DIGITAL CITIES CHALLENGE

Digital Transformation Strategy for the city of Padova

PadovaNext

July 2019

Digital Cities Challenge

Digital Transformation Strategy for the city of Padova: PadovaNext

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Executive Summary: Padova digital transformation

Padova a central node in the Digital Cities Challenge network

The Digital Cities Challenge an initiative of the European Commission helps to achieve sustainable economic growth in Padova through the integration of advanced technologies. The initiative fosters complementarities and synergies between existing policies involving digital priorities (economic development, smart specialisation, smart city accessible to everyone, sustainable and clean growth, urban mobility, digital skills, etc.) and the newly planned policy actions supporting digital transformation.

The ambition is that Padova will act as model for other Italian and European cities. By developing and testing novel policy levers in a collaborative approach with the involvement of other cities as peers it will demonstrate how to reap the benefits offered by the transformative power of digitisation. It will showcase how to fill the gaps which are currently hindering Padova to advance and capture the benefits of digital transformation.

The digital transformation strategy for Padova: PadovaNext

We started this path thinking about what Padova really needs, so how to design, plan and make real the city to come together with all the stakeholders involved but also how to increase business opportunities for local incubators, innovation hubs, foundations and SMEs

On this basis, the city of Padova has defined the following mission:

Support the digital transition

- To increase opportunities for Millennials,
- to enhance the living standards of the elderly granting an easier access to the city public services,
- to move on to a smarter and more sustainable public transportation,
- to attract and keep the best talents supporting the research hubs,
- to create a digital community for sharing skills and competencies.

In order to reach this goal, it will pursue the following ambitions:

- Focus on public data digitization to ease citizens' daily interaction with the PA. To help the private companies grow their business saving time in dealing with the public authorities.
- Strengthen digital skills both of the Public Sector employees, with the aim of a smarter government, and of the SMEs to be more competitive.
- Build a smart and cooperative network amongst all the main interested stakeholders: University, Enterprises (start-up and spin-off included), Foundations and PA.
- Give priority to the environment through the smart mobility to reduce pollution.

The roll-out of this strategy will be guided by the implementation of 4 operational objectives:

- To Promote a digital transition of the following PA processes:
  - Digitalization of public heritage documents and urban works
  - Paperless and online procedures
- To Develop a training offer context with laboratories and technological equipment to accelerate the learning of digital skills in the areas:
  - Continuous training
  - Young apprenticeship programme
  - SMEs
  - Research and development
  - Second-level schools
- To Create an effective platform to share best practices and exchange information useful for business growth (with awards for virtuous initiatives, possibly also with crowdfunding steps)
- To Create a sustainable mobility platform to reduce CO2 and redevelop urban mobility:
  - When traveling by private vehicle;
  - Promoting smart working-car sharing;
  - Optimizing the operations of heavy-duty logistics.

The strategy roadmap for the city of Padova

The city has identified the list of activities to be implemented in the short, medium and long terms, in order to make its strategic mission and ambition a tangible reality. As such, a total of **5** specific activities have been identified, under the different operational objectives of the strategy. Examples of key activities to be implemented as part of the strategy include: NEXT,

DIGITAL CAMPUS, MY CITY. The Test-drive of the autonomous electric vehicles NEXT has been identified by the local working group as the pilot activity for immediate implementation, in order to launch the implementation phase of the digital transformation strategy and start generating immediate results.

The outlines of the governance of the digital transformation strategy have also been defined:

- For a smarter, greener and more human centric Padova to be;
- Municipality of Padova;
- Paradigma Exponential Hub, Fondazione Fenice, University of Padova;
- Last but not least, a performance framework for the strategy has also been designed in light of conducting regular monitoring and appraisal of strategy implementation.

1. Introduction to the Digital Cities Challenge

According to recent data, 72% of the EU's population lives in cities, towns and suburbs, making them the engines of the continent's economy. Cities generate 85% of Europe's GDP, they also face multiple, interconnected challenges, including energy and climate change, employment, migration, social inequality, and water, air and soil pollution.

