



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 875041

# SOLUTIONSplus

## D3.9 Start-up Summary

December 2021

SOLUTIONSPlus Project 875041 – Start-up Summary

Document Identification			
Status	Final	Due Date	31/12/2021
Version	1.2	Submission Date	31/12/2021

Deliverable number	D3.9
Deliverable name	Start-up Summary
Work Package number	WP3
Delivery due date	Project month 24 (December 2021)
Actual date of submission	31/12/2021
Dissemination level	PUBLIC
Lead beneficiary	ERTICO
Beneficiaries	FIER, UEMI
Responsible scientist/administrator	Lidia Buenavida Peña and Carmela Canonico (ERTICO ITS Europe)
Estimated effort (person-month)	14
Internal reviewers	Frank Daems and Vladimir Vorotovic (ERTICO ITS Europe); Oliver Lah (URBAN ELECTRIC MOBILITY INITIATIVE); Edwin Bestebreurtje (FIER)

This document is issued within the frame and for the purpose of the SOLUTIONSPlus project. This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No. 875041.

This document reflects only the author's view and the Agency is not responsible for any use that may be made of the information it contains.

This document and its content are the property of the SOLUTIONSPlus Consortium. The content of all or parts of this document can be used and distributed provided that the SOLUTIONSPlus project and the document are properly referenced.

Each SOLUTIONSPlus Partner may use this document in conformity with the SOLUTIONSPlus Consortium Grant Agreement provisions.

(\*) Dissemination level: **PU**: Public, fully open, e.g. web; **CO**: Confidential, restricted under conditions set out in Model Grant Agreement; **CI**: Classified, **Int** = Internal Working Document, information as referred to in Commission Decision 2001/844/EC.

## **Dissemination and uptake**

The be used by all SOLUTIONSPlus project team members

D3.9 is a public deliverable and will be made available to the wider audience

## **Short summary**

The document includes an in-depth description of the SOLUTIONSPlus project's Incubator program, the concept of the program and the process. It also includes a short description of the start-ups that participate in the incubator program, the results of the assessment done to the survey conducted with the start-ups and some recommendations for them.

## **Evidence of accomplishment**

Report

## Abbreviations

BMC	Business Model Canvas
D	Deliverable
EU	European Union
EUR	Euro
IPR	Intellectual property rights
M	Month
SMEs	Small and Medium Enterprises
SWOT	Strengths, Weaknesses, Opportunities, Threats
T	Task
UITP	Union Internationale des Transports Publics (International Association of Public Transport)
UNEP	United Nations Environment Programme
UN-Habitat	United Nations Human Settlements Programme
WP	Work Package

# Table of Contents

- Abbreviations ..... 4**
- Table of Contents ..... 5**
- List of figures ..... 6**
- 1. Executive Summary ..... 7**
- 2. Incubator Concept ..... 10**
  - 2.1 Motivations for a start-up incubator within SOLUTIONSPlus ..... 10
  - 2.2 Relation within the SOLUTIONSPlus project and overall task timeline ..... 12
  - 2.3 Addressed the start-up community ..... 12
  - 2.4 Addressing the needs of the cities ..... 13
- 3. Incubator Process ..... 13**
  - 3.1. Overall process ..... 13
  - 3.2. CONNECT ..... 14
  - 3.3. INNOVATE..... 16
  - 3.4. GROW ..... 17
- 4. Task management..... 19**
  - 4.1. Task structure and responsibilities ..... 19
  - 4.2. Action list..... 19
- 5. Start-up training (Innovation management course Start-up Incubator) ..... 19**
  - 5.1 The introduction ..... 19
  - 5.2 Focussed domains..... 20
- 6. The Start-ups (& brochure) ..... 20**
- 7. Start-ups surveys..... 22**
  - 7.1 Overview of the Survey and results..... 22
  - 7.2 Recommendations ..... 24
- Annex 1: Assessment tool ..... 27**
- Annex 2 Services details ..... 29**
- Annex 3 Brochure..... 36**
- Annex 4 The questionnaire..... 54**

**List of figures**

**Figure 1** Timeline and relation to Work Packages and Tasks in SOLUTIONSPlus..... 12

**Figure 2** SOLUTIONSPlus Incubator concept..... 13

**Figure 3** How innovators 'connect' the SOLUTIONSPlus partners offer and the cities demand  
..... 15

**Figure 4** Incubator services grouped in centres..... 16

**Figure 5** Activities the start-ups expect to receive support in (from SOLUTIONSPlus  
incubator) ..... 24

## SOLUTIONSPlus Overview

This document is developed as part of the SOLUTIONSPlus project, which has received funding from the European Union's Horizon 2020, under the Grant Agreement number 87041.

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 organizations will help boosting 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 that meet the needs users and local conditions in Europe, Asia, Africa and Latin America. The project will implement e-mobility solutions for the first and last mile (electric two and three-wheelers), electric buses and minibuses, innovative charging solutions and multimodal journey planners in the partner cities.

### 1. Executive Summary

The following document presents the SOLUTIONSPlus project's Incubator program, the founding pillars, the process, the services offered and the training planned for next year. It also provides a description of the start-ups that participate in the program. In addition, the results of the survey conducted with the start-ups and an assessment of those results can be found. Finally, it also includes some recommendations based on the results of the survey.

The Incubator program offers seed funding and guidance to 13 start-ups that participate in nine demonstrations happening in different cities in Africa, Asia and Latin America. The pillars of the program are CONNECT, INNOVATE and GROW. CONNECT focuses on "fit-for-use", connecting SMEs and start-ups with relevant stakeholders to make sure strategic partnership and cooperation can be set in place, and identifies the supporting incubator actions to assure on-time and quality deliveries. INNOVATE focuses on key services offered by the incubator, such as building competence, expertise and knowledge optimisation, improving business intelligence, focussed marketing, and dissemination. The third pillar, GROW focuses on business development and scaling-up (both geographical and in terms of portfolio). All the start-ups will benefit from the services provided under the three pillars.

Another relevant part of the incubator programme is the training offered to the start-ups. The training will be divided into two parts: Introduction and Focused Domains. The first one aims to give a general introduction on the concept of innovation and its management, the adoption of innovations, the management of innovation and to give insights on intellectual property rights. The second training will focus on technology innovation, product creation and market access.

Once the incubator program has been defined, a short description of the 13 participants of the incubator program can be found. This deliverable also includes the brochure with additional information about the start-ups created for the SOLUTIONSPlus project.

Next, some results for the survey conducted with the start-ups, as part of the assessment process included in the incubator program, can be found along with some recommendations. To protect the data provided by the Start-ups (the data collected refers to their business strategies, technological innovations... which is confidential), as the present document will be made public, the results of the survey and the recommendations will be general and aggregated.

The survey was divided in 5 sections: 'Focus of the company', 'The product or service innovation', 'Technology Innovation', 'Market innovation' and 'Expectations from the SOLUTIONSPlus incubator'.

On the first section of the questionnaire, focus of the company, almost all of the start-ups focus is on bringing products and services to the market. In contrast, less than half of the start-ups have their focus on technology innovation and market (sales).

The second section, product or service innovation, shows that most of the start-ups that participate in the SOLUTIONSPlus Incubator program have developed their product/service to the prototype stage (they have already developed the idea). In addition, four start-ups have deployed their products/services. Two innovators have not yet developed the prototype for their product/service.

For the technology innovation section, due to the confidential nature of the information collected (technical requirements and description of the technological innovation developed), not much information can be disclosed publicly.

The next section, market innovation, the start-ups used various methods to gather the customers' feedback and requests, the common ones are the survey, the interview and the focus group. In some cases, where an application is involved, the data is collected through their App. Another point assessed in this section is the actions taken by the innovators to fit the market. The start-ups that have developed their idea but not created a prototype, and who collected data from potential customers through surveys, are taking correcting/rectifying actions to improve the idea. This is also the case with the start-ups that have developed a prototype, in addition they have also done a market research. The start-ups in the deployment stage have also done a market research and have been studying the demand in order to adjust their products/services to it.

Lastly, the expectations from the SOLUTIONSPlus incubator section shows that half of the start-ups are expecting to receive support in *facilitation in the access of product components and financing*.

The final part of the deliverables is dedicated to the recommendations for the start-ups. As mentioned before, the data collected from the Start-ups is quite sensitive, therefore only general and aggregated recommendations were made. More specific recommendations and advice will be shared with each of the start-ups individually.

After assessing the results from the survey, overall, the start-ups are strong in the basics, the idea/concept creation of the product, the customer intimacy and the knowledge of their own

weaknesses and strengths. However, in most cases, there is not yet a clear vision of the next business steps (scale-up). Also, there is a need of improvement in gathering the customers' opinions and inputs and how to incorporate them to the product/service development and deployment. In addition, there is a lack of the right operational processes, a lack of testing and a lack of product release policy. Therefore, the support that will be provided will focus on scaling-up (this is one of the SOLUTIONSPlus incubator program pillar, GROW), emphasizing the collection of inputs from the market (especially of customers) and the incorporation of those inputs, and lastly, strengthening the operational process and product policy.

## 2. Incubator Concept

The SOLUTIONSPlus start-up incubator offers a unique opportunity for collaboration with start-ups, SMEs and industry partners to co-develop e-mobility solutions that can generate economic opportunities across different regions, Africa, Asia and Latin America, and, of course, Europe. More concretely, the SOLUTIONSPlus Start-up incubator provides seed funding and guidance to 13 start-ups that participate (originally 15 start-ups, however, due to impact of the pandemic, and the volatile nature of start-ups, two of the start-ups had to cease their operations, therefore, they are no longer in the project) in nine demonstrations happening in different cities in Africa, Asia and Latin America.

### 2.1 Motivations for a start-up incubator within SOLUTIONSPlus

This sub-section will explain the motivations behind the Start-up incubator within SOLUTIONSPlus.

#### 2.1.1 *Facilitate the engagement of Start-up organizations*

The aim is to engage and support start-ups to contribute to innovative business models and plans developed in Task 3.3. This task will focus on the participating cities and will be linked closely with the replication Task 4.3 for innovation replication in the regions. Dedicated innovation challenges will be supported by this task and seed-funding is provided. Start-ups / SMEs selected in the calls are to be involved in the local demonstrations (WP4), from which business plans are to then to be assessed in light of upscaling (WP5) and exploitation (WP6). In addition, WP2 shall deliver capacity building for start-ups in terms of business modelling & planning, and incubation in local partnerships.

#### 2.1.2 *Provide Seed Funding opportunities for Start-ups*

The International Association of Public Transport, UITP, will support up to five European Start-ups (5 grants 50,000 EUR each) which can contribute to the demonstration actions.

The United Nations Environment Programme (UNEP) and The United Nations Human Settlements Programme (UN-Habitat) will support local companies and transport providers based in the SOLUTIONSPlus partner cities (up to 9 sub-contracts in total, one for each of the Start-ups based in the 9 demonstrator cities of the project, 50,000 EUR each) which contribute to the demonstration actions.

#### 2.1.3 *Involve Project partners*

For each of these innovation seed funding actions, concrete objectives and deliverables are identified by the partners from the consortium.

