noemix®

Electric mobility breakthrough in FVG

WP4

D4.7

One set of guidelines

Expected date
M58

NOEMIX has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No754145

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PROJECT DETAILS

PROJECT ACRONYM	Project title
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GRANT AGREEMENT NO:	TOPIC
754145	

START DATE

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WP DETAILS

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WORK PACKAGE LEADER

REGIONE FVG (Lead Beneficiary)

DELIVERABLE DETAILS

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D4.7	One set of guidelines

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Contents

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Introduction

The purpose of this deliverable is to highlight the main phases followed for the implementation process of the Project, focusing on those specific issues which had to be handled by the Advisors, together with AREA and the relevant Public Administrations of the Friuli Venezia Giulia Region involved, in order to facilitate the best outcome of the Project.

On this regard, this set of guidelines[1] will address both the legal and technical-financial aspects which had to be taken into account in the context of the Project, collecting the "*lesson learnt*" (see para. 0 below) from the Project Noemix in order to identify useful tools for defining possible best practices for the future implementation of similar projects in the field of integrated *e*-mobility services in the public sector.

As already known, the Project Noemix has been launched back in 2017 and it has been granted access to the founds of the European Union Programme for research and innovation called "*Horizon 2020*".

In particular, in the context of the broader obligations set by the European Union, the Project aims at pursuing the ambitious targets embraced by the Friuli Venezia Giulia Region (the "**FVG Region**") for the transition towards a low carbon emission economy, starting from a significant reduction of the carbon (CO2) pollution linked to the usage of traditional motor vehicles directly owned by the Public Administrations in the FVG Region.

To this purpose, the Project intends to accomplish an effective transition from the actual model existing in FVG Region (and typical in the entire public sector in Italy), where each Public Administration directly owns traditional motor vehicles for the institutional needs (*i.e*. motor vehicles functioning with traditional fuels, such as gasoline *etc*.), into a new scheme of a fully centralized service of "*e*-mobility" (*e.g*. "car sharing model" or "lease model"), based on the lease of electric vehicles by one or more private partner(s) (the "**E-Mobility Service**") to be selected following a specific tender procedure in accordance with the principles and rules of public procurement in Italy set forth especially by the Legislative Decree no. 50/2016 (the "**Procurement Code**").

Following the implantation of the Project, according to which the Public Administrations are required to dismantle their traditional vehicles directly owned, the same relevant Public Administrations should be provided not only with around no. 500 electric vehicles, but also – according to the integrated structure of the service underlying the E-Mobility Service (for further details see the sections below) – with no. 400 charging stations, where the energy supplied should origin from renewable sources to be located in the same FVG Region (*e.g*. photovoltaic plants).

[1] This report has been prepared by the law firm "Gianni & Origoni", acting as a legal advisor, in association with the technical and economic advisor SINLOC – Sistema Iniziative Locali S.p.A. (collectively, the "**Advisors**"), selected by means of the tender procedure called by Area di Ricerca Scientifica Tecnologica di Trieste – Area Science Park ("**AREA**"), in relation to the implementation of the so-called project NOEMIX (*New Mobility in Friuli Venezia Giulia*; "**Project Noemix**" or "**Project**").

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PROCEDURAL STEPS

The process for the implementation of the Project revealed to be particularly complex, especially in consideration of the following main features:

(i) on the one hand, the significant innovativeness of the Project, being one of the first projects in the field of integrated *e*-mobility services in Italy in the public sector. Therefore, it has not been possible to benefit from proven and successful best practices and collect helpful elements from the study of previous and/or existing precedents in the same relevant field;

(ii) on the other hand, the elevate number of Public Administrations involved in the Project Noemix, which on many occasions resulted to be the cause of unpredictable slowdowns in the progress of the planned activities. In fact, around no. 17 different Public Administrations participated collectively to the Project Noemix, with their different needs and peculiar characteristics to be individually addressed in the process of defining the elements of the E-Mobility Service and drafting the related relevant documentation accordingly in order to carry out an adequate tender procedure.

In light of the above, it worth be noted that one of the major issues which had to be handled under a legal perspective in the preliminary phase of the Project has been the acquisition by the FVG Region of the formal participation of the different Public Administrations interested in the Project and their collaboration with the same FVG Region for the subsequent preparation and launch of the tender procedure (the "**Agreements**").

