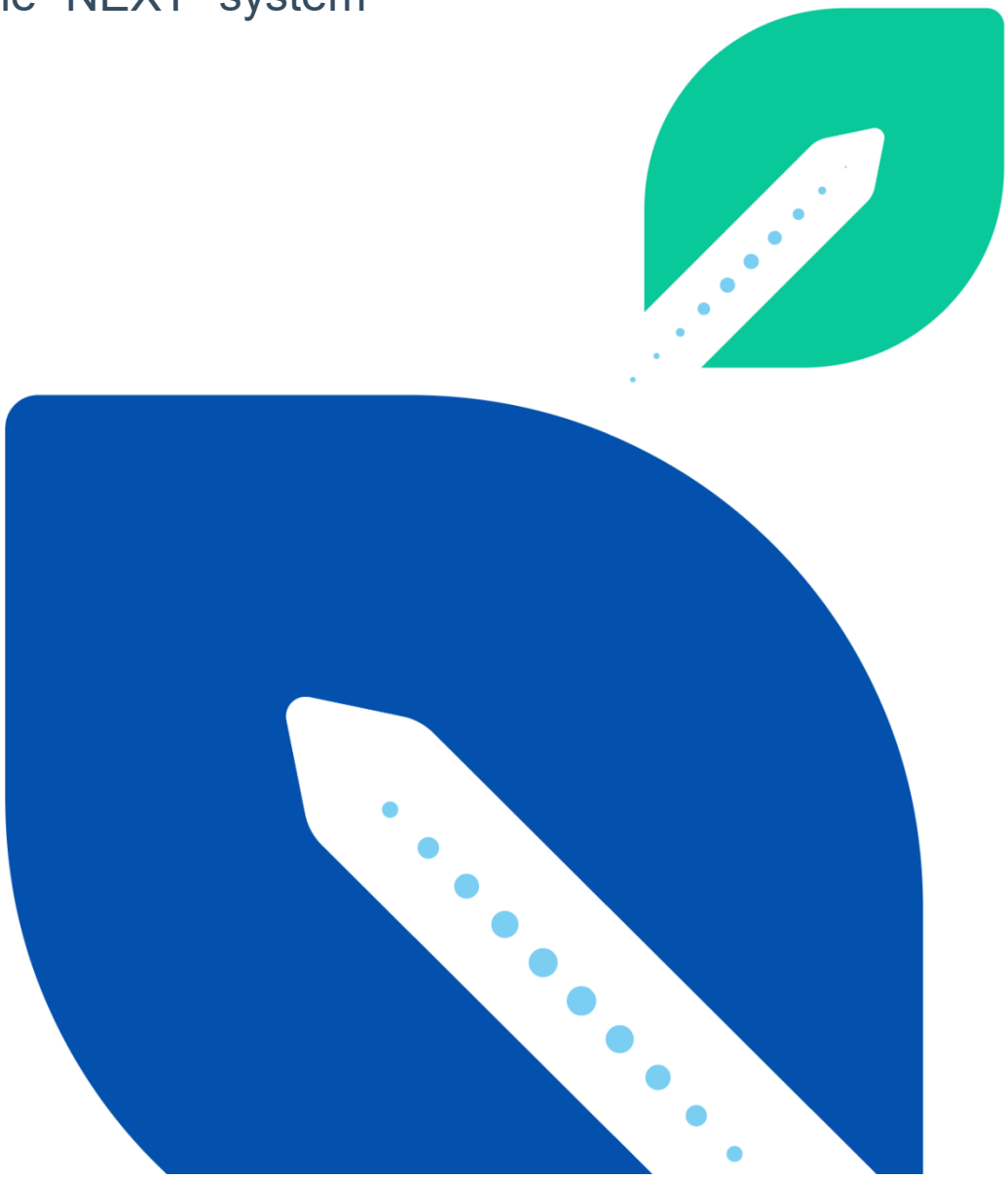
D4.4: Set-up Report Padua pilot

Padua pilot: the “NEXT” system



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1 Executive summary

The Padua pilot project aims to introduce cutting-edge technology for urban transport: the NEXT system. This is a mixed freight/passenger transport mean composed by modular electric self-driving pods capable to join and detach while running. The introduction of this technology is expected to have a positive impact on both the emissions and the congestion of urban traffic.

The pilot project will include a trial carried out in Longhin Street (in the city of Padua, Northern Italy – see maps) – a selected and confined area where the innovative vehicle and correspondent infrastructure requirements will be tested according to current regulation - and an impact assessment - based on scenario simulations according to proposed methodologies in D 4.1 - considering a wider urban area stretching from the area in Longhin Street and the bus/railway station, where the innovative mobility service is expected to be introduced and integrated with the other urban transport systems (both freight and passenger). Moreover, it connects the industrial area with the station and includes a key node – the Fair – which could be the ideal location in the future for an urban fulfilment centre.