Opportunities for project partners are for example to act as customers for the services and the products of identified start-ups and SME's, or to act as (co-)investors in these start-ups/SME's. Such opportunities are in a first instance targeted to project demonstrations and, in a second instance, extended beyond the project.

#### *2.1.4 Start-ups get improved business plans*

Scaling-up and replicating business models will be pursued in connection to WP5 of the SOLUTIONSPlus project and in view of increasing their potential revenue basis after the end of the project. Revised business plans will be elaborated in the frame of Task 3.3 (as follow-up of WP4 demo activities) for potential scale-up and investment opportunities or/and to offer their upgraded products and services to the partner community, acting as potential customers (in connection to SOLUTIONSPlus WP5 and WP6).

#### *2.1.5 Ensure visibility and dissemination of Start-up and SME products and services and business opportunities*

The results achieved by start-ups' activities will be included in the catalogue developed in Task 3.1 of the project and will be subject to a focused marketing communication in WP6 to increase the Start-up visibility e.g. at relevant events. The dissemination activities ensure the facilitation of the cooperation between the Start-ups' innovations with e-mobility providers by leveraging on industry and innovation networks. The following partners will support the respective exchanges:

- European Road Transport Research Advisory Council, ERTRAC (Valeo, DLR);
- European Green Vehicles Initiative, EGVI (Volvo);
- The European Council for Automotive R&D, UCAR (CRF);
- Intelligent Transport Systems, ITS (ERTICO);
- World Business Council for Sustainable Development, WBCSD (ABB);
- European Automotive Research Partners, EARPA (IDIADA, V2C2);

The objective of this action is to initiate partnerships that sustain the tested innovations beyond the project's lifetime.

#### *2.1.6 Enabling testing and validation for the Start-up offerings*

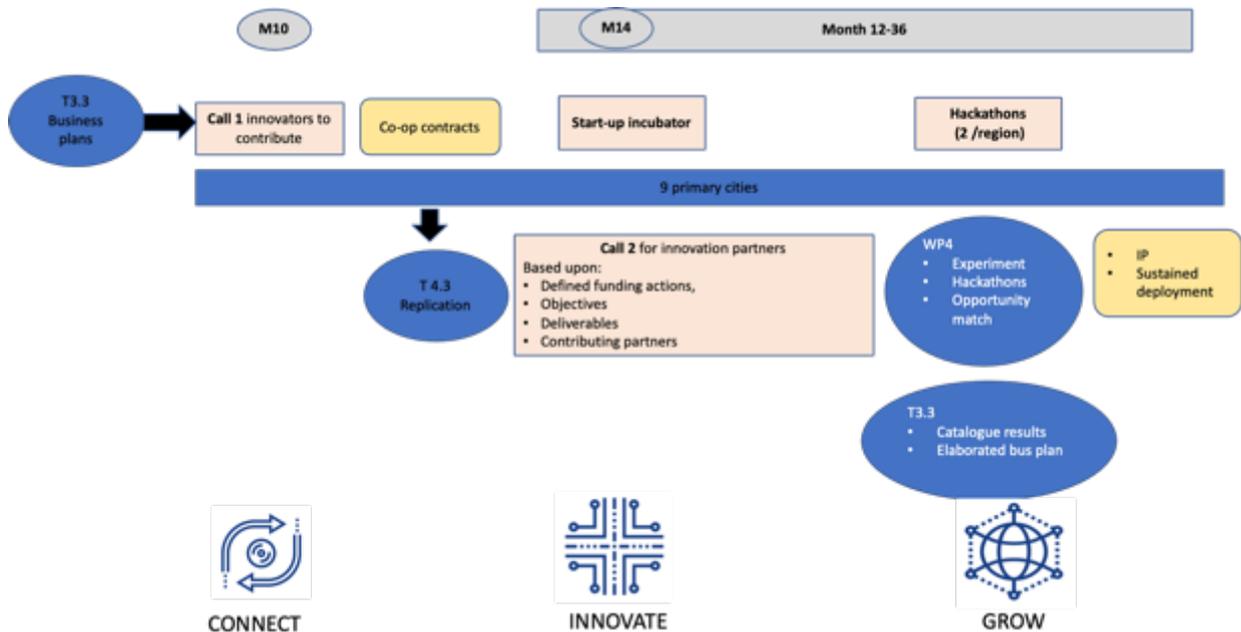
The support for local innovators goes well beyond the seed funding, it will also include:

- 1) Local start-ups are supported to experiment with the SOLUTIONSPlus business plans.
- 2) Local hackathons and start-up events (2 in each region together with SOLUTIONSPlus WP4) will be organized to strengthen the partnership between local companies with European innovators and industry partners.

A team of consortium partners from regional and thematic focus areas provides pro-active support to the local start-up communities. The results of this activity will be documented in short summary reports, leveraging the IPR of the start-up within the project.

## 2.2 Relation within the SOLUTIONSPlus project and overall task timeline

The following picture shows the overall timeline and relation to the other Work Packages and Tasks in SOLUTIONSPlus.



*Figure 1 Timeline and relation to Work Packages and Tasks in SOLUTIONSPlus*

The whole process is guided along the ERTICO’s ‘CONNECT-INNOVATE-GROW’ incubator program.

- **CONNECT:** focuses on “fit-for-use”, connecting SMEs and start-ups with relevant stakeholders to make sure strategic partnership and cooperation can be set in place, and identifies the supporting incubator actions to assure on-time and quality deliveries;
- **INNOVATE:** focuses on key services offered by the incubator. Such as building competence, expertise and knowledge optimisation, improving business intelligence, focussed marketing, and dissemination;
- **GROW:** focuses on business development and scaling up (both geographical and in terms of portfolio).

This Connect-Innovate and Grow process will be further explained in the following sections.

### 2.3 Addressed the start-up community

To address the Start-up community, two calls have been tackled.

#### 2.3.1 Call 1: Addressing the start-up communities of the primary 9 demonstration cities

Call 1 involves 2 calls, planned to attract innovators. The first one at M5 initiated by UN-Habitat addressed local innovators in the various continents, related to the 9 leading demonstration cities of the project. Various proposals were obtained and a selection procedure revealed a list of ‘winners’ that were granted each 50K EUR funding.

And the second call to European innovators is planned to be launched at M10 by UITP. The selection process will reveal five additional winners and each will be granted 50K EUR.

### 2.3.2 Call 2: Addressing Other cities' stakeholders for replication actions

This relates to SOLUTIONSPlus WP4 action for replication, addressing the businesses, local authorities and public transport providers in other cities, with the aim to replicate the business models and demonstration actions developed by the SOLUTIONSPlus project.

### 2.4 Addressing the needs of the cities

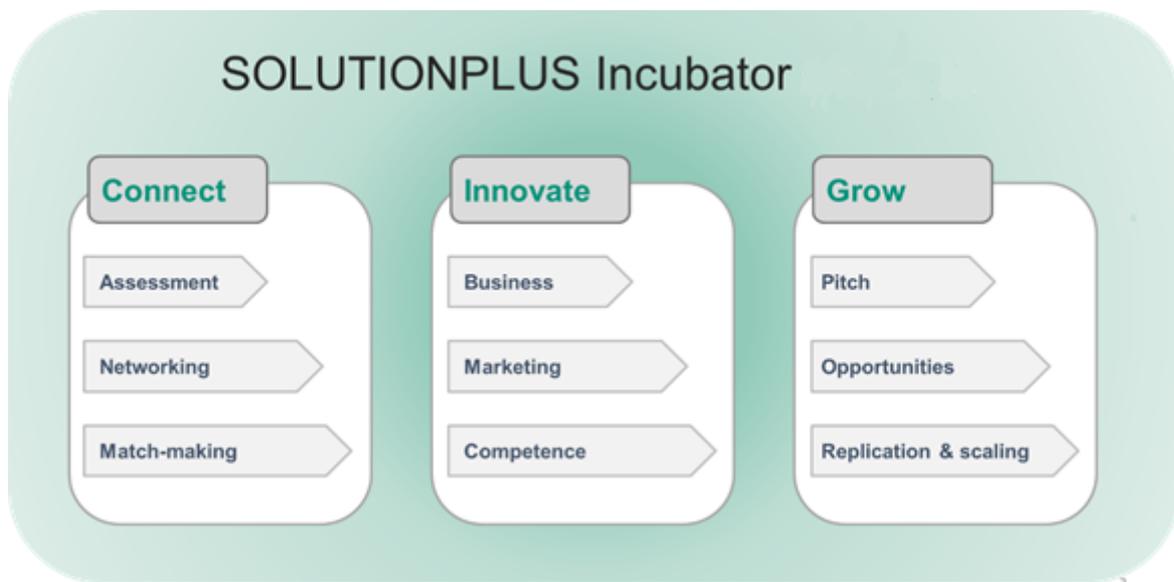
The deliverable D4.1 describes the 9 demonstration and implementation plans of each of the cities (Hamburg, Quito, Pasig, Montevideo, Madrid, Kigali, Kathmandu, Dar es Salaam and Hanoi). The envisioned SMEs and innovators will integrate with the SOLUTIONSPlus partners to realize these plans in a co-creation mode, focused to build up relationships that guarantee after project continuation.

Along with D4.1, each city will develop initial business plans, along with the business plans from an input to identify the gap between the needs and the offerings. It is the role of the innovators and SME's to help closing these gaps.

## 3. Incubator Process

On this section, the Incubator process will be explained.

### 3.1. Overall process



*Figure 2 SOLUTIONSPlus Incubator concept*

The process is following the existing ERTICO's Connect-Innovate and Grow process, identified in ERTICO's start-up and scale-up program <sup>1</sup>.

CONNECT, INNOVATE and GROW parts of the incubator consist each out of a set of activities and services in line with the general lifetime and planning of the project. (WP2-> WP3 -> WP4 -> WP5 -> WP6).

<sup>1</sup> <http://ertico.com/startups/>

The **CONNECT** part addresses the ‘fit for use’ of the SME’s to be able to integrate in the partnership and co-create the cities solutions and identifies the supporting incubator actions to assure in time and quality deliveries. After the selection of winners an in depth assessment of the SME’s will be performed to fully understand their potential for integration into the SOLUTIONSPlus demonstrators and the partnership. This assessment results in an understanding of how European and local innovators can co-operate and how these innovators can form sustainable relations with the cities (9 leading and later the followers) Out of this assessment, gaps are identified that these SME’s face and an identification of the necessary incubator services to guide them and to overcome the gaps is listed. As an input, the cities’ plans for demonstrators (D4.1) and their business plans (T3.3) are taken, to identify the demand; partners and SME’s should then together fulfil with their combined offering.

The **INNOVATE** part is all about deploying these incubator services: These are also identified in our ERTICO start up activity: They are grouped along three themes:

- Competence, expertise and knowledge optimization,
- Improving the Business intelligence,
- Focused Marketing and dissemination (The document mentions for each detailed related services).

These services are deployed, on a need’s basis, by the contributing project partner’s expertise, within the time frame and project budget possibilities.

The **GROW** part is all about business development and scaling. Scaling can be in geographical reach- addressing other cities (WP4) and also in product diversity. Business development services are supporting services to allow them to sell e.g. like pitching guidance, Account management, Competitive pricing analysis guide, Product placements, etc.