However, through advanced digital technologies, Europe has the opportunity to re-invent the way we manage our cities' development and respond to the big societal challenges, such as efficient health management, cleaner environment, green mobility, and offering great-value jobs. Due to their high density, cities are put in a very good position to create innovative ecosystems made up of a wide array of different stakeholders from government, industry, finance, academia, communitarian organisations, social partners, etc. Cities have the capacity to make policies become reality.

In this context arises the **Digital Cities Challenge**, an initiative of the European Commission with the main purpose to support the cities in their path to digital transformation. DCC offers policy advice and support to 15 cities in Europe, namely **Alcoy, Algeciras** and **Granada** in Spain, **Arad** and **Iasi** in Romania, **L'Aquila** in Italy, **Kavala, Patras** and **Thessaloniki** in Greece, **Sofia** in Bulgaria, **Ventspils** in Latvia, **Grand-Orly Seine Bièvre** in France, **Pori** in Finland, **Rijeka** in Croatia, and **Guimarães** in Portugal. The support to be offered will speed up the digital transformation and the industrial modernisation of cities in order for them to take full advantage of the 4th industrial revolution.

This initiative draws inspiration on the recommendations set out in the "Blueprint for cities as launch pads for digital transformation". In addition, it will reinforce the networking among model

cities, facilitate their participation in on-going European initiatives in similar policy fields, strengthen stakeholder collaboration, cross-regional partnerships and stimulate investments.

The selected Digital Cities received support in the form of field advisory services provided by a group of high-level experts and peer reviewers, and offered the possibility for city representatives to participate in a series of capacity building and networking seminars. These activities took place in four Academy seminars during which cities shared practices, took advantage of peer to peer learning and worked together and in thematic groups on the steps of their digital transformation trajectory.

The commitment of Mayors is key to the success of fostering economic growth, increasing prosperity as well as well-being across European cities. The engagement of political leadership will be of much value to achieving digital transformation in European cities, providing strategic orientations and ensuring that the process of developing and operationalising the strategy supporting digital transformation is translated into a portfolio of relevant actions supporting each other towards achieving a common goal and tailored to the local context. Such efforts need coordination to ensure that effort and dedication undertaken by the city administration is directed to best effect.

As a result of this, the Digital Cities Challenge has directly engaged with the Mayor of the supported cities. In December 2029, the on Mayors Conference was organized in Brussels to reflect upon the ongoing work and co-design the technological transformation trajectory of European cities.

This digital transformation strategy presented in this document has been developed in the framework of the field advisory services delivered in the Padova. It represents the main output linked to the participation of the city in the Digital Cities Challenge. The strategy will be the main guiding document for the city to embark on its journey to unleash the power of digital transformation for growth and competitiveness.

2. Overview of the digital maturity assessment for Padova

As seen, Padova is well on the way of becoming digitally mature. But the Municipality of Padova is still working hard and is coping with three main challenges where it is "digitally" investing.

The main economic challenge that the Padova must face regards the transition of the productive system towards the economy of knowledge, to maintain the competitiveness of the area and increase jobs offered to their own citizens, opposing the unemployment created following of the recent economic crisis. The Municipality wants to support entrepreneurial development, investing in the infrastructure of the territory a business support, simplifying the administrative context and facilitating relations between P.A. and businesses. That's why Padova administration is working on administrative digitization processes and dissemination of PA digital services fully interoperable offered to citizens and companies. The goal is to increase the capacity of local authorities of offer highly interactive services, as well as the level of interoperability and cooperation application among public bodies, for the provision of services to citizens and businesses and for management integrated complex urban phenomena.