The impact assessment will be composed by a sustainability assessment, the formulation and choice of alternative policies to deal with the NEXT system and the definition of city-specific policies. Financial and socio-economic sustainability will be assessed. Moreover, the IT components of the NEXT system will also be analysed by involving the manufacturer and assessing its technical performances.

The results coming from trials and sustainability assessment will be used to define new policies and to gain consensus with the most important potential stakeholders in both the passenger and the freight sector. Policies will address, in particular, issues related to legal, financial and operational dimensions and user acceptance.

2 Introduction

2.1 Aim of the deliverable

The aim of this deliverable is to be used as a reference document to guide and monitor the development of the Padua pilot in WP4. It contains the set of guidelines for the implementation of the SPROUT pilot in Padua giving detailed information in terms of: (1) the mobility solution that will be implemented and tested; (2) the location, area and context where it will be introduced; (3) the specific actions required for its implementation and the role of the crucial stakeholders involved; (4) the identification of additional stakeholders to further enrich the pilot's ecosystem; (5) and a tailored evaluation framework to assess the pilot, derived from D4.1.

2.2 How this deliverable relates to other deliverables

D2.2 provides the baseline of the current mobility situation in each of the project cities, and D3.2 and D3.3 the definition of the expected impacts of the emerging mobility solutions without policy intervention. D4.1 provides the pilots with a generic evaluation framework they can adapt to the pilot specific case. Deliverable D4.4 will be the basis for deploying the activities under T4.3, T4.4 and T4.5 that will result in the impact assessment and city-specific policy response (D4.5) deliverable and the policy implementation messages from cross pilot results (D4.14).

2.3 Task Participants and sharing of contribution

The participants for this deliverable are the pilot leader (Venice International University, VIU) and ZLC as T4.2 and WP4 leader. ZLC supported the pilot during the whole process for developing the deliverable. The pilot leader counted with the pilot partner, Padua Municipality.

2.4 Structure of Deliverable

The section that follows (Section 2) first describes the pilot mobility solution. This section gives further detailed information about the pilot, its drivers and barriers, and location. It also includes a description of the area and the identified challenges. Section 3 describes the roles and the grade of stakeholders' involvement. Section 4 contains a detailed action plan and an initial description of the pilot assessment activities and indicators. Afterwards, section 5 presents the legal and ethical issues may appear and how they will be addressed, the risk mitigation plan and the communication strategy. Finally, section 6 includes a summary and conclusions of the report.

3 Pilot in Padua description

3.1 Mobility solution description

The mobility solution (the “NEXT” system)[1] to be tested at urban level consists of innovative vehicles and business models based on cutting-edge technologies carrying both passenger and freight (cargo hitching). Cargo hitching solutions will be applied to an advanced, modular, electric, autonomous vehicle and smart transport system – “NEXT” – based on swarms of electric modular self-driving pods (Figure 1 and Figure 2). Each module can join and detach with other modules on standard city roads. When joined, a bus-like vehicle is created by modules. The modules can move autonomously on regular roads, join themselves and detach even when in motion. Modules carrying passengers and goods are combined on the basis of estimated flows, which are calculated in real-time by algorithms considering different final destinations by users and freight. In order to test and subsequently implement the mobility solution, a major activity consists of the deployment and set up of suitable infrastructure (made up of a number of elements).

Major drivers consist of the strong political support by the Municipality to foster disruptive innovation and technology to effectively address major urban mobility challenges, in particular pollution, congestion and overall urban sustainability. In that respect, the NEXT system can provide significant benefits in terms of dramatic reductions in traffic levels, travel times and emissions by dynamically consolidating urban traffic flows (both passenger and freight), thus optimizing urban transport capacity. Major barriers and challenges consist of the adaptation of the existing regulatory framework - and partly infrastructure requirements as well - to deal with such disruptive mobility innovation (authorizations, approvals, etc.). However, the commitment and political support of the Padua Municipality ensures that such barriers and challenges will ultimately be overcome and dealt with. Some regulation constraints – related to self-driving vehicles – can be also a barrier, as international and national legislation in this area is evolving.

[1] https://www.next-future-mobility.com/analysis

Figure 1. Joined self-driving pods. Source: https://www.next-future-mobility.com/analysis

Figure 2. Self-driving pod: https://www.next-future-mobility.com/analysis

3.2 Pilot context description

Padua is going through a rapid economic change, showing a central role of private cars (currently, representing some 51% of overall urban mobility and 74% of the mobility market in the metropolitan area) and changing user needs, particularly due to the skyrocketing

development of home deliveries. Negative impacts (congestion, pollution, safety, etc.) are in place, which should be addressed by innovative and effective policies and business models.

Even though the constant increase of the sustainable mobility share is promising (49% in the city centre, 26% in the whole the metropolitan area), the Municipality of Padua is developing an innovative policy framework within the forthcoming Sustainability Urban Mobility Plan (SUMP). SUMP main goals include:

- Fostering the use of more environmental-friendly transport modes;
- Reducing the role of road transport;
- Decreasing road accidents;
- Improving the quality of public space, namely accessibility;
- Improving the effectiveness and efficiency of urban logistics and freight transport.