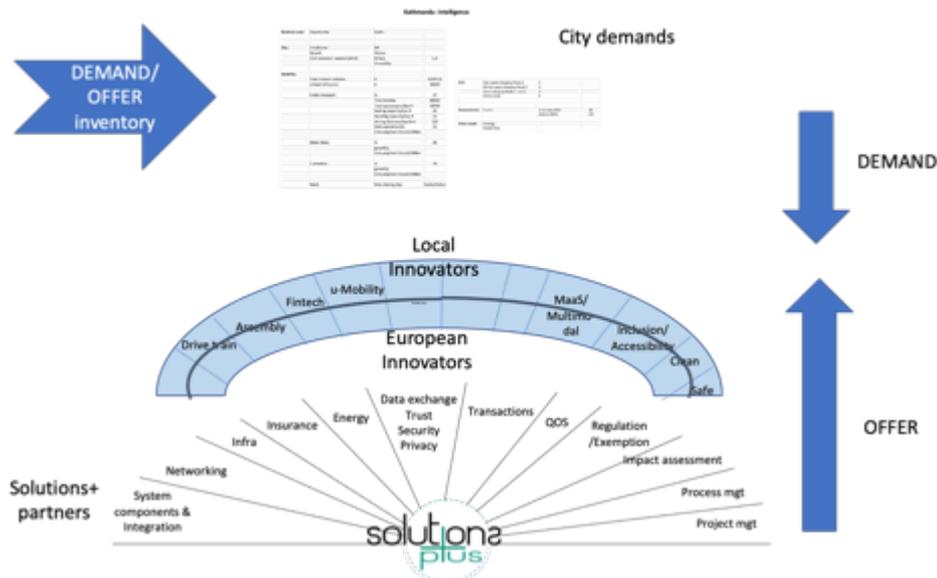
The three pillars are described more explicitly below.

### 3.2. CONNECT



The connect incubator part is the first phase of the incubator program. It aims at getting to know the innovator more in detail and see how they fit in the project partnership and project goals.

The following picture shows how innovators ‘connect’ both the SOLUTIONSPlus partners’ offerings and the demands from the cities. Local innovators directly complement the offerings, while European innovators are complementing the gaps that still might occur. These gaps can be in product and service offerings, knowledge, IPR, expertise, etc.



*Figure 3 How innovators 'connect' the SOLUTIONSPlus partners offer and the cities demand*

As the SOLUTIONSPlus project calls have already been raised to reach out to the start-up / SME communities (both for the local non-European and European innovators, and initial evaluations and grants have been assigned (for the local innovators), the text below will focus to the further processes that can be part of this 'Connect activity' phase, valid for the winners.

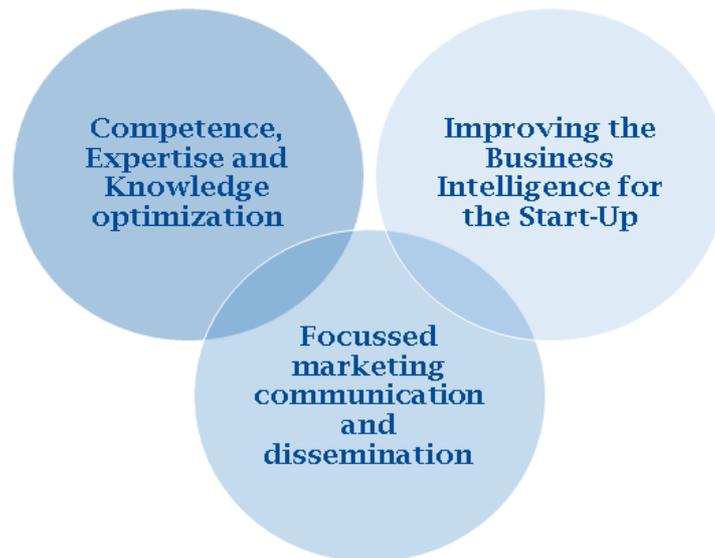
- **Preliminary company assessment:** the evaluators will hold an interview with each start-up (1.5h) that will lead to the (SWOT) service, identification of gaps and suggested service plan.
- First concept **business model canvas** based on preliminary company assessment. Explanation BMC and hand over to the start-up to start working with it.
- **Match-making** with EU companies. After the preliminary assessment and in coordination with the Business Model Canvas, the incubator will match the local innovators with EU companies.
- **Organisation of events:** two local hackathons/start-up events will be organised in each region. The timeline will be discussed with the city referent on the 24/02
- **Peer-to-peer exchange:** facilitation of regular exchange amongst working groups. This will follow two parallel approaches: (i) monthly general calls and (ii) on a need basis. A discussion will be fostered with the local partners to decide how to exchange remotely.
  - Creation of email groups for similar solutions (i.e. vehicles)

Other groups can be established based on technology and other interests after the BMC assessment.

### 3.3. INNOVATE



This is the phase where the incubator services are active. The exact individualized and focused program to each of the selected Start-ups is determined by the in-depth assessment. It can consist of a selection of the following incubator services:



*Figure 4 Incubator services grouped in centres*

The picture above shows the several incubator services, grouped in centres, that are available to the SME and Start-up organizations, grouped in three programs. For each of the identified incubator services, a target improvement plan is defined in terms of measurable intermediary and final results.

- **Competence development:** the incubator will coordinate and integrate the trainings task 2.5. The incubator will include in its portfolio the courses from WP2, integrating also with very specific topics directed to start-ups. Currently, the following trainings/services are foreseen:
  - Integrated planning for electric mobility (WP2)
  - Introduction into e-mobility: e-vehicles, e-mobility operation and integration (WP2)
  - Electrification in public transport (WP2)
  - E-mobility in city logistics and freight (WP2)
  - Global overview of e-mobility solutions (WP2)
  - Charging approaches (WP2)
  - The social dimension of e-mobility (WP2)
  - Innovation management (training)
  - Benchmarking (training)

- value proposal creation support (service)
- **Business models:** training on different business model approaches and business plan creation support. Draft of the Business model canvas in cooperation with the start-ups. Currently, the following trainings/services are foreseen:
  - Business Model Canvas (follow-up of the preliminary company assessment - service) (lead FIER, ERTICO, city)
  - Cooperative business models and partnerships (WP2)
  - Business plan creation
- **Business finance:** support services for identified funding possibilities, private investors' public funding opportunities. Currently, the following trainings/services are foreseen:
  - Scale-up and finance (WP2)
  - Public funding (EU or local, to be confirmed if feasible)
- **Marketing:** marketing support training, dedicated marketing communication support. Currently, the following trainings are foreseen:
  - The basics of marketing
  - Marketing applied to innovators

### 3.3.1 Local hackathons and start-up events

Two hackathons are planned in each region to be organised in close cooperation with WP4. The aim of such events is to strengthen the partnership between local companies with European innovators and industry partners. A team of consortium partners from regional and thematic focus areas will provide pro-active support to the local start-up communities. The results of this activity will be documented in short summary reports, leveraging the IPR of the start-up within the project.

## 3.4. GROW



During the Grow phase, the following activities are to be expected:

- **Pitching:** training on how to effectively communicate the start-up's value in less than five-minute presentation.
- **Start-up catalogue:** start-up solutions will be included in the SOLUTIONSPlus e-mobility catalogue to be used for dissemination and marketing.
- **Replication:** support to SOLUTIONSPlus innovation replication in different cities.
- **Scaling up:** project partners can act as customer or co-founders in the first run, followed by external stakeholders
  - Organisation of dedicated networking meetings with potential investors
  - Scale-up contest

A second call will be part of the replication “scaling” actions in WP4 and will be open for ‘target organisations’ such as businesses, local authorities and public transport providers in other cities, who aim to replicate the business models and demonstration actions developed by the project.

#### *3.4.1 Scaling actions*

The scaling actions are mentioned below as a reference to WP4, so out of the immediate scope of the incubator. However, the results and inputs of the incubator will be used as an input to those activities.

#### **Updated business plans**

Scaling up and replicating business models, resulting from the call 2 shaped opportunities will be pursued in connection to Task 4.3 and in view of increasing their potential revenue basis after the end of the project.

Renewed business plans will be elaborated (as follow-up of Task 3.3) for potential scale-up and investment opportunity or/and to offer their upgraded products and services to the partner community, acting as potential customers (in connection to WP 4 and 5).

#### **Catalogue of solutions**

The results achieved by start-ups’ activities will be included in the catalogue developed in Task 3.1 and will be subject to focused marketing communication in WP6 to increase their visibility e.g. at relevant events.

#### *3.4.2 IP and sustained development*

A clear Intellectual Property repository and a sustained development plans result for each selected Start-up/SME.

A complete list of the services offered in each of the Incubator pillars CONNECT, INNOVATE and GROW can be found in the Annex 2.

## 4. Task management

This chapter describes an initial proposal on how the incubator can operate. The tasks involve key partners from relevant WPs / Tasks, which will expand the incubator concept. The incubator involves several SOLUTIONSPlus actors across different project phases and cities (initial selection & assessment, capacity building, implementation, exploitation & upscale).

### 4.1. Task structure and responsibilities

The task and responsibilities are structured in a manner that there is at least one person responsible for each of the partner cities to daily be in contact with the progress and implementations on that city.

That person is supported by the appointed competence holders that executes the supportive incubator services, according to the plans for each SME/start-up.

Each pilot site has a dedicated person (task leader/coordinator) for competence, business marketing and communication looking after the local and European innovators plans.

### 4.2. Action list

The action list is maintained by the task leader with all the inputs from all task contributors, updated during regular (Biweekly) task meetings. The first action was to organize a kick-off meeting at the beginning of January 2021 to align on the incubator concept and to agree on responsibilities. The action list will be on a collaborative environment

## 5. Start-up training (Innovation management course Start-up Incubator)

As previously mentioned, part of the project SOLUTIONSPlus Incubator process is planning the creation of an 'Innovation Management' course for start-up.

This course will be divided into two parts: Introduction (8 hours) and Focused Domains (7,5 hours).

### 5.1 The introduction

The introduction part is composed of four modules:

- **Module I** will give a general introduction on the concept of innovation and its management. Topics such as what is innovation management, incremental and disruptive innovation, product, service and process innovation and idea management will be addressed.
- **Module II** will go into the adoption of innovations (innovation diffusion theory). Here the participants will learn about adopters, communication channels, time management, social systems, and the general marketing of innovation.

- **Module III** will tackle triggers and the management of innovation. This will include going into capabilities (creativity), culture and structures (including gender), growth management (expansion and contraction), enabling and building efficient government relations, innovation strategy and portfolio management, and financing of innovation.
- **Module IV** will give insights on intellectual property rights including patent, copyright, trademark, trade secret and steps to protect one's IP.

Once the participants of the course are familiar with these introductory topics and have a good understanding of them, the trainings will move onto three focus domains, which will also be divided up into modules.

## 5.2 Focussed domains

Each module will include a case presentation, an exercise portion followed by feedback and finally an evaluation in order to test what was learned.