The Municipality will achieve this goal thanks to the development of e-government services for citizens and businesses built on a knowledge base that provides data from heterogeneous sources. So in Padova we will have the delivery of more efficient and interactive services to citizens and businesses through the standardization of data and administrative processes

The main environmental challenge that Padova must face concerns the high levels of pollution, in particular air, due to high urbanization and pressure of population that characterize the area, aggravated by the peculiar climatic conditions that characterize the Po valley. That's why Padova administration seeks at an increased sustainable mobility in the urban area, encouraging the use of Public transport in the city, improving the quality and accessibility (with digital info) of the service and making the vehicles (electric) more comfortable. The city aim to have an Intelligent transport systems.

The main demographic challenge that Padova must face regards the aging of population and structural changes in the composition of the family.

The Municipality of Padova supports the dissemination of information technology among the elderly population (i.e. computer courses for the elderly). Thanks to new technologies there is in fact a better accessibility to information and services by people with social fragility, often affected by manifestations forms of solitude. Increasing the familiarity of the elderly with the use of information technology has beneficial effects under the profile of social inclusion, socialization, prevention of isolation, the development of new interests and the care of relations. Furthermore, information technology is not linked to physical presence of people, it meets the needs felt from people with mobility difficulties, which are not obliged to move away from their home to receive information or present requests. In this way, the problems related to the connection to service delivery centres are reduced. A separate assessment report has been produced for the city of Padova, as part of the Digital Cities Challenge.

3. Mission and Ambition statements

To support the digital transition:

- To increase opportunities for Millennials,
- to enhance the living standards of the elderly granting an easier access to the city public services,
- to move on to a smarter and more sustainable public transportation,
- to attract and keep the best talents supporting the research hubs,
- to create a digital community for sharing skills and competencies.

Vision and ambition statements

For a smarter, greener and more human centric Padova to be:

- Focus on public data digitization to ease citizens' daily interaction with the PA. To help the private companies grow their business saving time in dealing with the public authorities.
- Strengthen digital skills both of the Public Sector employees, with the aim of a smarter government, and of the SMEs to be more competitive.
- Build a smart and cooperative network amongst all the main interested stakeholders: University, Enterprises (start-up and spin-off included), Foundations and PA.
- Give priority to the environment through the smart mobility to reduce pollution.

4. PadovaNext the Digital Transformation Strategy for the city of Padova

4.1. Strategy orientation

Strategy orientation of Padova wants to design, plan and make real the city to come together with all the stakeholders involved, to increase business opportunities for local incubators, innovation hubs, foundations and SMEs and to reduce pollution for a healthy city.

The strategy wants to achieve win-win environmental/economic gains and an active participation of citizens.

The Municipality of Padova is keen to consider technology as a means to bring the administration closer to the citizens and to increasingly put the citizen at the centre of the organization, making it active in the life of the city and facilitated in its experience with the public administration. This is why the ICT dept of the Municipality of Padova is implementing a project, in concert with the other cities of Veneto, where citizens and companies will have an online platform to access different services: from information on soft mobility (bike sharing, car sharing, pedestrian areas) to information on bus transportation or available parking. Very important will also be the possibility for the most vulnerable from a social point of view to access services online, facilitating the provision, such as booking visits to social services, voluntary transportation, co-housing services.

This platform will also be a useful tool for companies, profit and no-profit, because it will make available information on the city, the use of facilities, infrastructure, but also on lifestyles and needs of citizens. All this information can be important for the construction of new businesses.

4.2. Operational objectives

Operational objectives reflect the means through which the city of Padova will achieve its ambition statements. They represent the 'how' behind the high-level strategic vision which has been developed by the local working group. As demonstrated in the following figure, operational objectives are linked to one or several ambition statements. The city of Padova has identified 11 operational objectives for its digital transformation strategy.

The following table provides a more detailed presentation of each of the operational objectives.