Critical issues and problems are identified within the existing policy framework, which conversely represent key goals of the forthcoming SUMP, in particular:

- Strong focus on innovation of urban transport, using ITS (Intelligent Transport System)/big data and autonomous vehicles, both for passenger and freight;
- Developing e-mobility to reduce emissions, fossil fuel consumption and mitigating climate change;
- Improving the overall efficiency and effectiveness of urban mobility, both for passenger and freight;
- Improving energy and environmental sustainability;
- Improving safety;
- Improving socio-economic urban sustainability.

Main factors driving the change of future urban mobility include innovative emerging technologies. The NEXT system has been selected to address and solve the issues related to overall sustainability of the urban mobility system. In particular, the deployment of NEXT – a modular system, coupled with electrification and self-driving systems - would dramatically reduce traffic levels, travel times and emissions by (dynamically) consolidating urban flows (both passenger and freight).

The NEXT system will be tested and deployed at urban level within the SUMP overall strategies and assessed on the basis of available methods in D4.1.

The pilot focuses on selected urban areas, consisting of the Longhin St. (for trials, focusing mainly on technical performance of the system) along with the stretch routes comprising Stanga district, the Fair and the railway station (where the innovative system is expected to be implemented within SUMP – here, scenario simulation assessment activities will be performed according to D 4.1 methodologies). Table 1 presents the population density of these two regions, and Table 2 the age index.

Table 1. Population density by district (2019, Padua Municipality)

District	Population density (inhabitants/km^2)
Fiera	2057
Stanga	2659

Table 2. Age index by district (2019, Padua Municipality)

District	Number of residents by age			
	0-14	15-64	> 65	Total
Fiera	279	1447	368	2094
Stanga	461	2269	1021	3751

Other relevant indicators at city level are "*average incomes"* (2018, Ministry of economy and Finance): 2248 €/month (Geographic Aggregation level: City)[2] and commercial activities (2019, Padua Municipality, Commerce department)[3]:

- Number of shops: 1414
- Number of supermarkets: 665
- Number of restaurants:1139
- Number of other types of establishments: 674 (craft activities)

As for major transport services in the area, two stakeholders play a crucial role in mobility in Padua: BIV (BusItalia Veneto) for passenger transport and CityPorto for freight transport and logistics. Busitalia Veneto Ltd is the company operating in Veneto Region that provides urban and suburban services in the metropolitan area of Padua. The company was established on January 20, 2015 and from May 1, 2015 manages the public transport service in a uniform way with the aim of improving the offer for customers. From July 2020 the corporate composition is the following: 78.9% of Busitalia Sita Nord, a company of the FS Italiane Group, and 21.1% of APS Holding. The company has 930 employees, 650 buses and 18 trams. In the urban context, there are 24 ordinary bus and tram lines, for a total bus network of 232 km of buses, and 10 km of trams.

Cityporto is a major urban logistics provider with a fleet of Compressed natural gas (CNG) vehicles which consolidate the deliveries of different transport operators, thus, reducing the traffic of freight transport vehicles. The key words for Cityporto are: sustainable transport, intermodality, reduction and moderation of traffic. This is a summary about how the business model works: operators deliver their goods with destination to the city centre/Limited Traffic Zone (LTZ) and closer urban rings to a logistics platform (Cityporto) located in the Padua freight village (Interporto di Padova), which deals with the consolidation of the deliveries. IT System supports operations of the daily delivery plans: Cityporto eco-friendly vehicles leave the platform and cover the "last mile" having maximized their loading capacity in benefit of reduced number of delivery trips at best.

All the vehicles are technologically equipped with:

- On-board devices for vehicle control and location with GPRS / UMTS / Wifi and connectivity with GPS receiver;

[2] Last updated value available

[3] Last updated value available

- Palmtop with bluetooth / Wifi connectivity, with bar-code reader and archiving software.

Currently, 58 logistics operators signed an agreement with Cityporto. The number of deliveries vary between 50.000 and 100.000 per year.

Since April 2015 a new service of daily deliveries of perishable goods (fruits and vegetables, meat, fish, dairy, frozen) directed to some supermarkets located in the LTZ of Padua has been implemented.

Pilot deployment description

In the "NEXT" scenario, the innovative solution will be first tested in the Longhin St urban area (trial area), which will be the "real ecosystem" considered. This area has eventually resulted in the optimal location for testing activities since:

It is close to the industrial area;
- It allows the realization of a dedicated lane for trials;
- it implies low impacts on local traffic and sustainable infrastructure costs;
- it is closed to park areas which can encourage the NEXT services adoption.