- **Module I – Technology Innovation**, will go into technology ideas, requirements, concepts, functions/features, competition and roadmaps.
- **Module II – Product Creation** will allow participants to learn about product idea, product forms, design/ combination of products, product profiling, functions/features and realisation/manufacturing/logistics.
- **Module III – Market Access**, will be the last module of this training. The participants will learn about one of the last steps when it comes to introducing innovations to the world. To do so properly, participants will learn about marketing an idea, enabling markets, customer benefits, usage & context, sending a message to the customer, product testing, selling prices and considering time windows.

## 6. The Start-ups (& brochure)

On this section, a brief description of the participating start-ups is presented. More information on the start-ups can be found in the brochure. The paper, that displays a short description and achievements of the 13 Start-ups that participate, has been prepared for the project SOLUTIONSPlus. The brochure can be found in Annex 3.

For anyone interested to know more about the start-ups, contact the ERTICO editors of the document (Vladimir Vorotovic: [v.vorotovic@mail.ertico.com](mailto:v.vorotovic@mail.ertico.com), and Lidia Buena vida: [l.buena vidapena@mail.ertico.com](mailto:l.buena vidapena@mail.ertico.com),) and you will be linked to the specific start-up.

### Ampersand (Kigali,Rwanda)

Ampersand builds affordable electric motorcycles (e-motos) and charging systems to help Rwanda and Africa leapfrog towards a zero-carbon future. Ampersand offers local motorcycle taxis drivers a cost-convenient, more profitable, and cleaner alternative to petrol motorcycles.

### GUARIDE (Kigali, Rwanda)

A green E-mobility public bike-share (PBS) transport system company. GURARIDE is committed to the sustainability of micro-mobility in Africa.

AUTO-TRUCK (Dar es Salaam, Tanzania)

Mitigate Climate Change through the Adoption of Green Energy Technology by Introduction of Electric 3 wheelers, Mini-cabs for Light Transportation in Major towns and Cities in Dar, Tanzania as well as offering climate action services among other line products.

SESCOM (Dar es Salaam, Tanzania)

Focused on efficient production and use of electricity; is collaborating with other two partner companies from Tanzania, Dar es Salaam Rapid Transit (DART), and JiweKubwa Automobile Company to further develop electric mobility in their country.

QIQ – Elevate Mobility (Hanoi, Vietnam)

Focused on building a green, sustainable, shared transportation system for Vietnam by providing shared micro-mobility across a connected mobile application.

Tojo Motors Corporation (Pasig, Philippines)

Specialises in the production of electric vehicles (three and four-wheelers) that can be used to cover the needs of hotel and resorts, cities municipalities and barangays, real estate developments, or of schools and campuses.

Shree Eco-Visionary (Kathmandu, Nepal)

Its goal is the promotion of electric vehicles that can be fuelled by clean hydropower produced domestically.

Clean Energy International (Kathmandu, Nepal)

Design, develop and deploy an improved and sustainable Safa Tempo (electric vehicle).

Cargo Bike (Montevideo, Uruguay)

Promote cargo bikes as mobility alternative. To tackle the lack of affordable cargo bikes in Montevideo, Cargo Bike aims to develop and produce Long John type cargo bikes for the local market.

Wheele (Montevideo, Uruguay)

Manufacturing of 3 cargo tricycles; the tricycles are made with imported parts and national assembly recycled from cigarette butts. At a second stage, a local plan of adaptations to the box (also made with 100% recycled material) will be developed to accommodate different types of uses.

Green Star (Montevideo, Uruguay) To develop two utility e-tricycles. To reduce the environmental footprint of transport, they will convert their highly successful internal combustion engine tricycle in an e-vehicle.

Sidertech (Quito, Ecuador)

Develop an electric four-wheel vehicle that, thanks to its flexible design, can be deployed for multiple uses.

Plural (Quito, Ecuador)

Together with Bixi Cargo and Tacuri Bicycle, Plural has created “E-Cargo bike”, a strategic alliance that, through knowledge transfer, aims to improve the technical capacity of local actors and existing organisations in the field of urban micro-logistic.

## 7. Start-ups surveys

To create a first assessment, as described previously in the SOLUTIONSPlus incubator process the Start-up survey was created. Through this survey, relevant data on the innovators' products and services, market and technology innovation was collected. It will serve as a starting point to collect inputs for the Business Model Canvas.

To protect the data provided by the start-ups (the data collected refers to their business strategies, technological innovations... which is confidential), because the present document will be made public, the following overview of the survey and the recommendations will be general and aggregated.

### 7.1 Overview of the Survey and results

The questionnaire was divided in 5 sections: 'Focus of the company', 'The product or service innovation', 'Technology Innovation', 'Market innovation' and 'Expectations from the SOLUTIONSPlus incubator'. The questionnaire can be found in Annex 4.

#### 7.1.1 Focus of the company

The start-ups were asked to provide a short description of their focus and current situation. The innovators were given three options to select from: *Technology Innovation, Bringing products and services to the market* and *Market (Sales)*. They could select more than one option.

Almost all the start-ups focus on bringing products and services to the market (12 out of 13). In contrast, less than half of the start-ups have their focus on technology innovation and market (five out of 13 for both options).

#### 7.1.2 The product or service innovation

This section collected information on their product/service: description, competitors, possible market research, logistic. It refers to the product they are developing for the SOLUTIONSPlus project.

One of the most important parts of this section is to understand the status of the product/service of each of the start-ups to provide the best possible support by the project team. For this propose, the innovators were asked at which stage their product/service was and it was divided in 3 stages: Product description, Product execution and Product and market match. The product description refers to the product/service being in the idea stage. The second stage, product execution means the prototype stage and the final one, product and market match refers to deployment of the product/service.

Most of the start-ups that participate in the SOLUTIONSPlus Incubator program have developed their product/service to the prototype stage (11 out of 13). In addition, four start-ups have deployed their products/services. There are two innovators that have not yet developed the prototype for their product/service.

Considering the stage the start-up's services/products are in, and that the support needed varies from stage to stage, the SOLUTIONSPlus incubator program ensures that the services provided adjust accordingly. Furthermore, for those innovators that are still in the first or second stage, support is offered through the incubator and the partner cities of the project to advance to the final stage, deployment. In addition, for the participants whose product/service is in the third stage (deployment) it offers support to scale-up and become operational after the SOLUTIONSPlus project ends.

As an example, a few of the start-ups that are currently in the second and third stage have a common concern relating to the components needed either to build their prototype or to deploy their products. For these cases, specific support to help find the best solution (best chain of supply) is provided by the incubator program.

### *7.1.3 Technology Innovation*

This section collected information on the technology used for the start-ups products/services, its description, and requirements. It refers to the product they are developing for the project.

Due to the confidential nature of the information collected (technical requirements and description of the technological innovation developed) for this section of the survey, not much information can be disclosed publicly. Therefore, any recommendations and support will be given to each of the innovators individually.

### *7.1.4 Market innovation*

This section collected information on the market innovation of the participants' products/services, how they engage with their customers.

As knowing the customer's opinion and addressing it is a relevant part of testing the prototype and deploying it, the innovators were asked how they managed to ask gather the customer feedback and the actions taken with said inputs.

To gather the customers' feedback and requests the methods vary for different reasons (type of product or service, culture, country regulations...), it is the same in the case of the start-ups, the common method to gather feedback is the survey, interview and focus group. In some cases, where an application is involved, the data is collected through their App. There are a few innovators that do not collect feedback, more on this will be presented in the *recommendations* section.

Before analysing the actions taken by the innovators to fit the market, it is relevant to remind that the different products/services offered by the start-ups are in different stages, therefore have different needs and requirements when adjusting them to fit the market. The participants in the first stage (idea), who collected data from potential customers through surveys are taking correcting/rectifying actions to improve the idea. This is the case with the start-ups in the second stage, in addition they have also done a market research. The start-ups in the deployment stage have also done a market research and have been studying the demand in order to adjust their products/services to it.

7.1.5 Expectations from the SOLUTIONSPlus incubator

On this section, the innovators were asked to select an area they expect to receive support in from the SOLUTIONSPlus incubator. The results were as follows.

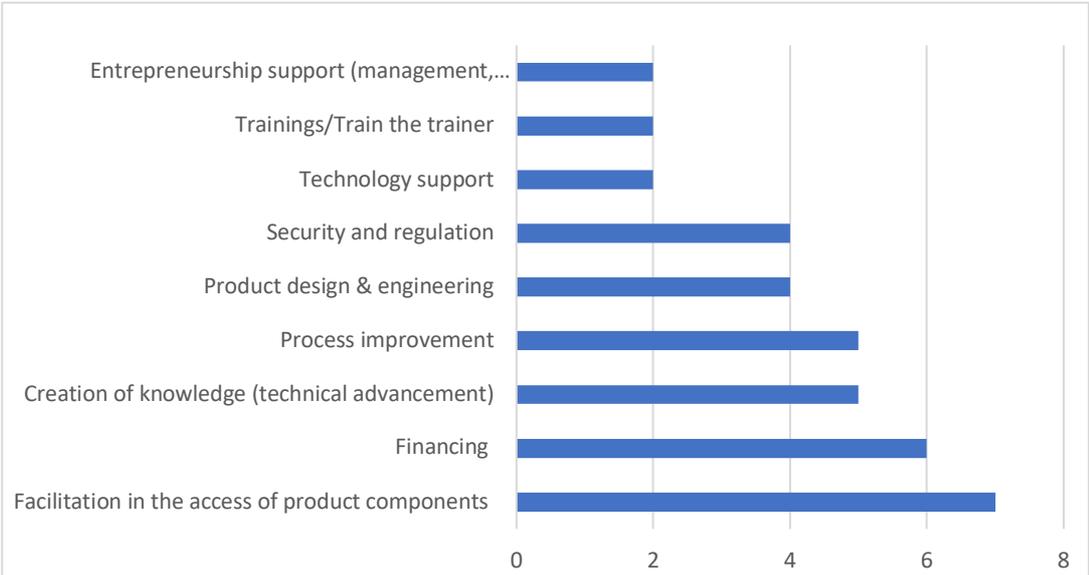


Figure 5 Activities the start-ups expect to receive support in (from SOLUTIONSPlus incubator)

Half of the start-ups are expecting to receive support in *Facilitation in the access of product components* and *Financing* (seven and six innovators out of 13). The innovators were also interested in receiving support in *Creation of knowledge* and *Process improvement* (five out of 13 in both cases).

The inputs received from this question and the survey were considered for preparing the training (section 5, part of the incubator program) planned for next year.

7.2 Recommendations

As mentioned before, the data collected from the start-ups is quite sensitive, therefore only general and aggregated recommendations will be made in the following section. More specific recommendations and advice will be shared with each of the start-ups. Furthermore, a Business Model Canvas analysis based on the data collected has been created for each of the start-ups and will be shared with them in a one-on-one manner.

7.2.1 Strengths

Overall, the main strengths that can be seen after the assessment of the survey from the start-ups that have been selected to participate in the SOLUTIONSPlus Incubator program are the following:

- **Clear concept:** Almost all start-ups in the program, no matter the stage they are in, have a clear concept of their product or service. It could be seen as nothing relevant to have a clear concept, however it is as the concept is the “letter of presentation” of each of the companies, if you are not clear about what you offer, customers will not

understand and will not be interested in a product/service that they do not understand. The same can be said for investors and other relevant stakeholders.