In fact, as better described below, in order to reach the most efficient results, a key feature of the Project is represented by the lead role of the FVG Region and its central purchasing body, which acted on behalf of each participating Public Administration, being responsible for the launching and managing of a unique tender procedure for all the Public Administrations according to the scheme of the mentioned central purchasing body (so-called "*centrale di committenza*").

To this purpose, the Advisors have been firstly required to provide assistance to the FVG Region with regard to the drafting, the subsequent negotiation and the final entering into of the Agreements between each of all the Public Administrations involved and the FVG Region, as the delegated entity for the carrying out of the aforementioned unique tender procedure pursuant to the Procurement Code, collectively for all the participating Public Administrations.

The process of negotiation of the Agreements has been crucial for the Project, being said Agreements the tool for:

a) collecting the formal participation of each interested Public Administration to the Project, in order to allow the FVG Region to be legally entitled to launch the tender on their behalf;

b) understanding the actual needs of each participating Public Administrations to be addressed in the context of the tender procedure;

c) collecting the data and information needed for defining the object and the scope of the same tender procedure.

In addition to the preliminary activities described above, the Project required various additional activities with regard to different relevant aspects for the profitable implementation of the Project, including the collection and in-depth analysis of multiple sources of data, as well as the identification and study of the best solution under a legal perspective.

These activities can be summarized as follow (please note that the list provided below is mainly for sake of good order and does not always reflect separate and autonomous steps, as many of the activities were carried out often simultaneously):

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- drafting and negotiation of the Agreements with each of the participating Public Administrations (please see above);
- analytical study of the historical data concerning vehicles of the participating Public Administrations (ref. para. 0 below);
- definition of the most suitable financing methods for the Project (ref. para. 0 below);
- identification of the most suitable and efficient tender procedure scheme for the best interest of the Project (ref. para. 0 below);
- identification and definition of the ideal contractual scheme for the regulation of the E-Mobility Service, both under a legal and a technical-economic perspective, and implementation of the identified tender procedure (ref. para. 0 below).

Historical Data concerning vehicles

One of the main purposes of the Project Noemix is to replace the old petrol-fueled cars of the participating Entities with new electric vehicles. In this process, one of the basic assumptions is that the Entities should not increase their historical annual expenditure for the fleet management.

Therefore, the first step was to identify the vehicles that each Entity wanted to replace (older than 10 years) and to collect the related historical data and information, such as:

- model, type and year;
- total mileage and average yearly mileage;
- average yearly maintenance cost;
- average yearly costs for insurance and taxes;
- estimated average yearly cost for fuel.

At first, AREA shared with each Public Administration an Excel spreadsheet to collect the above-listed information in a workable format. Unfortunately, very few Public Administrations could provide detailed data about the average costs and mileage, as many of them don't keep track of these data per vehicle. As a consequence, in many cases it was necessary to extract information from aggregated data, to calculate average values or even to assign parametric values whether it was not possible to extract any data.

In total, the data of 556 vehicles were collected and/or calculated and further elaborated in order to define a "*baseline*" for each Public Administration, meaning the historical annual cost for the overall management of their vehicles and the historical annual mileage.

AVERAGE HISTORICAL EXPENDITURE PER TYPE OF PUBLIC AUTHORITY					
Type of PA	**n. of vehicles**	**Avg. Fixed Cost**	**Avg. Maintenance Cost**	**Avg. Fuel Cost**	**Total Average Cost**
Municipalities	93	367,11	464,11	532,90	**1.364,12**
Regional Authorities	18	1.475,54	1.135,86	4.151,09	**6.762,49**
Healthcare Agencies	412	289,77	621,62	607,10	**1.764,53**
Transport Authorities	27	405,72	728,70	985,90	**2.120,33**
Research Bodies	6	619,30	594,31	1.067,22	**2.280,82**
Overall	**556**	**361,81**	**615,84**	**756,74**	**1.904,63**

In almost all cases, the average historical expenditure of the Public Administration is quite below the expected overall cost of leasing of the new electric vehicles, that was estimated, on average, at about 5.200 Euro/year (including only the cost of leasing, excluding the cost of energy). Only in the case of Regional

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Authorities the average historical expenditure is higher, but strongly depending on the fuel cost and high mileage.

Definition of the financing methods

As stated above, one of the main assumptions of the Project Noemix is that the Public Administrations should not increase their historical annual expenditure for the fleet management.