Ambition statements	**(1) Focus on public data digitization to ease citizens' daily interaction with the PA. To help the private companies grow their business saving time in dealing with the public authorities**	**(2) Strengthen digital skills both of the Public Sector employees, with the aim of a smarter government, and of the SMEs to be more competitive**	**(3) Build a smart and cooperative network amongst all the main interested stakeholders: University, Enterprises (start-up and spin-off included), Foundations and PA**	**(4) Give priority to the environment through the smart mobility to reduce pollution**
kpi	n. of practices initiated and completed (complete path) online by citizens	– n. of attendees of courses for citizens in the digital field – n. of students admitted with internships or Young apprenticeship programme within SME ICT – n. of students attending ICT post-diploma professional courses	– n. of access to the best practices sharing digital platform – n. of meetings / business network events	– Daily max value of PM10 – n. of tickets for public transport – capacity of daily public transport
Operational objectives	(A) To Promote a digital transition of the following PA processes: – digitalization of public heritage documents and urban works – paperless and online procedures	(B) To Develop a training offer context with laboratories and technological equipment to accelerate the learning of digital skills in the areas: – continuous training – Young apprenticeship programme – SMEs – research and development – second-level schools(c)	(C)To Create an effective platform to share best practices and exchange information useful for business growth (with awards for virtuous initiatives, possibly also with crowdfunding steps)	(D) To Create a sustainable mobility platform to reduce CO2 and redevelop urban mobility: – when traveling by private vehicle – promoting smart working-car sharing – optimizing the operations of heavy-duty logistics

Table 1 Presentation of the operational objectives of the Digital Transformation Strategy for the city of Padova

Operational objectives and description	Link to ambition statements and key city challenges and opportunities	Key Success Factors
C	Ambition st: (3) To encourage aggregation and cross-fertilizations To stimulate digital R&D investments	Unismart, a company owned by the university of Padova, is strongly working on sharing digital knowledge between university and industries. Unismart is also promoting a common platform dedicated to digital knowledge transfer
B	Ambition st: (2) To decrease the distance between citizens and digital solutions	Many quality training opportunities are going to be offered
A	Ambition st: (1) To fully digitize public administration services, To promote a more widespread use of ICTs in public sector	The Municipality already digitalized payments of open market's stands, reducing time and burocracy. The ICT dept of the Municipality of Padova is Padova administration is working on administrative digitization processes and dissemination of PA digital services fully interoperable offered to citizens and companies. The goal is to increase the capacity of local authorities of offer highly interactive services, as well as the level of interoperability and cooperation application among public bodies, for the provision of services to citizens and businesses and for management integrated complex urban phenomena. The Municipality will achieve this goal thanks to the development of e-government services for citizens and businesses built on a knowledge base that provides data from heterogeneous sources. So in Padova we will have the delivery of more efficient and interactive services to citizens and businesses

Operational objectives and description	Link to ambition statements and key city challenges and opportunities	Key Success Factors
		through the standardization of data and administrative processes
D	Ambition st: (4) To reduce traffic and pollution, to support actions towards environment sustainability.	Public administration is testing advanced smart transportation system based on swarms of modular self-driving vehicles. The main environmental challenge that Padova must face concerns the high levels of pollution, in particular air, due to high urbanization and pressure of population that characterize the area, aggravated by the peculiar climatic conditions that characterize the Po valley. That's why Padova administration seeks at an increased sustainable mobility in the urban area, encouraging the use of Public transport in the city, improving the quality and accessibility (with digital info) of the service and making the vehicles (electric) more comfortable. The city aims to have an Intelligent transport systems.

5. Digital strategy roadmap and planned activities

The roadmap is the component of the digital transformation strategy that describes the practical implementation of the strategy, including priority activities and governance. Priority activities refer to the specific actions through which the strategy will be implemented. An activity can be described as a tangible and concrete action, which has a beginning and an end, accompanied by a specific objective and resources for its implementation. The results of activities **(i.e. outputs)** are meant to contribute to reaching the operational objectives identified in the previous section.