- **Clear target customer**: As relevant as the concept is the customer targeted with the product/service the start-up develops. Overall, the innovators have a clear idea of the customer targeted with their products/services and have a detailed plan to first target locally, thanks to the partner cities of the project, and then regionally.
- **Knowledge of strengths and weaknesses**: Another key strength to have as a company (no matter the size, but especially relevant for a start-up) is to know the strengths and weaknesses they have, for the company and for the product and service. The start-ups have a clear view of what they are strong at and what they need and require, therefore reaching out to the incubator program to get the support needed.

### 7.2.2 Weaknesses

The participants of the program have a few weaknesses that need to be tackled and will be discussed more in detail with each of the start-ups, in this section an overall description will be made.

- **Supply chain**: Some of the start-ups chain of supply is not as strong as it should be. There are some cases where they are looking for new suppliers, as the actual ones are not fit for the product/service they are developing or aiming to develop. In other cases, there is a need to secure a better supply chain for their future development (scale-up).
- **Scaling up**: One of the hardest stages for the start-ups is to transition from deployment, to fully deployed and the expansion in the targeted market. There is not yet a strong plan on how to scale-up the product/services they have developed.
- **Feedback from customers**: Even though there are innovators that collect data from customers (through surveys, interviews, focus groups...), not all do which could create a gap between what the customers want and what the start-up offers.
- **Fit the market**: It is very relevant to study the market and the demand but is also important to take the opportunity the project offers to test their products and services in real life. Only one of the start-ups has pointed out the relevance of participating in a program such as the one offered by the SOLUTIONSPlus incubator.

Overall, the start-ups are strong in the basics: concept, target and knowledge of own weakness and strengths. However, there is not yet a clear vision in most cases of the next steps (scale-up), gathering the customers' opinions and inputs and how to incorporate them to the product/service development and deployment. Therefore, the support that will be provided will focus on scaling up (this is one of the SOLUTIONSPlus incubator program pillar, GROW), emphasizing the collection of inputs from the market (especially of customers) and the incorporation of those inputs. Regarding the technology assessment, it will not be disclosed in this document due to the reasons previously explained but will be discussed with the start-ups.

After gathering the surveys, interviews were conducted with the start-ups to go over the questionnaire. During this process, other issues were detected, a lack of the right operational processes, a lack of testing and a lack of product release policy.

It is important to mention again that all the inputs received from the start-ups and the ones gathered from the assessment of the survey were considered for the training (previous section and part of the incubator program) planned for next year and for the personal meetings with the start-ups.

It is also relevant to mention that the grant is given to the start-ups in the beginning and they have to work in order to multiply and attract external finance, based upon the possibilities created by this grant.

### Annex 1: Assessment tool

The assessment tool is an in-depth interview between a core of stakeholders and the selected start-up. The interview is preferably done face to face, but in case this is not possible a video conference call is also possible.

#### Prerequisites

When the interview starts the start-up is made aware of the following:

- Welcome & Introduction: Who is present on both sides.
- By default, SOLUTIONSPlus considers all shared info as non-confidential.
- SOLUTIONSPlus remains the right to stop the Start-up Services at any time.
- SOLUTIONSPlus cannot be held liable for any of the shared information and recommendations.
- If you feel uncomfortable by these agreements, you are free to leave the session now.
- SOLUTIONSPlus will feedback the results of this assessment.

#### Assessment process

At the beginning the start-up is asked to define its major business. Is the start-up a marketing/sales company, a product/services company or is it a technology company? This choice determines the start of the interview which is guided by the following scheme. The interviewers ask a number of questions related to each topic (In every circle of the scheme) The sequence of interview and questions is guided by the arrows and change overs between the 3 area’s in the scheme. The interviewer notes down all answers. The interviewer does not give own opinions and is NOT interfering in the answers.

The following picture shows the interview process:



**Assessment report**

The answers given allow the interviewer and the assessors to formulate their final vision, formulated in an assessment report. This assessment report mentions the gaps and identify the specific incubator services that the selected start-up needs.

## Annex 2 Services details

Service/training	Incubator pillar	Topic	WP	Title	Details	Responsible	Support	Partners involved
Service	Connect	n.a.	3	Preliminary company assessment	The evaluators will hold an interview with each start-up (1.5h) that will lead to the (SWOT) service, identification of gaps, suggested service plan	ERTICO	FIER, UEMI	Local Coordinators
Service	Connect	n.a.	3	First concept business model canvas	Based on preliminary company assessment. Explanation BMC and hand over to the start up to start working with it	FIER	ERTICO, UEMI	Local Coordinators
Service	Connect	n.a.	3	Match-making	EU companies. After the preliminary assessment and in coordination with the Business Model Canvas, the incubator will match the local innovators with EU companies.	FIER	ERTICO, UEMI	Local Coordinators, All partners
Service	Connect	n.a.	3	Organisation of events	Two local hackathons/start-up events will be organised in each region	Local referents	ERTICO, FIER, UEMI	All
Service	Connect	n.a.	3	Peer-to-peer exchange	Facilitation of regular exchange amongst working groups. This will follow two parallel approaches: (i) monthly general calls and (ii) on a need basis.	FIER	Local Coordinators	ERTICO, UEMI

Training	Innovate	Competence development	2	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	
Training	Innovate	Competence development	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	Pluservice for Module III: MaaS	VTT, ERTICO, FIER, UEMI, UNEP

SOLUTIONSPlus Project 875041 – Start-up Summary

Training	Innovate	Competence development	2	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,	
Training	Innovate	Competence development	2	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
Training	Innovate	Competence development	2	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	

SOLUTIONSPlus Project 875041 – Start-up Summary

Training	Innovate	Competence development	2	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	
Training	Innovate	Competence development	2	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>	WP2	VTT for Module III: E-Mobility & gender)	
Training	Innovate	Competence development	2 and 3	Innovation management	E-learning course	ERTICO/Polis	Pluservice, ZLC	
Training	Innovate	Competence development	3	Benchmarking	Webinar on how to carry out a benchmarking	Volvo	CRF	WP2 partner for support
Service	Innovate	Competence development	3	Value proposal creation support	<ul style="list-style-type: none"> <li>- How to make added value for the offered services</li> <li>- Find and confirm core business value</li> </ul>	ERTICO (FD)	UEMI, UNP	

SOLUTIONSPlus Project 875041 – Start-up Summary

Service	Innovate	Business models	3	Business Model Canvas	(follow-up of the preliminary company assessment – service)	FIER	ERTICO, Pluservice, ZLC	Local coordinators
Service	Innovate	Business models	2	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>	WP2	VTT for Module I: Introduction into e-mobility business models	ERTICO, DTU, VTT, TNO, FIER, Dyniq, industry partners
Service	Innovate	Business models	3	Business plan creation		FIER	ERTICO, Local coordinators	all partners on a need-basis from the innovators
Training	Innovate	Business finance	2	Scale-up and finance	Overview of available financing mechanisms domestic and international Project development and conceptualisation	UNEP	UEMI	
Training	Innovate	Business finance	5	Public funding (EU or local, to be confirmed if feasible)	<ul style="list-style-type: none"> <li>- Eligibility</li> <li>- Funding schemes</li> <li>- General webinars + deeper advisory</li> </ul>	UNEP	T3.4	WP2 partner

SOLUTIONSPlus Project 875041 – Start-up Summary

Training	Innovate	Marketing	6&2	The basics of marketing	- E-learning - General overview - Media	UITP	VOLVO	
Training	Innovate	Marketing	6&2	Marketing applied to innovator s	- Webinar - Marketing applied to their products - Marketing for innovation	UITP	ERTICO	
Training	Grow	Pitching	6&3	Elevator pitch: introduction	Webinar	ERTICO	UEMI	
Service	Grow	Pitching	6&3	How to successfully pitch your company	Supporting start-ups in effectively communicating their value in less than 5 minute presentation (in rounds)	ERTICO	UEMI, Pluservice	
Service	Grow	n.a.	1/3.1	Start-up catalogue	Start ups' solutions will be included in the SOLUTIONSPlus e-mobility catalogue to be used for dissemination and marketing.	VTT/ICCT	FIER, ERTICO	Local coordinators, all partners
training	Grow	Replication	2	Replication of e-mobility innovations	Showcasing of SOLUTIONSPlus actions and guidance towards replication and adaptation	UEMI	Pluservice, ZLC, WI, UITP	
Service		Scaling up	5&3	Organisation of dedicated networking meetings with	- Invite start-ups in networking meetings	ERTICO, UNEP	FIER, UEMI	

SOLUTIONSPlus Project 875041 – Start-up Summary

				potential investors				
Service		Scaling up	5	Scale-up contest	- Small grant to award the best performing/best perspective of scaling up	UNEP	UEMI	

## Annex 3 Brochure



### Imprint

#### About

This brochure has been prepared for the project SOLUTIONSplus. The project has received funding from the European Union's Horizon 2020 research and innovation programme under the grant agreement no. 875041

#### Title

SOLUTIONSplus  
Start-up brochure

#### Authors

Elisa Todesco, ERTICO  
Carmela Canonico, ERTICO  
Edmund Teko, UEM  
Judith Adem Owigar, UN-Habitat  
Emily Martin, UEM  
Shruti Shrestha, Wuppertal Institute  
Alvin Mejia, Wuppertal Institute  
Maria Rosa Munoz, Wuppertal Institute  
Juan Carriquiry, UEM

#### Start-up contribution

OURARIDE  
Ampersand  
SESCOM  
AUTO-TRUCK  
TOJO Motor Corporation  
GIQ Vietnam  
Shree Eco-Visionary  
Clean Energy International  
Cargo Bike  
Wheele  
Green Star  
Siderftech  
Plural

#### Disclaimer

The views expressed in this publication are the sole responsibility of the authors named and do not necessarily reflect the views of the European Commission.

#### Cover picture

© Ampersand

#### Layout

Barbara Lah, UEM

October 2021

## Project Partners



## Contents

Project Information .....	5
SOLUTIONSplus incubator .....	6
Ampersand - Kigali, Rwanda .....	7
GUARIDE - Kigali, Rwanda .....	8
AUTO-TRUCK - Dar es Salaam, Tanzania .....	9
SESCOM - Dar es Salaam, Tanzania .....	10
QIQ – Elevate Mobility - Hanoi, Vietnam .....	11
Tojo Motors Corporation - Pasig, Philippines .....	12
Shree Eco-Visionary - Kathmandu, Nepal .....	13
Clean Energy International - Kathmandu, Nepal .....	14
Cargo Bike - Montevideo, Uruguay .....	15
WheeLe - Montevideo, Uruguay .....	16
Green Star - Montevideo, Uruguay .....	17
Sidertech - Quito, Ecuador .....	18
Plural - Quito, Ecuador .....	19

## Project Information

SOLUTIONSplus (INCO Flagship Project) Integrating Urban Electric Mobility Solutions in the Context of the Paris Agreement, the Sustainable Development Goals and the New Urban Agenda

The SOLUTIONSplus project aims to enable transformational change towards sustainable urban mobility through innovative and integrated electric mobility solutions. To deliver this objective the project will boost the availability of electric vehicles, foster the efficiency of operations and support the integration of different types of e-mobility in large urban areas and addressing user needs and local conditions in Europe, Asia, Africa and Latin America.