To do so, it was necessary to define an algorithm to calculate the maximum yearly cost that each Public Administration could bear for the new vehicles and, on the other side, the yearly amount that the FVG Region has to pay to fill the gap between the cost of the leasing and the available budget of the Public Administrations.

In light of the above, the following assumptions were made:

- **annual historical expenditure:** is the total average annual cost borne by the Public Administration for fuel, maintenance, insurance and property tax for each vehicle. This is the maximum annual amount that the Public Administration can afford for the cost of the new vehicles, including the cost of energy;
- **conventional annual cost of energy**: one key variable to calculate the annual cost for the new vehicles and the maximum amount available to pay for the leasing service is the expected cost of energy. This cost will be borne directly by the Public Authorities, while the FVG Region will only cover the cost for the leasing service. The conventional annual cost of energy is calculated assuming:
    - an annual mileage equal to the average historical annual mileage and a fixed conventional price of electric energy (160 €/MWh + VAT), calculated on the basis of the average market prices at the time of the calculations;
    - a standard energy consumption of the new vehicles (kWh/km), based on the values declared by the manufacturers, increased by a 10% in a prudential way.
- **annual contribution for the leasing service**: the total amount that each Public Administration can pay for the leasing service is calculated as the difference between the annual historical cost and the conventional annual cost of energy. Since this amount is significantly lower than the total cost of the leasing service, the FVG Region will pay for the difference.

These assumptions result in the following consequences:

- Public Administrations will pay a fixed annual contribution for the leasing service;
- since the annual contribution for leasing service is based on the conventional annual cost of energy, Public Administrations will bear the following risks:
    - increasing electric energy prices;
    - higher mileage than the historical value;
    - higher energy consumption of the vehicles;
- the FVG Region will instead pay a fixed annual cost to fill the gap between the total leasing cost and the annual contribution by the Public Administrations. This is of key importance as to ensure that the total available budget of the FVG Region for the Project Noemix will be enough for the

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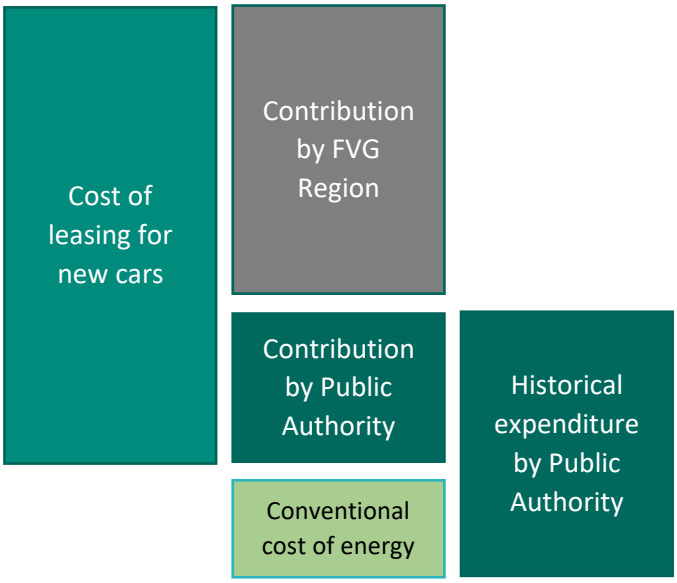
whole duration of the contract and that eventual extra-costs will be borne by the users of the service (*i.e*. the Public Administrations).



Identification of the tender procedure scheme

As already pointed out above (ref. Introduction under para. 1 above), the E-Mobility Service underlying the Project has been intended not only for the awarding of the lease service of a new generation of electric vehicles, but it aims also at obtaining the supply and installation of an adequate number of charging stations of the same vehicles, in order to implement a fully integrated service for the best interests of the involved Public Administrations.

In light of the above, the Project could have been implemented according to two different possible schemes:

a) based on a first solution, the FVG Region could have launched two autonomous tender procedures, (*i*) one tender procedure dedicated to the awarding of the contracts for the mere services of lease of electric vehicles, and (*ii*) a separate tender dedicated to the awarding of the contracts for the supply and installation of charging stations (including the execution of related works in each identified site);

b) alternatively, the FVG Region could have launched a unique tender procedure, for the simultaneous awarding of aggregated contracts providing, collectively, for the lease service together with the activities related to the supply and installation of the charging stations (again, including the related works).