5.1. Overview of proposed activities

The digital transformation strategy for the city of Padova will be implemented through a group of activities, identified in the framework of the Digital Cities Challenge. Activities are meant to contribute to reaching the operational objectives defined in the framework of the strategy, which in turn will contribute to the city's ambition and mission. The list of priority activities may be expanded with time. For now the city has decided to implement 6 activities, as described in the following table

Activity name	Link to Operational Objectives	Main implementing partner (i.e. owner of the activity)	Brief description and goals
NEXT	To Create a sustainable mobility platform to reduce CO2 and redevelop urban mobility	Municipality and Paradigma	Provide a brief description including main intended results.
Digital Campus	To Develop a training offer context with laboratories and technological equipment to accelerate the learning of digital skills	Municipality, ZIP and Fondazione Fenice	More digitally mature citizens
Reveal	To Create a sustainable mobility platform to reduce CO2 and redevelop urban mobility	Municipality	Reduction of cars in some areas
Smact	To Create an effective platform to share best practices and exchange information useful for business growth	University + private partners	Networking + innovation projects + growth of employment
My City	To Promote a digital transition of the following PA processes: – digitalization of public heritage documents and urban works – paperless and online procedures	Municipality	Digitalization of public services
Unismart events	To Create an effective platform to share best practices and exchange information useful for business growth	Unismart+university	Networking + sharing know how

5.2. The pilot activity

Test-drive of the autonomous electric vehicles NEXT

In order to begin the implementation of the strategy, the city of Padova has decided to carry out a first pilot activity: Test-drive of the autonomous electric vehicles NEXT

- **Why did you choose it as a pilot ?**

The manufacturing company is from Padova but was moving the corporate structure overseas for lack of European business, while it had already obtained an important order in Dubai. In this way we have accelerated the time to retain an important innovative reality in the city and we are able to experiment with the vehicles necessary for our co2 reduction goals

- **What are the expected results of the pilot ?**

We expect to reduce private cars in some areas

- **Who will be in charge of implementing ?**

Mobility office

- **How long will it take to implement ?**

2-3 years

- **How will it be financed ?**

Public funds + h2020 + maybe elena project.

- **How is it meant to contribute to the broader implementation of the strategy ?**

Next project KPIs (to 2030) correspond totally to a part of Padova strategy

5.3. Timetable for implementation

It is foreseen the strategy will be implemented for the next 3-4 years. Activities will be gradually implemented, on the basis of the following indicative timetable.

NEXT: starting from June 2019

Identifying requirements and tools for data collection and analysis supporting the regulatory framework leading to local mobility plans, with a view to selected innovative emerging technologies and disruptive business models;

Identifying opportunities for the selected emerging technologies and disruptive business models. Policy implications of identified solutions will be assessed as they lead to the new regulatory framework.

A first stage small-scale pilot will be developed, which will focus on the following specific activities:

- Test-drive of the autonomous electric modules in selected areas;
- Testing and optimizing modularity;
- Proceedings for authorizing the test of the service
- Selecting the suitable urban routes for testing the service for passenger and freight;
- Identifying requirements of recharging points in tested areas;

Running ad hoc services on selected routes. For passengers, the service will support intermodality by connecting the surroundings park and ride facilities to the historical city centre. For freight, the service will connect the Padova freight village (Interporto di Padova) to specific urban areas.

Assessing overall combined impacts of proposed policy solutions and tools at local level on the requirements of the new regulatory framework leading to the forthcoming SUMP;

Using the results of logistics solutions and mobility tools deployment to produce an integrated and coordinated regulatory framework, which will include various policy options in a unified and harmonized framework;

Performing capacity-building initiatives focusing on innovative mobility solutions

DIGITAL CAMPUS:

In two months Fondazione Fenice will have access to the building (owned by the Muncipality) and will start trainings and events regarding Digital themes, open to all citizens

REVEAL:

since February 2019 the Mobility Office of the Municipality is committed to developing, implementing, testing and evaluating UVAR measures in one or more of four “Measure Fields”: 1) Zero Emission Zones, 2) Spatial Interventions, 3) Pricing Measures and – through a process called “sandboxing” – 4) some innovate Future Options (C-ITS, geo-fencing etc.)