The project SOLUTIONSplus sets up a global platform for shared, public and commercial e-mobility solutions, and to kick start the transition towards low carbon urban mobility. The project encompasses city level demonstrations to test different types of innovative and integrated e-mobility solutions, complemented by a comprehensive toolbox, capacity development and replication activities.

SOLUTIONSplus brings together highly committed cities, industry, research, implementing organisations and finance partners. Through numerous synergistic projects, networks and a strong technical experience, the project will be able to deliver its highly ambitious goals. Direct co-funding contributions will be provided by partner cities and SOLUTIONSplus works closely with UN Environment and the International Energy Agency (IEA) on a joint global urban e-mobility programme that will significantly boost replication and impact of this Innovation Action.

Through the regional platforms, a global programme and local teams, the project aims to develop highly effective and innovative approaches to urban e-mobility ensuring that mobility systems and interventions from this project deliver on the Paris Agreement, meet the Sustainable Development Goals and address the New Urban Agenda.



INFORM

Boost capabilities of local and national authorities, public transport operators and entrepreneurs about innovative urban e-mobility solutions across various transport modes by informing them about tools to plan, assess, implement and operate e-mobility solutions.



INSPIRE

Foster the take-up of e-mobility innovations by businesses, start-ups, local and national governments and transport operators by inspiring officials, operators, industry and businesses through peer-to-peer exchange on innovative e-mobility products and services.



INITIATE

Strengthen policy and business collaboration by initiating partnerships between local and national governments and local and European entrepreneurs and supporting the development of new e-mobility models business implementation plans.



IMPLEMENT

Create reference models for e-mobility innovation by implementing demonstration actions to test innovative e-mobility technologies and services, foster their replication and ensure their long-term sustainability.

## SOLUTIONSplus incubator

New electro-mobility solutions are a key element for the implementation of the Paris Agreement, the Sustainable Development Goals and the New Urban Agenda. To develop those innovative and integrated solutions, cooperation between cities worldwide, industry and innovators is key.

To this end, SOLUTIONSplus has established the SOLUTIONSplus Start-up incubator. Led by ERTICO in close cooperation with FIER, and benefitting from the experience gathered by the ERTICO Start-ups initiative and its "Connect, Innovate, Grow." approach:

- **Connect:** focuses on "fit-for-use", connecting SMEs and start-ups with relevant stakeholders to make sure strategic partnership and cooperation can be set in place, and identifies the supporting incubator actions to assure on-time and quality deliveries;
- **Innovate:** focuses on key services offered by the incubator. Such as building competence, expertise and knowledge optimisation, improving business intelligence, focussed marketing, and dissemination;
- **Grow:** focuses on business development and scaling up (both geographical and in terms of portfolio).

Thanks to this approach, the SOLUTIONSplus start-up incubator offers a unique opportunity for collaboration with start-ups, SMEs and industry partners to co-develop e-mobility solutions that can generate economic opportunities across different regions, Africa, Asia and Latin America, and, of course, Europe. More concretely, the SOLUTIONSplus Start-up incubator provides seed funding and guidance to 13 start-ups that participate in nine demonstrations happening in different cities in Africa, Asia and Latin America.

The support for local innovators goes well beyond funding, and includes also:

1. Support in drafting their SolutionsPlus business plans;
2. Local hackathons and start-up events to strengthen the partnership between local companies with European innovators and industry partners;
3. Opportunities for project partners to act as customers for the services and the products of identified start-ups, or to act as (co-)investors in these start-ups;
4. Scale up opportunities and replication of business models to increase their potential revenue basis after the end of the project;
5. Renewed business plans with potential scale-up and investment opportunity;
6. Dedicated trainings.

By engaging with and bringing together highly committed cities, industry, research institutes, implementing organisations and finance partners, SMEs and start-ups, SOLUTIONSplus enables cooperation and innovation by establishing a global platform for shared, public and commercial e-mobility solutions to kick start the transition towards low-carbon urban mobility worldwide.



## Ampersand - Kigali, Rwanda

[www.ampersand.solar](http://www.ampersand.solar)



AMPERSAND

*"We've proven that we can put a motorbike on the road that's better and cheaper, and just happens to be electric. Now we're ready to grow. We've had 7000 Kigali motorbike taxi drivers get on our waiting list."*

Josh Whale, Ampersand, CEO

### Description

Founded in Kigali – Rwanda, Ampersand builds affordable electric motorcycles (e-motos) and charging systems to help Rwanda and Africa leapfrog towards a zero-carbon future. Ampersand offers local motorcycle taxis drivers a cost-convenient, more profitable and cleaner alternative to petrol motorcycles.

Ampersand's model makes it cheaper to buy and operate an e-moto than a petrol motorcycle: instead of refilling their tanks, e-moto drivers can just swap the empty battery for a charged one at one of Ampersand's battery charging stations. Reducing recharging times and costs, Ampersand's vehicles deliver superior driving performance, emit 95% less carbon than petrol motorcycles with zero

tailpipe emissions and put over \$450 a year back into drivers' pockets.

Next to the e-motos and the batteries, Ampersand is at the forefront of battery fleet management with its own Amper-Ops online and mobile platforms, which allow seamless management of battery packs, customisable insights into ROI, smart maintenance and repairs-alert system.

### Achievement

Ampersand's motorcycles have driven over 2,500,000 km, that is more than the distance to the moon and back. Among its other achievements, Ampersand has increased driver's income by 41% per day, reduced CO2 emissions by 250 tonnes, and raised \$4 million for expansion.



PHOTO © 2025 // WWW.AMPERSAND.SOLAR

## GURARIDE – Kigali, Rwanda

<https://www.guraride.com>



*"If you look around, you will notice that Rwanda has started putting bike lanes all over the country's major cities. In alignment with Rwanda vision 2030 for smart Green e-mobility in the country, we found Rwanda as the readiest country in Africa."*

Ike Erhabor, GURARIDE President

### Description

GURARIDE, founded in 2017, is a Green E-mobility public bike-share (PBS) transport system company. GURARIDE is committed to the sustainability of micro-mobility in Africa, with Rwanda being its first entry point. It employs a multimodal micro-mobility solution in a single app to enable users to choose their ride preference. Its main goal is the migration of transportation from fossil fuel-based vehicles to other non-pollutant means of transport using innovative technology. GURARIDE looks at changing the narrative for urban mobility in Africa, aiming to have a long-lasting impact on the environment, communities, transportation, and green jobs, while fostering healthy lifestyles.

### Achievement

In partnership with the City of Kigali, GURARIDE is starting its operations in two of Kigali's city corridors and, as cycling infrastructure and road safety measures are put in place by

the city authorities, it will gradually expand to cover additional areas in the city. The bracketed corridors are mainly the Central Business District (CBD) and the Remera-Kimironko corridor along KG 17 Ave known for their bustling commercial activities and sports hub respectively.

By deploying the first PBS system in the City of Kigali, Rwanda, GURARIDE has made available 100 smart base-model bikes for public use. Also, as part of its first phase deployment and scale-up plans, it is introducing an electric bike fleet, thereby providing residents of Kigali with ride options, and fast battery charging systems to complement the PBS infrastructure. Through the GURARIDE mobile app, a rider is able to locate a nearby docking station, access the facility and conveniently make payment for the service. In addition, GURARIDE's collaboration with districts, technical and vocation schools, relevant government agencies and corporate institutions is being leveraged on to provide skills acquisition and capacity development for young women, employment, and the teeming youth population in Rwanda.

All GURARIDE's bikes and e-bike models are completely assembled in Rwanda, so complementing the efforts of the Government of Rwanda in promoting 'Made in Rwanda'. One of the key long term business goals is to operate a fully equipped manufacturing/assembly plant in Rwanda, from which it can suitably service the East African communities and subsequently the continent.

As part of its public enlightenment, GURARIDE is educating the people of Rwanda about the advantages of public bike sharing especially through the bi-monthly "Car Free Day" event. For its inaugural launching campaign, potential users will access the PBS services along the two above mentioned corridors free of charge for a period of 60 days. This is to encourage and educate residents further on the usability and far-reaching benefits the services offer.



photo © <https://www.guraride.com>

## AUTO-TRUCK – Dar es Salaam, Tanzania

<https://autotruckea.com/>



*“We are not just building a business; we’re building a legacy for our future generation, and we’re teaching others how to achieve their ultimate dreams”*

Kenneth Guantai, CEO & Founder Auto-truck

### Description

Auto-truck prides itself in Mitigating Climate Change through the Adoption of Green Energy Technology by Introduction of Electric 3 wheelers, Mini-cabs for Light Transportation in Major Towns and Cities in Dar, Tanzania as well as offering climate action services among other line products.

### Achievement

The company is fully registered to undertake electric mobility. It has also successfully manufactured commissioned functional prototypes which are now under pilots in readiness for mass production and commercialization both locally and internationally. The innovative products have received numerous awards with the recent from the prestigious Royal Academy of Engineering in London and a subsequent pitch at the palace in London among others. The Company has also featured in various local and international media outlets among them. BBC, DW, VOA, TGTN among others. This has prompted numerous enquiries from potential clients across the Globe. This was followed by winning the UN Solution plus project which is anticipated to catapult the company to higher heights.



photo © <https://autotruckea.com/>



photo © <https://autotruckea.com/>

## SESCOM – Dar es Salaam, Tanzania

<https://www.sescom.co.tz/>



*“The transport sector in the world is changing too fast, there will be significant switch from fossil fuel powered vehicles to electric powered. This is an opportunity for SESCOm and her partners to pioneer those life and environment saving initiatives through promoting innovative business models and e mobility technologies and fostering enabling environment that will influence the acceptance and uptake of e Mobility as to harness various economic potentials including jobs creations and balance of trade.”*

Estomih Ngaya Sawe, SESCOm Executive Chairperson

### Description

Sustainable Energy Service Company (SESCOM) Limited, focused on efficient production and use of electricity, its collaborating with other two partner companies from Tanzania, Dar es Salaam Rapid Transit (DART), and Jiwe-Kubwa Automobile Company to further develop electric mobility in their country. SESCOm and its partners aim to develop electric three wheelers equipped with rechargeable storage batteries. Adapted for both cargo and passenger transport, the e-vehicles’ high flexibility will be guaranteed by the different types of batteries that can be fitted on the vehicle, offering different autonomy and charging options. To respond to the various needs of the users, the vehicles can be charged either at SESCOm’s solar powered charging stations or by connecting them to any other power socket or accessing batteries at swapping stations.

Thanks to its new three electric wheelers, SESCOm will help Tanzania and its cities, and in particular Dar es Salaam, to reduce emissions associated with transport, improve air quality, reduce noise pollution, and create new jobs locally.