The evaluation of the solutions listed above made by the Advisors, together with AREA and the FVG Region, eventually lead to the preference for the scenario pointed out under letter b).

In particular, it has been considered more convenient, and also more efficient for the time schedule of the Project deriving also from the European funds of the programme "*Horizon 2020*", to proceed with a unique tender for the awarding of the overall E-Mobility Service based on the following aspects:

- the carrying out of one tender procedure takes reasonably less time whether compared with the carrying out of two autonomous procedures, considering the duplication of the activities linked to the preparation of the tender documents (including the drafting of separate contracts), the launching of the two tenders and the actual carrying out of the same separate tenders (in fact, said activities would be again inevitably duplicated);
- the carrying out of one tender procedure significantly limits the level of the risks related to potential interferences and technical incompatibilities between the two segments of the E-Mobility Service (*i.e.*, on the one hand, the lease of electric vehicles and, on the other hand, the supply and installation of charging station, including the execution of the relevant related works).

Save for the above, according to the typical contractual scheme based on the prior awarding of a framework agreement ("*contratto quadro*") and the subsequent entering into of executive contracts ("*contratti attuativi*"), even if it has been carried out a unique tender procedure, following the awarding and the entering into of the framework agreement, each Public Administration involved will be entitle to enter into autonomous executive contracts with the selected private partner(s) in relation to the supply of the integrated E-Mobility Services. Therefore, each executive contract will be limited to the specific needs of the relevant Public Administration (please see para. 0).

Under a different perspective, even if it has been preferred to proceed with a unique tender procedure for the awarding of the overall E-Mobility Service, the contracts underlying the same tender has been divided into no. 2 lots, on the basis of the previous identification of two different main groups of contracting Public Administrations involved in the Project Noemix:

- one lot regards the E-Mobility Service to be provided to the participating Municipalities and other Public Administrations of the FVG Region involved in the Project;
- the other lot regards the E-Mobility Service to be provided to the participating Public Hospital Organizations of the FVG Region.

The aforementioned scheme of no. 2 lot has been identified (*a*) based on a specific technical and financial assessment carried out by an appointed technical advisor which identified and validate the structure of no. 2 lots, and (*b*) in order to cope with the general principle set under the Procurement Code, according to which public administrations should facilitate the participation to tender procedure of potentially interested private partners (including small and medium-sized enterprises), reducing accordingly the size of the contracts to be awarded, as well as taking into account the differences among the participating Public Administrations.

Save for the main features highlighted above, it should be noted that it has been decided to proceed with a standard open tender procedure according to Article 60 of the Procurement Code, which has been identified as the most suitable tender procedure for the Project, in order to guarantee the broader participation of interested private parties in compliance with the applicable regulation, based also on the general practice of central purchasing body of the FVG Region.

Tender documents structure and implementation of the tender procedure

According to the identified tender procedure scheme, the awarding procedure managed by FVG Region, acting as the delegated purchasing body of all the participating Public Administrations, is characterized by the following implementation structure:

(a) firstly, FVG Region, by means of its central purchasing body, is entitled to call the unique tender procedure for the awarding of the aggregate E-Mobility Service (simultaneously for the no. 2 lots identified in the previous paragraph);

(b) following the awarding, the FVG Region shall enter into a framework agreement with the selected private partner(s);

(c) on the basis of the legally binding terms of said framework agreement, each participating Public Administration shall enter into an executive contract with the selected private partner(s), for the supply of the aggregate E-Mobility Service limited to the specific needs of each participating Public Administration as preliminarily identified in the Agreements;

(d) on the basis of the relevant executive contract, the selected private partner(s) shall start the activities related to the E-Mobility Service, starting from the carrying out of the relevant works and the subsequent installation of the necessary charging stations, together with the lease of the electric vehicles.

In light of the above, the tender documentation at the basis of the tender procedure for the implementation of Project Noemix includes the following main documents:

(i) the tender documentation regulating the tender procedure;

(ii) the scheme of the framework agreement, limited to the provisions regarding mainly the general obligations of the selected private partner(s), as well as the specific obligations related to the entering into the executive contracts with each participating Public Administration;

(iii) the scheme of the executive contract and the attached technical specifications, providing for the detailed regulation of the activities to be carried out by the selected private partner(s) in order to implement and provide all the services underlying the awarded E-Mobility Service;

(iv) the technical projects of each site identified for the installation of the charging stations and the execution of the relevant related works;

(v) all the additional technical and contractual annexes providing for detailed information on the main characteristics of the E-Mobility Service and the needs of the participating Public Administration.