The attached maps (Figure 3 and Figure 4) show the testing area for trials. More specifically, the width of the selected road allows creating a reserved lane to perform mostly technical tests/trials to assess technical performance of the system. The reserved lane will be created by defining an area of physical and visual separation from the rest of the roadway, thus, allowing the vehicle to travel in both directions. The driving direction is changed via the roundabout at the crossroad of Donà St. and S. Fidenzio St. and the two parking areas located aside the testing area. Based on the executive project, all the necessary infrastructures required for testing the solution in the selected area will be deployed (mostly, consisting of the modification of horizontal and vertical signage).

Based on testing activities' results in Longhin St., the brand-new innovative service will be assessed and simulated in the wider urban context – see Figure 5. Regular services will be assessed and simulated in the enlarged urban area on the basis of available methodologies and indicators proposed in D4.1. In particular, the wider deployment of the NEXT service will include some strategic urban areas – the Fair and the bus/railway station – which would benefit from a regular urban mobility service for both passenger and freight. In particular, for freight transport – mostly related to e-commerce deliveries (small parcels) - the possible role of the Fair as urban logistics "micro-hub" would be envisaged and it would consist of a relevant policy response leading to the reconfiguration of the existing urban logistics network. For this purpose, an agreement would be signed between the Municipality and the Fair to deal with the location of the urban fulfilment centre. Moreover, a dedicated stop would be identified along the way toward the Fair on the premises of a large supermarket. Thus, customers would benefit from the innovative urban mobility solution as well. Prospectively, the proposed innovative solution will be integrated into the existing local public transport network (in particular reaching the bus/railway station), thus, giving rise to a further policy response providing integrated and sustainable transport services to users, which is again something definitely in line with major strategic goals of the forthcoming SUMP.

The policy response activities will be dealt with within T 4.4 and T 4.5 following the proposed methods and indicators of D 4.1.

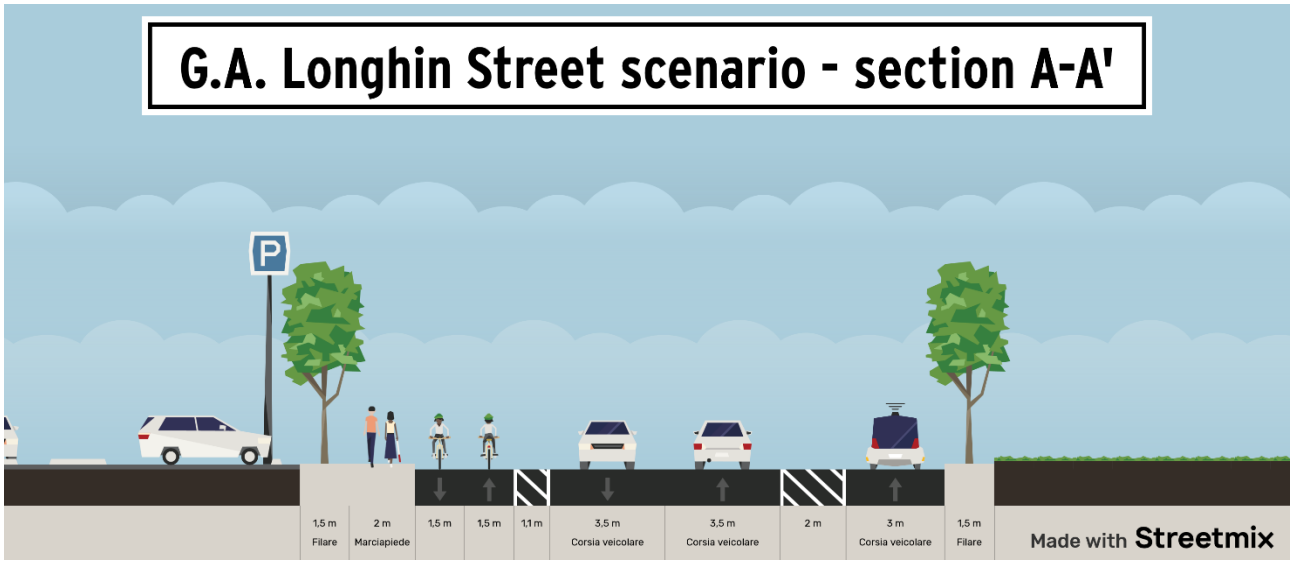

Figure 3. Longhin St Scenario for testing activities (1, source: Padua Municipality, Mobility Sector).

Figure 4. Infrastructure design: Longhin St Scenario for testing activities (2, source: Padua Municipality, Mobility Sector).