### Achievement

SESCOM has managed to create awareness and initiate market development to a wide range of stakeholders in the country on efficient production, generation and utilisation of renewable energy through highly efficient machineries for productive uses, highly efficient cooking appliances and recently is piloting e-mobility in Dare es Salaam for increasing the efficiency of the transport system in Tanzania with support from UN Habitat. The potential and benefits of e mobility in the economy, health and social welfares considering the driving forces associated with its adoption including reduction in greenhouse gas emission, efficient energy use, fossil fuel savings and low operational costs has well-being communicated.



photo © <https://www.sescom.co.tz/>

## QIQ – Elevate Mobility – Hanoi, Vietnam

<https://www.elevate-mobility.com>



*"As we are transforming our brand from to Elevate, we aim to elevate the Vietnamese public transportation experiences. With a clear goal and a passion for changes, we believe we could make the world a better place, starting from sustainable and environment friendly transportation."*

Ngan Tran. CEO/Co-Founder

### Description

QIQ – Elevate Mobility has a mission: to build a green, sustainable, shared transportation system for Vietnam. It is passionate about making a positive change in transportation in a sustainable and climate friendly way and they do this by providing shared micro-mobility across a connected mobile app. Users will be able to book, rent, use and travel with electric micro-mobility vehicle across Vietnam and eventually South East Asia (SEA). QIQ – Elevate Mobility believes in helping the cities' transit into a climate friendly transport infrastructure.

Its technology includes a booking application for users to book their ride on, various electric vehicle choices from scooters to electric bikes with IOT to connect any types of electric vehicles to the system and docking stations, and a backend management system for operators to manage their fleets.

In its demo site in Hanoi, QIQ – Elevate Mobility has already deployed its own electric bicycles, vehicle Communication/ IOT unit for shared e-scooters, and its fleet management software system.

### Achievement

In late 2019, QIQ – Elevate Mobility has formed a partnership with Ecopark (a 500ha urban township on the outskirts of Hanoi – Vietnam) to deploy the first e-bike sharing system. The company has installed 6 docking stations with 40 electric bikes, each with a tether charger to charge the electric bikes. With 40 e-bikes deployed, QIQ – Elevate system was able to serve 189 trips in one day (average 5 trips/vehicle/day).

In 2020, QIQ – Elevate Mobility also launched our system in Hoi An city of Vietnam with 200 mechanical bikes and 50 electric bikes, partnered with GIZ and Healthbridge.



photo © <https://www.elevate-mobility.com>

## Tojo Motors Corporation – Pasig, Philippines

<http://tojomotors.com/>

*“The continued use of conventional has been worsening air pollution in localities in the country. TMC’s vision to create locally produced eMobility alternatives in these applications to better manage air quality and add value to the economy. Traditionally, we have mostly focus on public and tourist transport. With a highly innovative and well planned vehicle concepts and system and strong multi-stakeholder partnership, we are now ready to expand the initiative to local government services, logistics and enterprise operations. We hope to change minds and prove that eMobility is the future.”*

**Ralph Legaspi, Chief Executive Officer and President**

### Description

ToJo Motors Corporation (‘ToJo Motors’) is a 100% Filipino-owned company that develops modern technologies, operates after-sales facilities and service centres, and sells key components for green transportation. ToJo Motors specialises in the production of electric vehicles (three and four-wheelers) that can be used to cover the needs of hotel and resorts, cities municipalities and barangays, real estate developments, or of schools and campuses.

Next to e-vehicles development, ToJoMotors offers a broad range of services for vehicle and fleet management support, including a network for battery charging/swapping; fleet maintenance support system; delivery planning support

and information system; cargo delivery assistance; base vehicle information management and control system; ride hailing application; and passenger service tools.

ToJo Motors Corporation was established and registered with the Securities and Exchange Commission (SEC) on January 8, 2013.

### Achievement

ToJo Motor currently offers more than 10 EV models, and has distributed fleets located in 13 different cities/regions in the Philippines. It offers a holistic vehicle service support as well as innovative business models (i.e. battery swapping).

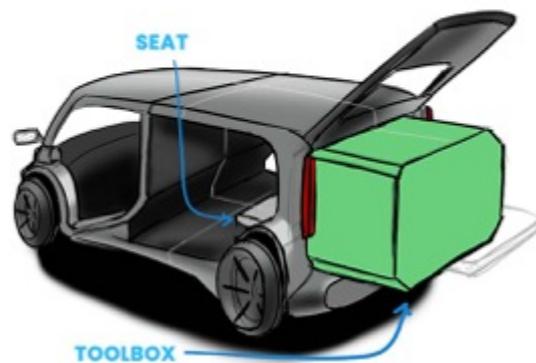


Photo © Tojo Motors

## Shree Eco-Visionary – Kathmandu, Nepal

<http://sevgroup.com.np/index.php>



*"SEV has been electrifying the public transportation since last two decades and will continue to move on its path of electrifying the mobility for different applications. SEV dreams to make global a common platform for green mobility and Nepal a centre for innovation in Electric mobility."*

Mr. Umesh Raj Shrestha, CEO/Founder

### Description

Shree Eco Visionary Pvt. Ltd (SEV) was established in Nepal in 2008. Its goal is the promotion of electric vehicles that can be fuelled by clean hydro power produced domestically. This would lower the Nepal's dependency on imported fossil fuel while preventing the release of harmful greenhouse gasses into the atmosphere.

SEV has a long history of manufacturing electric vehicles (three wheelers and four wheelers) in Kathmandu, as well as producing charging/battery management system. It has been responsible for the production and maintenance of three-wheeler electric public transport 'Safa Tempo'. SEV has also been involved in designing and manufacturing innovative small four-wheelers suitable to the topography of Nepal, like municipal e-trike and cargo e-trikes, as well as four wheeler e-shuttle vans.

Using Valeo's powertrain provided in the framework of SOLUTIONSplus, SEV is now developing a prototype for a modular E-three wheelers with 6kW motor and 10 KWh battery system that could improve quality of life in Nepali cities. This new vehicle would have increased flexibility that

will allow a broader array of applications; its modularity makes it adaptable as EV Safa Tempo able to transport up to 6 passengers, as electric cargo trike, an e-trike fitted to handle municipal waste, and an E-shuttle van for touristic applications.

### Achievement

Shree Eco Visionary Pvt. Carries out research and development activities, coupled with local manufacturing of electric vehicles (three wheelers and four wheelers), as well as charging or battery management system. SEV is also active involved in advocating to increase the number of electric vehicles and their range of applications. SEV has been successfully running electric three wheeler in public for last 2 decades and has also been repairing and maintaining them for last 2 decades. SEV has set a perfect example of running/operating public electric vehicles in South Asia. SEV has successfully running battery swapping charging stations for their lead acid batteries and also SEV have successfully replaced the lead acid batteries with Lithium ion based batteries for more than 50 safa tempos and are the first in Nepal to use li-ion based batteries for public electric three wheeler.

photos © <http://sevgroup.com.np/index.php>



## Clean Energy International – Kathmandu, Nepal

<https://cei.com.np/>



*"CEI has always been innovating the zero emission public transportation and has always stick on its mission to set Nepal as zero tail pipe emission mostly in southern region of Nepal. With the vision of clean green and clean Nepal, CEI hopes to create Nepal as an EV hub centre and set a perfect example for the rest of the world."*

**Bharat Poudel, CEO/Founder**

### Description

Clean Energy International Private Limited, a Nepali start-up working on electric two and three-wheelers, leads a consortium of Nepali companies involved in electric mobility [Abhyantriki Karmashala, Aeloi, and Electric Vehicles Association of Nepal (EVAN)]. The objective of the consortium is to design, develop and deploy an improved and sustainable Safa Tempo. Structured on three phases, the project will initially design, develop, and demonstrate clean and sustainable Safa Tempo. Secondly, partner companies will improve the new Safa Tempo through trials. Finally, the consortium will develop a roadmap for scaling up production.

Aiming to demonstrate that modified Safa Tempo can be deployed in a broad array of applications, the consortium is exploring alternative application of the three wheelers. Thanks to new possible applications like tourism (the modified Safa Tempo will replace the gas powered municipal transport and tourist sight-seeing vehicles), delivery and garbage collection, the project will create new opportunities for Safa Tempo drivers – half of which are women.

### Achievement

Clean Energy International is manufacturing electric two and three wheelers in two cities in Nepal, Kathmandu and Birgunj. It has developed several types of electric vehicles: e-rickshaw, e-mini pick-up, e-school van, e-street food van. CEI has manufactured and sold more than 1000 units of electric tuk-tuk with different applications. CEI is also pioneer in repairing electric three-wheeler and two-wheeler in Nepal. CEI is one of the oldest electric scooter assemblers in Nepal and has been able to set a good benchmark for electric scooter in Nepal. Clean Energy International is manufacturing electric two and three wheelers in two cities in Nepal, Kathmandu and Birgunj. It has developed several types of electric vehicles: e-rickshaw, e-mini pick-up, e-school van, e-street food van. CEI has manufactured and sold more than 1000 units of electric tuk-tuk with different applications. CEI is also pioneer in repairing electric three-wheeler and two-wheeler in Nepal. CEI is one of the oldest electric scooter assemblers in Nepal and has been able to set a good benchmark for electric scooter in Nepal.

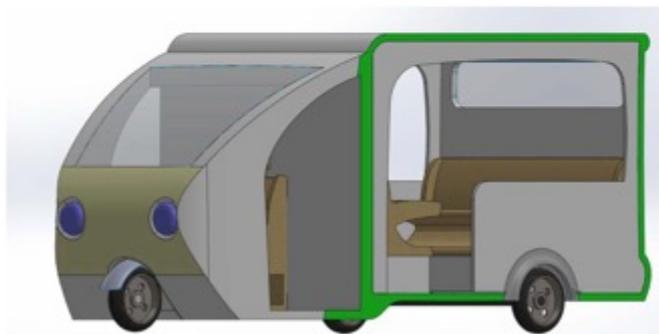


photo © <https://cei.com.np/>

## Cargo Bike – Montevideo, Uruguay

<http://www.cargobike.uy>



*CargoBike is a start-up dedicated to the production of e-cargo bikes with a focus on sustainable and efficient transportation, friendly to the environment and easy to use for users. CargoBike's commitment is the production of these vehicles with business schemes that are affordable for potential users in order to achieve relevant levels of introduction in the market of sustainable vehicles for urban logistics.*

Martin Piñeyro, Director

### Description

Carbo Bike was founded in Montevideo, Uruguay, and its objective is to promote cargo bikes as mobility alternative in Uruguay. To tackle the lack of affordable cargo bikes in Montevideo, Cargo Bike aims to develop and produce Long John type cargo bikes for the local market. To this end, it designs its vehicles by repurposing disused bicycles and combining them with standard components available locally. A first prototype has been developed and tested for over a year with excellent results. Cargo Bike has now developed two different models of bikes, produced 5 E-cargo bikes and created a monitoring app.