Regarding the technical specifications under point (*iii*), a thorough work was made as to define the contractual obligations of the supplier from the technical point of view.

The final version of the document, consisting of about 40 pages, is structured in sections as follows:

1) General aspects: definitions, object, lots, values and duration;
2) Charging stations: technical specifications and general regulation of the supply and installation;
3) Vehicles: technical specification, conditions of supply and services included (maintenance, repair, tires, service centers, assistance, insurance etc.);

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4) Fleet management services: minimum features of the management and control system (data analyzed, interface, access, security, etc.), additional services and optionals;

5) Other contractual obligations: end of contract, technology progress and out-of-stock, penalties and other charges on the service provider.

Having regard to the documents under points (*iv*), it is worth noticing that prior to the tender procedure for the awarding of the E-Mobility Service, it has been necessary to call a separate tender for selecting professional designers in order to draw said technical projects for each site identified as suitable for the installation of charging stations. These documents were required according to the applicable regulation in the field of public procurement in Italy, as a consequence of the works to be awarded for the purpose of the implementation of the aggregate E-Mobility Service.

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RELEVANT RISKS TO MONITOR

In the context of implementing the Project Noemix, many risks had to be taken into account in order to enhance the probability of an adequate outcome of the same Project, in accordance with the targets set by AREA, the FVG Region and the participating Public Administration.

Risks in awarding and signing the contract

Under a legal perspective, the Project had to consider the typical risks related to the carrying out of a public tender procedure as set forth according to the rules of the Procurement Code.

On this regard, one major risk of potential failure of the Project is strictly related to the outcome of the public tender launched for the awarding of the E-Mobility Service. In particular, save for the theoretical risk of objection and challenge by third parties, it is typical of a public tender procedure the possible event of having also no participants, resulting in the impossibility to award and subsequently sign the public contract at hands.

The risk of having no participant ("*gara deserta*") shall be particularly taken into account prior to the launch of the tender procedure. In light of said risk, it is essential to fully investigate the relevant market of the concerned contract to be awarded, in order to assess the existence of interested private partners which might participate to the tender.

To this purpose, in the context of the Project Noemix, many assessments of the *e*-vehicle market have been made, especially by AREA, in order to assess the presence of adequate partners and to identify the technical features to be requested in the context of the awarding of the E-Mobility Service.

In addition to the above, the Project had to face the exceptional circumstances of the present economic context, due to the war in Ukraine and the highly raising costs for the supply of energy and materials, which is making extremely difficult to produce electric vehicles, resulting in higher production costs and long delay in the delivery of the products.

As a consequence of the mentioned risks and economic context, in the first launch of the tender procedure for the awarding of the E-Mobility Service, one of the two lots received no offer, resulting in the impossibility to award the contract in relation to the concerned lot. Therefore, the FVG Region had to launch a new tender procedure for the awarding of the failed lot, resulting inevitably in a significant delay of the schedule timeline of the Project.

Save for the above, additional risks are related to the already described numerous participating Public Administrations, which could result in some difficulties in the signing of the executive contracts, whether their needs eventually appear to be not adequately addressed in the context of the tender procedure as well as by the offer presented by the selected private partner.

Risks in the management phase

During the implementation and management of the executive contracts, the main risks identified may be divided into different categories as follows:

- **technical risks**: risks related to the installation of the charging stations and the works needed install/adapt the power lines and the Points Of Delivery (POD). In particular, this category includes the risk of causing damages to third parties during the construction phase, the risk that variants to

the design are needed for the works and the risk that the installed equipment is not performing as expected. This risk is mitigated by the penalty clauses foreseen in the contract for the execution of works and, in any case, by the full responsibility of the operation and maintenance of the charging station on the service provider;

- **supply risk**: given the current market conditions for the supply of electronic devices and semiconductors, there is a risk of delays and increasing prices for both the charging stations and the electric vehicles. This may affect the implementation of the executive contracts, causing delays in the delivery of the charging stations and the vehicles and the activation of the electric mobility service. This risk could be mitigated through an adequate organization of the supply and delivery for each Public Administration, considering a prudential timing and calibrating the start of the executive contracts consequently;
- **operational risks**: risk that the service standards defined in the contract and in the technical specifications are not met. This may affect the adequate management and use of the fleet by the Public Authorities, causing reduction of service quality for the users. This risk is mitigated by the penalty clauses foreseen in the contract.