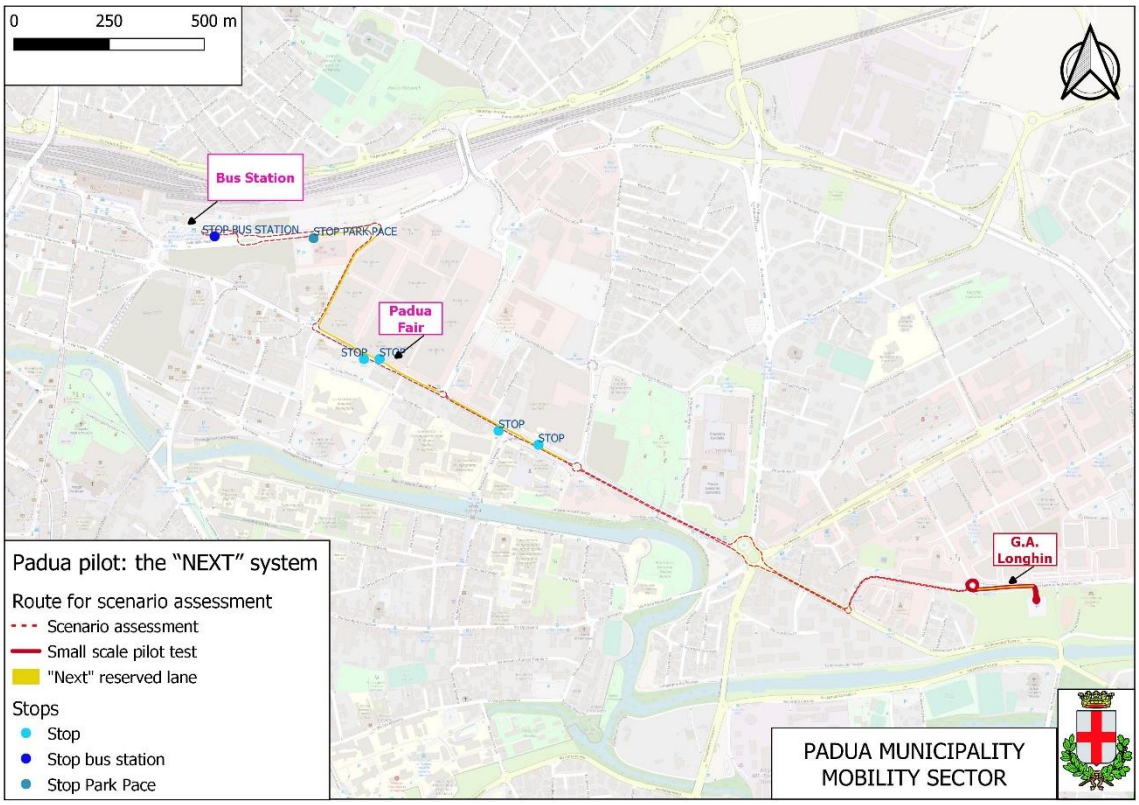

Figure 5. Design and deployment of the innovative solution in the wider urban context. (source: Padua Municipality, Mobility Sector)

4 Stakeholders identification and involvement

Table 3 contains the pilot partners contribution and other stakeholders will participate in the pilot activities (see annexe 1 for further details).

Table 3. Padua pilot stakeholders contribution.

Padua Municipality (different departments)
•Provide technica assistance to overall testing and assessment activties •Ensure smooth pilot implementation (administrative and regulatory steps) •Promotion and dissemination
Busitalia (public transport operator)
•Support on data collection and assessment activities •Workshops and feedback (policies prioritization)
Radio taxi association (public transport operator)
•Workshops and feedback (policies prioritization)
APS Holding, Binicittà and Mobike (shared mobility providers)
•APS Holding: city parking, car-sharing and share mobility services providers •Bicinttà as traditional and Mobike as free-floating bike-sharing providers •Leading prioritization and implementation of policy responses
Cityport (urban logistics operator)
•Data collection and assessment activties •Leading prioritization and implementation of policy responses
Next (Modular vehicles manufactures)
•Testing and assessment actitivities (data input)
Citizens (including commuters)
•Feedback on user acceptance (questionnaires and surveys). •Testing (a small selected group of citizens will participate to trial and assessment activities).

Besides the stakeholders above, the police will be involved in the pilot to provide it with relevant information for data collection and assessment activities and participate in the process leading to prioritization and implementation of policy responses. Fair, one of the major urban nodes for the implementation of the services, could be also invited to participate in some activities as a reference body signing for the location of a microurban logistics' hub.

5 Implementation and evaluation plan

The activities to be performed in the NEXT use case (pilot scenario assessment) are presented and detailed in the timeline (Table 4), the Gantt (Figure 6) and the use case description 2.2.

From a strategic viewpoint, the goal is to test and assess that the NEXT solution is feasible and sustainable – that is, it is not just a fad to disappear in the short term – and can benefit from effective policy response. In that respect, the Padua Municipality is implementing the necessary steps (technical, regulatory, financial, administrative, etc.) to deploy the disruptive mobility technology to become an innovative mobility service within the forthcoming SUMP.

Preliminary assessment activities include the deployment of suitable infrastructure features in selected areas for the NEXT vehicles and service to run (dedicated lane, streets, stops, roadway, signage, roundabouts, etc.) following a number of legal and regulatory steps (Executive, Municipal approval/authorization, tenders for public works, execution). The impacts related to the introduction and operation of the NEXT service will be assessed in the selected pilot areas.

