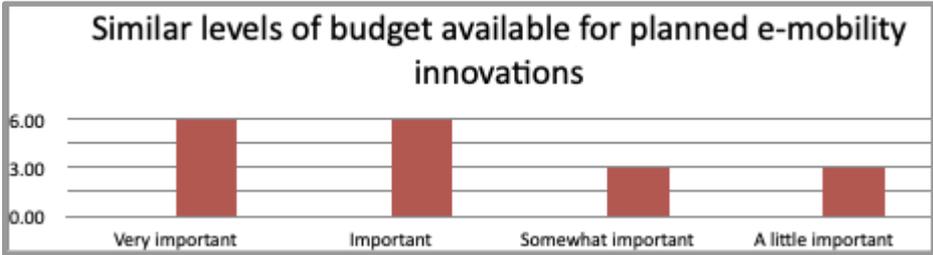
**Geographical Proximity**

28% of respondents indicated that it is important to have geographical proximity while 28% indicated that it is a little important. As a collective the respondents indicated that it is somewhat important to have geographical proximity.



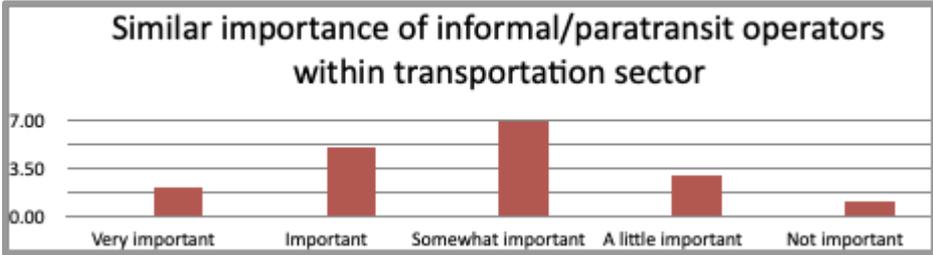
**Similar levels of budget available for planned e-mobility innovations**

33% of respondents indicated that it is very important to have similar levels of budget available for planned e-mobility innovations while 33% indicated that it is very important. As a collective the respondents indicated that it is important to have similar levels of budget available for planned e-mobility innovations.



**Similar importance of informal/paratransit operators within transportation sector**

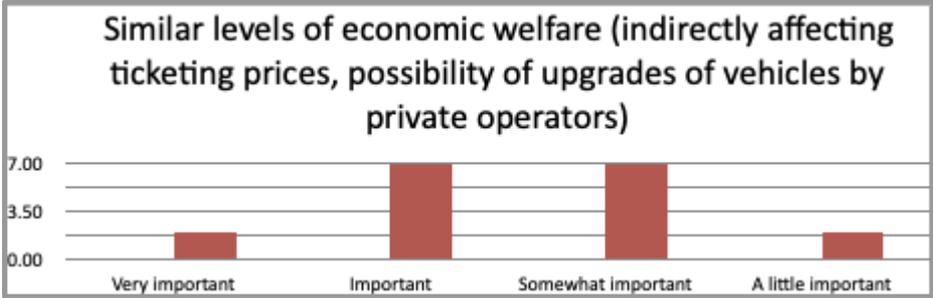
39% of respondents indicated that it is somewhat important to have similar importance of informal/paratransit operators within the transportation sector while 28% indicated that it is important. As a collective the respondents indicated that it is somewhat important to have similar importance of informal/paratransit operators within the transportation sector.



**Similar levels of economic welfare (indirectly affecting ticketing prices, possibility of upgrades of vehicles by private operators)**

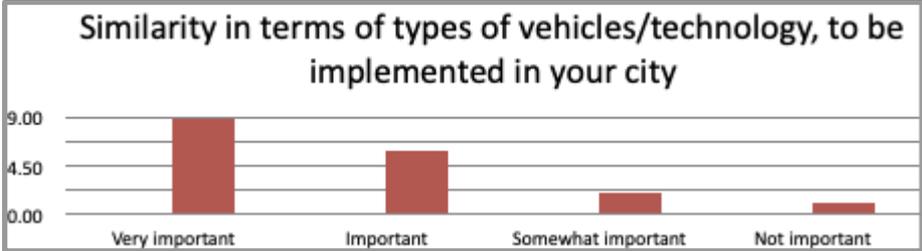
39% of respondents indicated that it is important to have similar levels of economic welfare (indirectly affecting ticketing prices, possibility of upgrades of vehicles by private operators) while 39% indicated that it is somewhat important. As a collective the respondents indicated that it is important to have

similar levels of economic welfare (indirectly affecting ticketing prices, possibility of upgrades of vehicles by private operators).