LESSONS LEARNT

As already stated in this Report, the Project Noemix was very innovative in the Italian context, being probably the first in the field of integrated *e*-mobility services in the public sector. As a consequence, all the activities carried out from the legal, procedural, technical and economic perspective faced the lack of previous examples and experiences that could have helped identify and avoid issues.

In fact, during the development and implementation of the Project Noemix, the partners have encountered hurdles and barriers that required quite some effort to be overcome. However, this experience allowed to learn some lessons that will be highly valuable for the replication of the project in other context and that could inspire and support other Public Administrations willing to follow the example.

The following are the main lessons learnt from the Project Noemix:

- **bundling of vehicles and charging infrastructure**: one of the main themes of discussion among the project partners was about the convenience of bundling the leasing of the vehicle and the supply, installation and operation of the charging infrastructure. On one side, it's true that the two objects are quite different, require different technical skills and expertise by the suppliers and may thus force suppliers to join forces to participate to the tender. On the other side, the two object are too linked and synergistic for several reasons to be tendered separately. As explained in Paragraph 0, the final decision was to structure the tender in order to award the service as a whole, including both the leasing service and the charging infrastructure.
- **timing and level of the design**: according to the Italian procurement code, in order to launch a tender for the execution of public works an executive project design is needed. This is the highest and most complex level of design that contains all the information and data for the contractor to

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directly start the construction works. Very often, drafting an executive design for a project takes longer than expected for several reasons: need to directly inspect the sites; need to collect data and information that are not always available or ready (in this case, from several Public Administrations); need to consult third parties and database to ensure the feasibility of the works; etc. In addition, according to the Italian procurement code, if the expected cost to draft the executive design is higher than the threshold set by law for the lawful direct awarding, which has been the case of Project Noemix, a public tender is needed to select the designer. Finally, the output produced by the designer needs to be validated before it can be used as a basis for the tendering. Reviews, adjustments and fine-tunings may be needed to ensure its compliance. Therefore, all this process requires time and the risk of delays, which exists and is relevant, is a key variable that must be taken into consideration in the organization and management of the tender.

- **agreements between the participants**: as stated in Paragraph 2, one of the main issues faced during the structuring of the process was related to the signature of the Agreements between the participating Public Authorities and the FVG Region. While, on one side, aggregating several participants and creating critical mass is key for the success of the project, on the other side involving, organizing and binding several Public Administration may be very complicated and troublesome. Each Public Administration is autonomous and every decision must be taken within its own organization according to its internal regulation. So, the agreements, once drafted by the project partners, had to be negotiated and eventually approved by all the participants partners before the tendering. This process requires time and effort, and this may cause delays in the implementation of the project. One key factor to overcome this issue is to start negotiating the agreement in advance, fixing the general principles, obligations and economic values in the contract, while delegating the development of the operational activities and the tendering to the aggregating body. Otherwise, it would be necessary to go back to each participant to ask for the approval of every step of the procedure, dramatically increasing the risk of delays or even not to find an agreement with all of them.
- **financial aspects**: as stated in Paragraph 2.2, the overall expected cost of the new *e*-mobility service is higher than the average historical expenditure for the fleet management. This is mainly because the cars that need to be replaced are old and their initial purchase cost has already been depreciated. This means that entering the leasing contract implies an increase in the current expenditure for the Public Administration, that need to find the right financial coverage. Very often in the public sector, this is a barrier that is difficult to overcome due to the strict regulation, constraints and spending review policies for the Public Administrations. In the case of the Project Noemix, the FVG Region provided all the financial resources needed to fill the gap between the historical average cost and the future expected cost of the leasing. Other Public Administrations willing to replicate this project must take this aspect into consideration in their financial planning, but should also consider the non-financial benefits that can be generated, such as: CO2 emission reduction; increased comfort for the users of the flees; improved fleet management with full-services included; showing that the public sector is leading the electric transition in the mobility sector, representing a good example and best practice for the citizen.