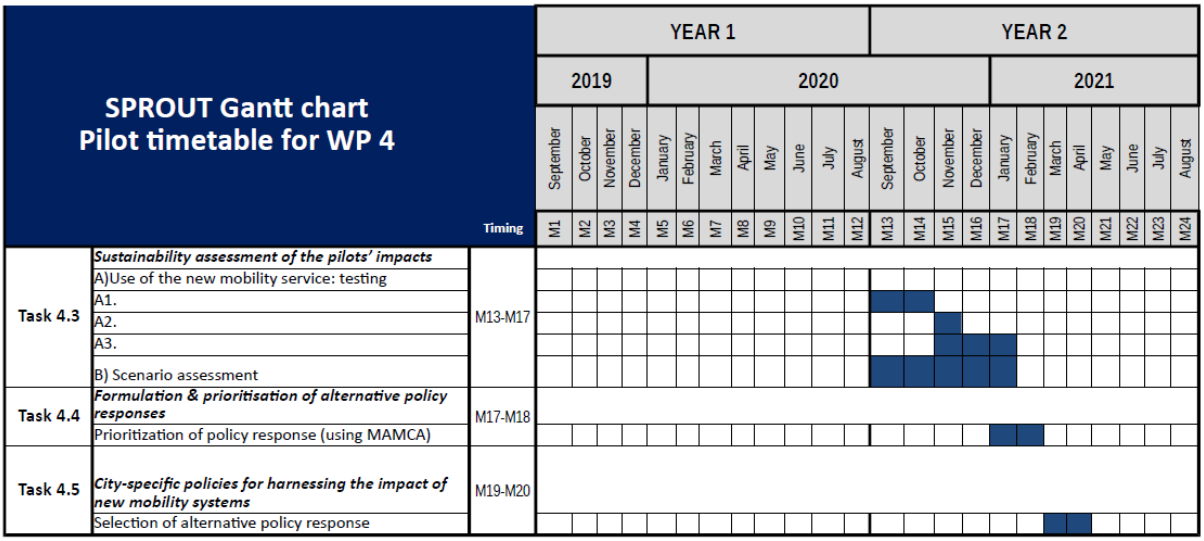

Figure 6. Padua Pilot WP4 activities timeline.

Table 4.Timeline activities description.

Task 4.3: Sustainability assessment of the pilots' impacts	M13-M17 Sept. 2020 – Jan. 2021
A: Use of the new mobility service: testing – introducing the innovative mobility solution in a limited scale and real ecosystem:	M13-M15
A.1: Infrastructure deployment for trials (streets, stops, roadway, signage, roundabouts, etc.): Execution. This step includes the following: definition of reserved lane on the existing roadway, new horizontal signage and installation of additional vertical signage, other complementary works.	M13-14

A.2: Request for Ministerial Authorization	M15
A3: Vehicle trial/testing (use of the new mobility service). Before the test, technical details will be defined and discussed with NEXT manufacturer. During the test (3 months), the data collection will take place, mostly on technical performance and indicators. The data collection/analysis will last until the end of the vehicle trial.	M15-17
B: Pilot scenario assessment: collecting data to assess feasibility and sustainability impacts (data collection, elaboration methods) in the wider urban areas – analysis results and impacts for operators; analysis sustainability impacts; identifying areas of intervention and barriers to be removed.	M13-17
Task 4.4: Formulation & prioritization of alternative policy responses	**M17-18 Jan– February 2021**
Prioritization of policy response (using MAMCA)	M17-18
T3.4 scenario update	M18
Task 4.5: Selection of alternative policy response to implement	**M19-M20 March – April 2021**
Alternative policy response limited scale implementation	M19
Implementation feasibility and user acceptance assessment	M19-M20
Definition of the city-specific policy response	M20
D4.5 Impact assessment and City-specific policy response development	**M13-M20 Sept. 2020- April 2021**
T4.3 activities and results descriptions	M15-M17
T4.4 activities and results descriptions	M18-M19
T4.5 activities and results descriptions	M19-M20

5.1 T4.3 Sustainability assessment of the pilots' impacts

The pilot in Padua will measure different indicators to assess the impact on introducing this disruptive mobility solution from different perspectives.

With respect to trials (real-life testing) conducted in Longhing Street, pilot activities will assess mostly the technical performance of the NEXT system. In fact, on top of the proposed indicators in D4.1, a range of “technical” ones will be employed and measured when running the test as well, including: travel times, distances, speed, consumptions. They will reflect the so-called “**technical performance**” of a transportation system or solution, which is usually assessed prior the financial and socio-economic analyses and actually feeds them (by providing the necessary input values).

The **IT components** of the NEXT system will be measured as well. It includes the sensors management, driving software and the apps for users. Since we are considering a proprietary software, it can be assessed by the owner only (e.g., the NEXT producer).