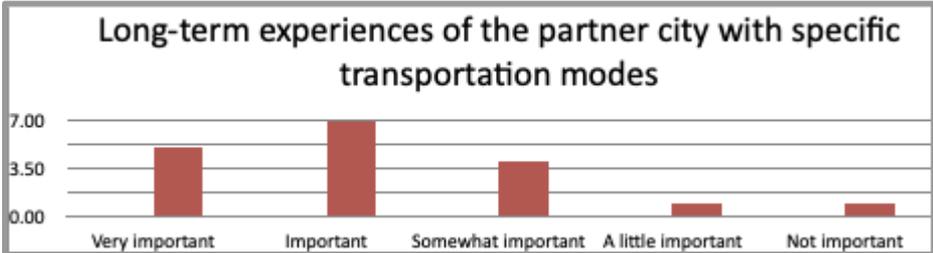
**Similarity in terms of types of vehicles/technology, to be implemented in their city**

50% of respondents indicated that it is very important to have similarity in terms of types of vehicles/technology, to be implemented in their city while 33% indicated that it is important. As a collective the respondents indicated that it is important to have similarity in terms of types of vehicles/technology, to be implemented in their city.



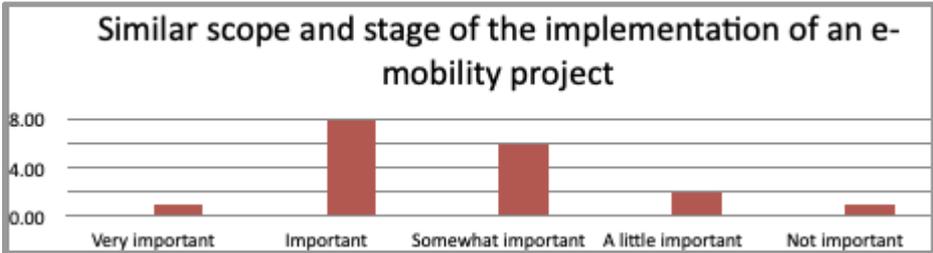
**Long-term experiences of the partner city with specific transportation modes**

39% of respondents indicated that it is important to have long-term experiences of the partner city with specific transportation modes while 28% indicated that it is very important. As a collective the respondents indicated that it is important to have long-term experiences of the partner city with specific transportation modes.



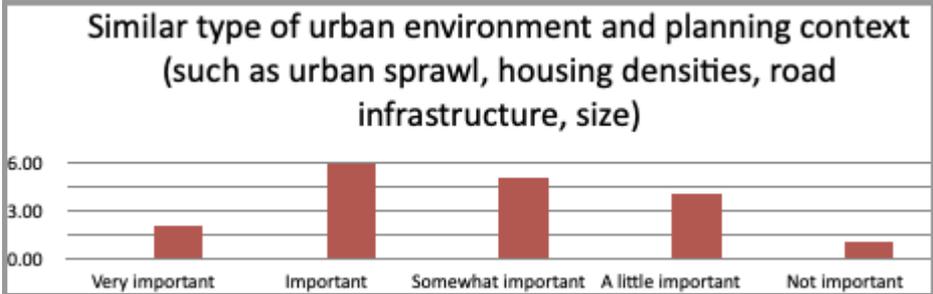
**Similar scope and stage of the implementation of an e-mobility project**

44% of respondents indicated that it is important to have similar scope and stage of the implementation of an e-mobility project while 33% indicated that it is somewhat important. As a collective the respondents indicated that it is somewhat important to have similar scope and stage of the implementation of an e-mobility project.



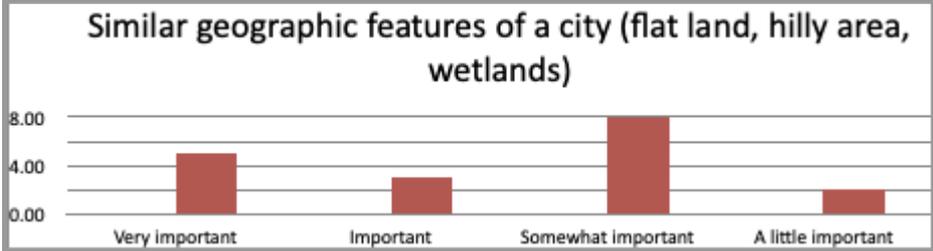
**Similar type of urban environment and planning context (such as urban sprawl, housing densities, road infrastructure, size)**

33% of respondents indicated that it is important to have a similar type of urban environment and planning context (such as urban sprawl, housing densities, road infrastructure, size) while 28% indicated that it is somewhat important. As a collective the respondents indicated that it is somewhat important to have a similar type of urban environment and planning context (such as urban sprawl, housing densities, road infrastructure, size).



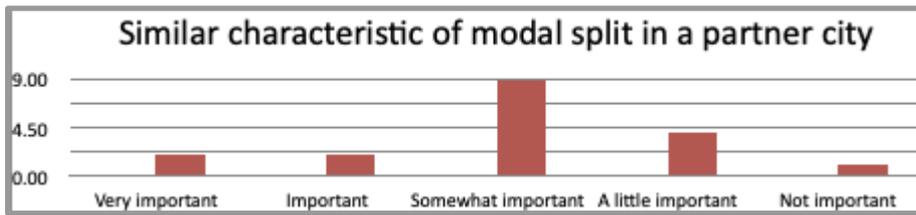
**Similar geographic features of a city (flat land, hilly area, wetlands)**

44% of respondents indicated that it is somewhat important to have similar geographic features of a city (flat land, hilly area, wetlands) while 28% indicated that it is very important. As a collective the respondents indicated that it is important to have similar geographic features of a city (flat land, hilly area, wetlands).