### Achievement

The design of Cargo Bike's vehicles has been finalised and approved. Next to it, Cargo Bike has identified the European powertrains providers.



photo © <http://www.cargobike.uy>

## Wheele – Montevideo, Uruguay

<https://wheele.com.uy/>



*WHEELLE is an Uruguayan company created in 2016, with the purpose of marketing light electric vehicles, assisting in sales, workshop and spare parts. The products marketed by the brand are electric bicycles of different types and for personal and commercial use, electric motorcycles, scooters, electric cargo tricycles. Within the purpose of the company is the development of sustainable vehicles underpinning its activity with the introduction of environmentally friendly construction techniques.*

Paulo Bareño, Owner

### Description

Wheele's proposal encompasses the manufacturing of 3 cargo tricycles; the tricycles are made with imported parts and national assembly recycled from cigarette butts. For example, the cargo box is made in Uruguay with 100% recycled material. At a second stage, a local plan of adaptations to the box (also made with 100% recycled material) will be developed to accommodate different types of uses. It is technically feasible to manufacture the drawer or container from recycled materials. Pressing is the right technique to create the plates that make up the walls of the drawers: cigarette butts, being a small waste of low volume and weight, could not be used in their entirety to make the plates. However, Teko (a company that supplies the recycled materials for the box) has developed an innovative technique that consists in the manufacture of plates with

characteristics similar to wood, from the degradation of the cigarette butts through the use of an inoculated fungus on a bio-based substrate made from rice husk. This process makes the manufacture of large plates viable. For this preparation, a week of work is required for the fungus to develop, and then 6 hours of workshop, between pressing and manufacturing. It is estimated that the production of a box will require around 30,000 cigarette butts. Since each butt in contact with the environment can contaminate up to 50 liters of water, and release up to 7,000 toxic substances, the procedure preserves 1,500,000 litres of water.

### Achievement

The final design of Wheele's vehicle has been approved. The company has also already identified the European drivetrain providers.

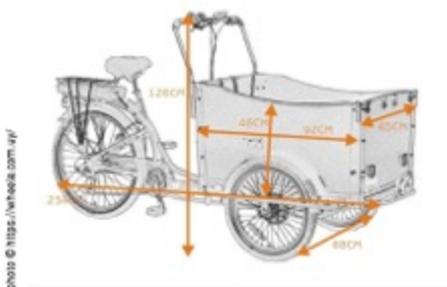


PHOTO © <https://wheele.com.uy/>



PHOTO © <https://wheele.com.uy/>

## Green Star – Montevideo, Uruguay

*GreenStar is a company created to develop the manufacture and commercialization of electric vehicles, both for recreation and for urban logistics. Its objective is to produce environmentally friendly vehicles, starting from a base that adds value to its products and also generates qualified national labour.*

Pablo Dángelo, Designer

### Description

Green Star aims to develop two utility e-tricycles with a unique design based on two front wheels and one rear wheel. To reduce the environmental footprint of transport, Green Star will convert their highly successful internal combustion engine tricycle in a e-vehicle. Moreover, Green Star's choice to use second life batteries will increase the sustainability of their e-vehicles even more. Finally, Green Star will introduce a use case on provision of services.

### Achievement

Green Star's vehicle was sold in large quantities in its internal combustion engine version. The final design of the electric version is being developed, while discussions with Valeo for the provision of drivetrains are ongoing.



photo © Juan Carrigorry

## Sidertech – Quito, Ecuador

<https://www.sidertech.com/>



*"SOLUTIONSplus contributes to a shift in culture and in the vehicle market through information regarding user needs and city characteristics. SIDERTECH has the technology and long-term goals on innovation. So, working collaboratively allows for great synergy and significant change in the local market"*

Stefano Mansuttie, General Manager

### Description

Launched in 2008, Sidertech's main business focuses on engineering, manufacturing and services for steel production plants located in Latin America.

As part of the programme for local manufacturing implementation, in 2012 Sidertech started producing metal components for motorcycles. Today, the company is using its expertise to develop an electric four-wheel vehicle that, thanks to its flexible design, can be deployed ideal for multiple uses. With a high torque to climb Quito's steep streets (up to 20%) and long-lasting batteries, Sidertech's vehicles can be used for cargo, food truck, deliveries,

maintenance, trash collection, industrial logistic, private security, and much more. Developed to improve quality of life in cities, Sidertech's four-wheelers have a reduced width that would allow them to ride even in bike-lanes. So far, Sidertech has developed an e-quadricycle prototype, for cargo applications. The company is exploring models for passenger transport. In total they will assemble 10 units based on the different prototypes.

### Achievement

The prototype of Sidertech's electric four-wheelers is ready, and after first discussions on the provision Valeo's drivetrain has being provided and installed.



photo: © Maria Rosa Muñoz B.

## Plural – Quito, Ecuador

*The adoption of EVs allows cycle transport logistic business models to be potentialized so both costumers and merchants can have better transport opportunities and new business opportunities around EVs can benefit local economy.*

Daniel Tixi, Bixi Cargo founder

### Description

PLURAL is an ecuadorian firm with more than 10 years of experience in applied social research, social development projects, social intervention and public policy construction, from a human rights, gender, sustainability and innovation, inclusion and social participation perspective. Together with Bixi Cargo and Tacuri Bicycle, Plural has created "E-Cargo bike", a strategic alliance that, through knowledge transfer, aims to improve the technical capacity of local actors and existing organisations in the field of urban micro-logistic.

With the goal of making cycle transport logistic a generalized, friendly and accessible solution, the project

will teach targeted local groups how to manufacture and assemble electric bikes. Those vehicles will then be used to tackle the problem of urban traffic congestion by offsetting first and last mile deliveries from trucks to e-cargo bikes. So far the project has developed 10 e- bikes in four different models, three of which are cargo bikes, and one is for passenger transport. Finally, there is also a proposal for an e-cargo bike workshop in the HCQ.

### Achievement

Plural has started a process on data collection and stakeholder's identification. It has also already identified European drivetrain providers.



photo © Maria Ressa Muñoz B.



photo © Maria Ressa Muñoz B.



[www.solutionsplus.eu](http://www.solutionsplus.eu)



This project has received funding from the Europeans Union Horizon 2020 research and innovation programme under grant agreement No. 875041

### Annex 4 The questionnaire

This questionnaire aims at collecting all the relevant data on the innovators’ products and services, market and technology innovation. Please provide as much information as possible, as this document will be the basis of the first assessment service with the SOLUTIONSplus incubator, and will also serve as a starting point to collect input for the Business Model Canvas. During the assessment call, the incubator team will discuss with the innovators the input provided, asking for clarification when needed and providing suggestions for improvement. If it is not possible to fill in all the questions, or if questions arise, please note them down and ask them during the assessment call.

#### Start-ups questionnaire

Name of the Company:  
 Region:  
 City:

- Do you consider your company to focus more on:
- Technology Innovation
  - Bringing products and services to the market
  - Market (Sales)

About your company:

Year of foundation	
Size (total people employed)	
Turnover (2018,2019,2020)	

#### Product/service innovation

This section will collect information on your product/service: description, competitors, possible market research, logistic. It refers to the product you are developing for the SOLUTIONSplus project, but please feel free to add information of similar solutions you are already implementing, if relevant.

1. Select the current status of the product/service you are developing within SOLUTIONSplus:
  - a. Product description (idea)
  - b. Product execution (prototype)
  - c. Product and market match (deployment)
  
2. Please fill in the table below with a list of the main competitors you see in the market, both locally (L) and regionally (R).

Name	Link (if available)	What do they offer (max 200 character)	Why are they competitive to you? (max 200 character)	What is your competitive edge? (max 200 character)	R/L

--	--	--	--	--	--

3. Describe your product design (if relevant), including reference to the supply chain and your organisation’s needs regarding materials, services, needs, providers, etc. (max 200 words)

--

4. Are there combinations of products/services that can be offered as a package (please provide examples)?

--

5. What actions did you do to see if your product/service fits the market need before your product deployment?

- a. Market research
- b. Desktop research
- c. State of the art
- d. Customer survey
- e. Ideathon
- f. Focus group discussion
- g. Other (please specify):

--

6. Please provide a short overview of your findings from the question above related to the product profile (characteristics of a target product/service).

--

7. Describe the functions and features of your product/service that addresses the needs

--

8. Please describe the financial aspects of your product/service, also in terms of %

Product/services name	R&D cost	product cost	Marketing Costs	Manufacturing costs	other cost

9. Provide details about manufacturing:

Where are the products/parts manufactured?	How is it manufactured? (manually, industrially, etc.)	Does it comply with international rules? Which one? (CE mark, Safety, Environmental, etc.)

10. Describe the logistical needs and implemented processes of how the product/service is delivered to the market. (logistic chain, on-demand, direct contact)

**Technology Innovation**

This section will collect information on the technology used for your product/service, its description and requirements. It refers to the product you are developing for the SOLUTIONSplus project, but please feel free to add information of similar solutions you are already implementing, if relevant.

1. Please describe your technology in 200 words:

2. What are the main requirements for your technology to be deployed?

Technical requirement	
Regulation	
Infrastructure	
Societal	
Cost structure	
Other	

3. How do you test your technology concepts?

a) Is there a testing strategy? Yes/no

If yes, describe (200 characters)

b) Reports on the testing and do acceptance criteria exist? Yes/no

c) Other:

4. Briefly describe the 3 main functions you identify in your technology (i.e. improves energy savings, enhances charger performances, etc.):

- a) \_\_\_\_\_
- b) \_\_\_\_\_
- c) \_\_\_\_\_

5. Future developments: what technological innovations do you think you can/are willing to make to your products in the medium term, and What is the potential you see in that?

Technological innovation	Potential

**Market innovation**

This section will collect information on the market innovation of your product/service, how you engage with your customers and your product supply chain. It refers to the product you are developing for the SOLUTIONSplus project, but please feel free to add information of similar solutions you are already implementing, if relevant.

1. What is your target market?

Geographical coverage	
Target customer	
Pilot market	
Other	

2. Describe how your customers use your offerings, in what contexts and the benefits your customer has in using your product/service (max 200 words)

Use	Context	Benefits

3. How do you communicate these benefits to the users (market)?

Messages	a. _____ b. _____ c. _____
Channels	a. _____ b. _____ c. _____

4. What specific requirement did your customers ask to be taken into account in your offer (if any)?

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_

5. How do you take into account your customers’ feedback and requests?

--

6. What actions do you take to see if your product/service fits the market need after your product deployment/sales?

7. Describe how you come to your sales price? What are your margins?

8. Describe the time window of opportunity. What are/were your plans to hit the market initially and when do you need to offer bigger quantities

9. Provide the following information about your providers:

Name your 3 main providers	Product	Origin	Reason of selection	interest in replacing them with EU providers? If yes, explain under which conditions

**What are your expectations from the SOLUTIONSplus incubator?**

1. Please select the area you expect to receive support from the SOLUTIONSplus incubator (max 3):

- a. Creation of knowledge (technical advancement)
- b. Entrepreneurship support (management, leadership, innovation)
- c. Financing
- d. Facilitation in the access of product components
- e. Technology support
- f. Trainings/Train the trainer
- g. Process improvement
- h. Product design & engineering
- i. Security and regulation
- j. Value chain and logistics

2. Please describe max three trainings you would like to receive from the incubator:

- 1. \_\_\_\_\_
- 2. \_\_\_\_\_
- 3. \_\_\_\_\_

3. Please describe max three other activities/services you would like to receive from the incubator:

- 1. \_\_\_\_\_
- 2. \_\_\_\_\_
- 3. \_\_\_\_\_

4. What do you think are the main challenges that your company face in relation to product, technology, market innovation?