With respect to the wider urban area (where the NEXT system is expected to be introduced), pilot activities will assess:

- the operator’s **financial sustainability** by employing the Financial Net Present value, for which the NEXT system will be assessed on the basis of investment costs, operational costs and revenues over a time horizon in the pilot scenario selected areas;

- the **socio-economic sustainability** impacts by employing the Economic Present Value. Shadow prices and externalities will be estimated. In particular, climate change, well-to-tank, air pollutant, noise, accidents will be estimated as externalities. On the basis of technical traffic variables coming out from the pilot activities (pkm[4], vkm[5], etc.), externalities will be estimated by using the parameters provided by the Handbook in D 4.1. Users will be involved according to Table 3[6].

Remarkably, although traditional financial and socio-economical methods and approaches mostly report aggregated values of various indicators, it is important to highlight the distinctive features of a disruptive innovation such as the NEXT system, which affects the role and importance of selected indicators. In particular, major features of the NEXT system consist of:

- ***Modularity***, represented by the potential opportunity to carry both passenger and freight units (mixed passenger-freight system);
- ***Electrification*** (thus, the importance of zero-emission urban mobility as a result of testing and implementation activities);
- ***Self-driving*** (thus, the role of "IT" components to run the innovative system and the opportunity to avoid the employment of drivers). Self-driving vehicles, however, must be compliant with national and (mostly) international regulation.

Table 5. NEXT system assessment indicators.

Indicator	Description
Financial Net Present Value	From investment costs, operational costs and revenues for the operator.
Economic Present Value	Considering social and environmental impacts as the transport costs externalities presented and calculated following the D4.1 guideline: climate change, well-to-tank, air pollutant, noise.
IT Systems Product Quality/ Quality in Use (sensors management, driving software, apps for the users)	Proprietary software. The owner will be involved to deal with the ISO/IEC 25010 Product Quality Model and ISO/IEC 25010 Quality in Use Model (defining stakeholders requirements, IT system requirements, prioritizing characteristics according to pilot nature – Likert scale employed by stakeholders for assessment, assessing the IT system – mostly, by means of questionnaires, assessment results according to users categories).
Technical performance	Travel times, distances, speed, consumptions.

4 Pkm: passengers per kilometer

5 Vkm: vehicles per kilometer

6 Users will be involved during trials (both passenger and freight), according to current regulation (T 4.3). Potential users will be considered during scenario simulation activities (scenario simulations in the wider urban areas). Moreover, users will be involved in T 4.5 for users' acceptance.

5.2 T4.4. Formulation and prioritisation of alternative policy responses

In this task, a list of alternative policy responses will be determined following pilot activities to respond to T 4.3 gaps, barriers and opportunities for further development as well. The list will be defined by considering:

- The adaption and revision of existing policy instruments (in particular, the forthcoming SUMP) to include innovative solutions;
- The integration of pilot solutions into mobility plans and wider urban policies (including urban planning).

The activities to be performed in this task will be defined by the T4.4 leader and include:

- Prioritization of alternative policy response considering stakeholders' preferences;
- Selection of policy responses on the basis of the degree of consensus;
- Assessment of the impacts of selected policies on WP3 scenarios;
- Update narrative scenarios.

T 4.4 will follow the timeline and Gantt presented above in Figure 6.

5.3 T4.5. City Specific Policies for harnessing the impact of new mobility systems

In this task, local stakeholders will introduce the policy responses of the priority list in the urban environment by assessing the implementation feasibility and user acceptance. It will consider different dimensions to respond to the following research questions.:

- ***Legal dimension***: can the city implement the specific policies on the basis of the existing legal framework?
- ***Financial dimension***: can the city cover implementation costs of the policies?
- ***Operational and sustainability dimensions***: has the city the necessary resources to support the implementation of the policies?
- ***User acceptance:*** Can the city improve user acceptance?

To measure this implementation feasibility at city level and respond to these questions, the pilot will define performance indicators and assessment methods that will mostly rely upon surveys to stakeholders (operators, policy-makers, users). In particular:

- Legal framework compatibility: policy-makers expert opinions (surveys and open discussion);
- City investment, operational and financial costs: policy-makers expert opinions (surveys and open discussion);
- Probability of using the service: potential users' subjective likelihood that they will use the mobility solution with the alternative policy framework (users' opinion through questionnaire)

As for various economic and financial dimensions, it should be underlined that infrastructure deployment will be a preparatory step, and Municipality will autonomously proceed with its management, while the mobility solution will ultimately be managed by an operator selected through public tender. Thus, financial and economic dimensions should consider such different roles and indicators would be computed accordingly. Moreover, we believe that "city revenues" denomination should be changed to consider the public nature of municipalities (public budget)

T 4.5 will follow the timeline and Gantt presented above in Figure 6.

6 Pilots management

6.1 Legal & Ethical issues

As for insurance issues, the NEXT vehicle will be equipped with a specific third-party liability insurance cover. Moreover, it will be equipped with a specific plate. At a current state of regulation, autonomous vehicles are allowed to circulate up to level 3, meaning that testing activities will be supervised by an operator.