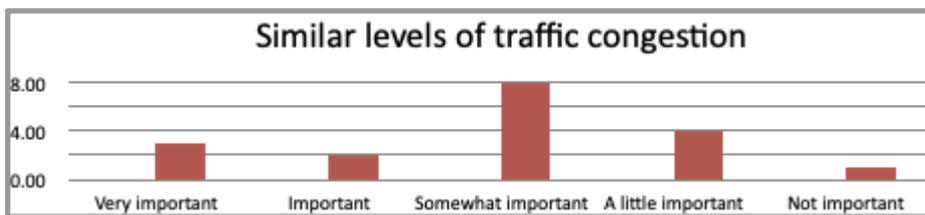
**Similar characteristic of modal split in a partner city**

50% of respondents indicated that it is somewhat important to have similar characteristics of modal split in a partner city while 22% indicated that it is a little important. As a collective the respondents indicated that it is somewhat important to have similar characteristics of modal split in a partner city.



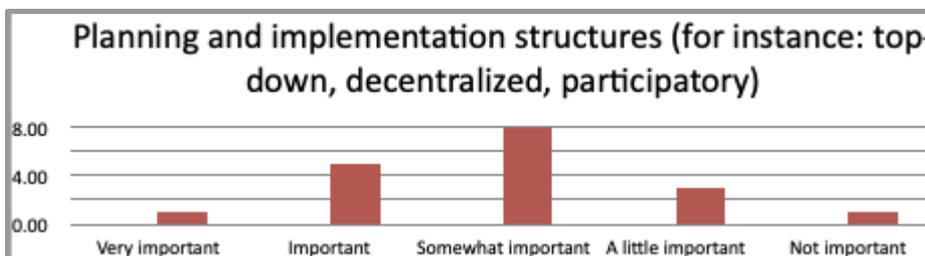
**Similar levels of traffic congestion**

44% of respondents indicated that it is somewhat important to have similar levels of traffic congestion while 22% indicated that it is a little important. As a collective the respondents indicated that it is somewhat important to have similar levels of traffic congestion.



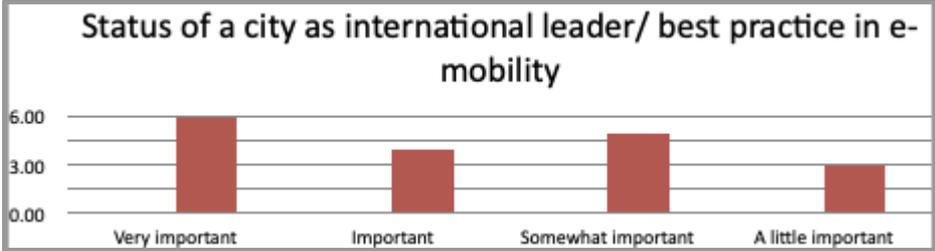
**Planning and implementation structures (for instance: top-down, decentralized, participatory)**

44% of respondents indicated that it is somewhat important to have planning and implementation structures (for instance: top-down, decentralized, participatory) while 28% indicated that it is important. As a collective the respondents indicated that it is somewhat important to have planning and implementation structures (for instance: top-down, decentralized, participatory).



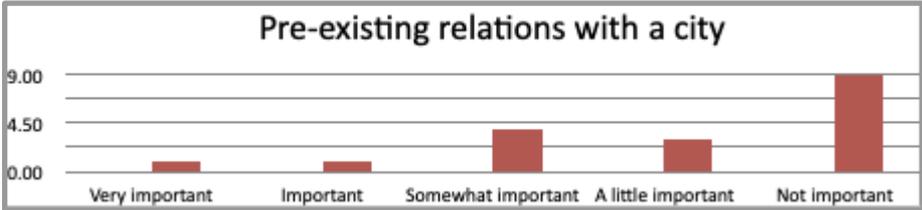
**Status of a city as international leader/ best practice in e-mobility**

33% of respondents indicated that it is very important to have the status of a city as international leader/ best practice in e-mobility while 28% indicated that it is somewhat important. As a collective the respondents indicated that it is important to have the status of a city as international leader/ best practice in e-mobility.



**Pre-existing relations with a city**

50% of respondents indicated that it is not important to have pre-existing relations with a city while 22% indicated that it is somewhat important. As a collective the respondents indicated that it is a little important to have pre-existing relations with a city.



**Convenience in terms of adapting existing solutions into your context (availability of documentation, external facilitation of the process etc.)**

39% of respondents indicated that it is somewhat important to have convenience in terms of adapting existing solutions into your context (availability of documentation, external facilitation of the process etc.) while 33% indicated that it is important. As a collective the respondents indicated that it is somewhat important to have convenience in terms of adapting existing solutions into your context (availability of documentation, external facilitation of the process etc.).