MY DATA:

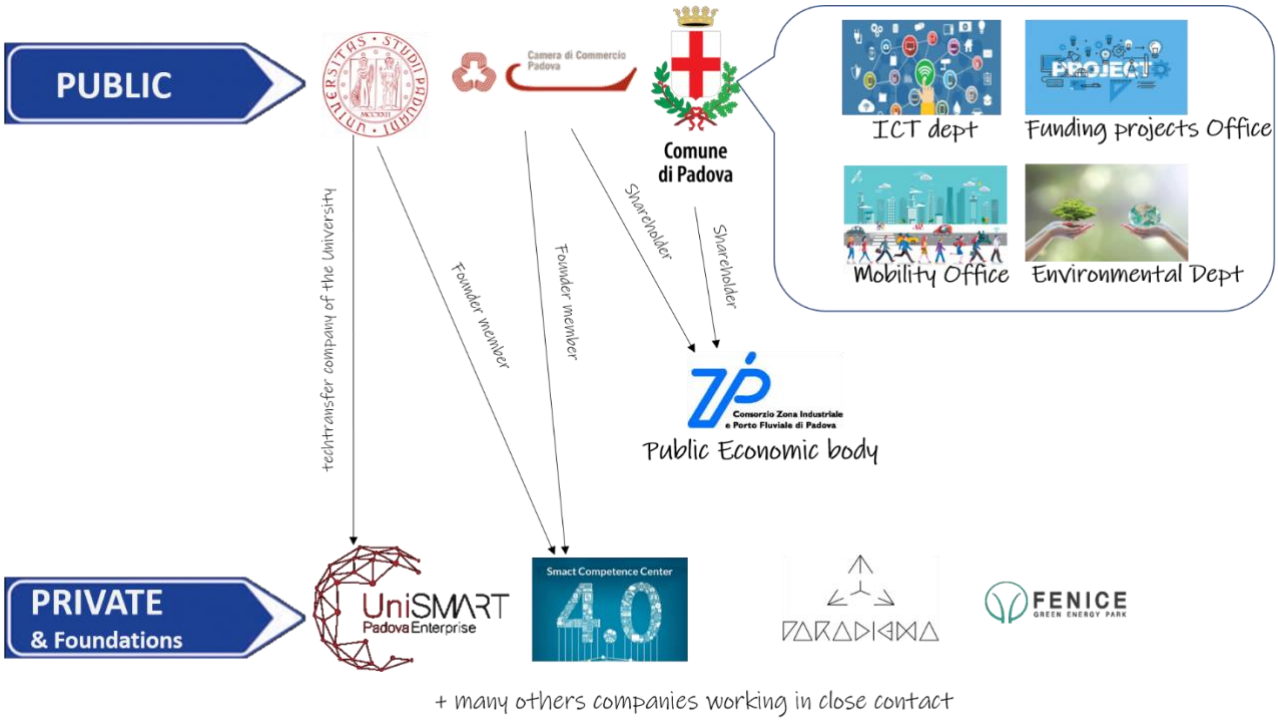
Starting from January 2020, development of e-government services for citizens and businesses built on a knowledge base that provides data from heterogeneous sources. So in Padova we will have the delivery of more efficient and interactive services to citizens and businesses through the standardization of data and administrative processes.

Table 2 Timetable for the implementation of the digital transformation strategy for the city of Padova

Activity	Jan-Jun 2019	Jul-Dec 2019	Jan-Jun 2020	Jul-Dec 2020	Jan-Jun 2021	Jul-Dec 2021
NEXT						
Digital Campus						
My City						
Reveal (UVAR)						
SMACT						
Unismart events						

6. Strategy governance

Padovanext strategy has governance and management so composed:



- In the case of a specific strategy document, governance refers to the set of rules, procedures and processes through which the implementation of the strategy will be overseen, managed and updated.