No relevant additional legal and ethical issues are identified, since major data sources and information are internal (partners' knowledge) and directly accessible. External sources will refer to officially published documents and available scientific literature. As for the involvement of relevant users and external partners (for surveys, interviews, workshops), a consent form will be elaborated following the Ethical committee guidelines.

6.2 Risk identification and mitigation plan

Table 6. Risks, contingency and mitigation actions (including COVID-19).

Task#.#	Risk description	Contingency action	Mitigation Action
Task4.3	Delays related to COVID-19 affecting the testing activities	Try to anticipate all the paperwork	Scenario simulations
Task 4.3	Delays linked to the administrative/legal procedure	Try to anticipate all the paperwork	Scenario simulations (although time line already includes part of such possible delays)
Task 4.3	Temporary suspension of testing activities for possible contingencies related to road traffic needs or road repair works (failures, incidents, damages, etc.)	Local, temporary traffic modification ordinances	The time line for trials already considers this risk (days dedicated to the recovery of suspended activities).
Task 4.3	Temporary local effects on vehicular traffic	Local, temporary traffic modification ordinances	Communication with prior notice to the interested population

6.3 Communication strategy and channels

The pilot will follow the communication strategy and channels stated in the D4.1.

7 Conclusion

The introduction of an innovative and cutting-edge freight/passenger urban transport system – called NEXT – provide significant opportunities to reduce environmental impacts and traffic congestion in urban mobility, especially in historical cities such as Padua. However, since the system is at an early stage of development, its introduction requires special attention to be paid to relevant technical (including IT features), legal and regulatory challenges. Thus, pilot activities must be properly planned in order to deliver relevant benefits and straightforward policy responses.

The overall pilot activities will consist of technical trials (including infrastructure deployment and vehicle testing activities) carried out in the “real ecosystem” of Longhin Street. Trials will be essential to test the technical performance of the innovative system. Moreover, pilot activities will include the sustainability assessment of the pilot’s impacts, which will be carried out on the basis of scenario simulations in the wider urban areas, where NEXT will be introduced.

The overall (technical and sustainability) assessment activities will be the basis to enhance the adoption of the mobility solution at urban level and improve the decision-making process by local policy-makers and stakeholders to identify, assess and eventually deliver effective policy responses, which will be incorporated in the forthcoming SUMP by the Padua Municipality.

A straightforward risk mitigation strategy is in place to deal with possible contingencies during project activities.

Annex 1: Stakeholders involvement

Table 7 contains the stakeholders will be involved in the pilot and a description of the activities they will implement.

Table 7. Pilots stakeholder's identification and involvement.

Type of stakeholder	Name of specific local stakeholder organisation	Involvement
Public administration		
Governmental bodies responsible for transport planning, public works, infrastructure, environment, public space, on local, regional and metropolitan levels.	Padua deputy Major Padua Municipality Public Works representative Padua Municipality Mobility Sector representative (Head) Padua Municipality – Environment Sector Padua Municipality – Trade Sector	• Padua Municipality various departments will provide necessary technical assistance to overall testing and assessment activities. Moreover, they will ensure actual implementation of project activities through necessary administrative, regulatory and technical steps • Padua Municipality will promote the new services among its users through its webpage, social networks and app.
Public Services		
Police	Padua Local Police	• Providing relevant information for pilot data collection and assessment activities • Participating in the process leading to prioritization and

		implementation of policy responses
Conventional public transport operators		
Operators of local transport (local bus, tram, (sub)urban rail, ferry, metro)	Busitialia	• Providing relevant information for pilot data collection and assessment activities • Participating in the process leading to prioritization and implementation of policy responses
Conventional taxi companies	Radio Taxi Association	• Participating in the process leading to prioritization and implementation of policy responses
'New mobility' providers		
Shared mobility operators that provide shared cars, (e-)bikes, scooters, motorbikes	APS Holding (providing city parking, car sharing, shared mobility services Bicincittà (traditional bike-sharing) Mobike (free floating bike sharing)	• Participating in the process leading to prioritization and implementation of policy responses
Potential Users - Urban Logistics		
Urban logistics operators	Cityporto (the company managing the urban freight village dealing with the logistics operations of last-mile deliveries)	• Providing relevant information for pilot data collection and assessment activities • Participating in the process leading to prioritization and implementation of policy responses
Vehicle manufacturers		
Modular vehicles manufacturer	Next[7]	• Providing input for data collection and assessment and developing actual testing activities
Potential Users - Residents		

7 https://www.next-future-mobility.com/analysis

Civil society organisations representing residents	Citizens (including commuters)	• Participating to trial and impact assessment activities • Participating in the process leading to prioritization and implementation of policy responses (in particular, assessing users' acceptance) • The citizens/potential users will be informed or involved about the new services through web-page, social networks and app.
Potential Users - Local businesses		
Companies	Fair[8]	• Reference body signing an agreement for the possible location of a micro urban logistics hub

8 https://www.fieradipadova.it/quartiere/padiglioni/