  Each project has a own specific strategy project, overseen by Public bodies.

- Each governance setting is unique and therefore, there is no such thing as a “governance template” that can be universally applied to every regional context regardless of the circumstances of time and place. The board of public bodies exists to gather together, talk about information vital to Padova organizational health, and take action. This all happens together, as a group, through group dialogue, at meetings.

- Highlight any changes in the institutional set-up introduced in the current strategy in comparison to the past. Tight collaboration between Municipality and University with the common goal of innovation.

- In your strategy you will need to define at the very least, the following three pillars of the governance

- **Strategy ownership** : Municipality of Padova, University and Chamber of Commerce
- **Strategy steering and oversight:** all stakeholder od DCC. Meetings organised by Enrico Fiorentin and Funding Projects Office. Schedule: collection of all contributions of stakeholders by mail every month, one meeting every 3 month, weekly email updates.

  Funding Projects Office has allocated 1 person to manage the oversight

  Implementing agent or agents: Funding Projects Office has allocated 1 person for the Day to day management of implementation; Reporting to steering bodies; Monitoring of progress and results; management of financial resources

7. Monitoring and evaluation of the Digital Transformation Strategy

In order to monitor and assess progress achieved as part of the digital transformation strategy, a performance assessment framework has been developed by the city team. In addition, the team has outlined preliminary evaluation plans and resources as part of an early evaluation plan.

7.1. Performance assessment framework

Strategy implementation and results monitoring will be conducted by Enrico Fiorentin on the basis of the performance assessment framework presented in Appendix II. Three levels of monitoring indicators and targets have been defined:

- **Outcome indicators** have been established at the level of the Ambition Statements
- **Intermediate outcome** indicators have been established at the level of operational objectives
- **Output indicators** have been established at the level of activities

The Municipality of Padova will be in charge of collecting data on all strategy monitoring indicators. However, it's expected that activity implementing partners will also play a key role in generating, collecting and sharing performance data. This information will be used for internal monitoring and reporting purposes. As such it will be communicated to PadovaNext steering body) on a regular basis.

The performance assessment framework will surely evolve as the city enters the full strategy implementation phase. The regularity and depth of monitoring will also be further specified by the steering bodies.

7.2. Strategy evaluation plan

In addition to monitoring the progress of strategy implementation, the Digital Transformation Strategy for Padova will undergo an internal evaluation within the next 3 years. The objective of the evaluation mainly be to verify the extent to which expected strategy results have been achieved, review the relevance of selected strategy priorities and objectives, and review the efficiency of strategy implementation and governance schemes. The evaluation questions

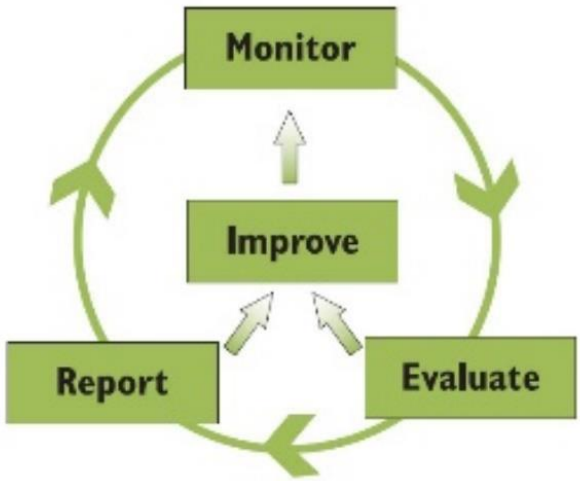
guiding the evaluation will be defined by the Municipality of Padova with the support of the Padovanext steering committee. Identified options for evaluation: internal, topic-specific, mid-term and ex-post. The following picture represents how we look at our Padovanext strategy: flexible, with continuous review (thanks to feedbacks) and adjustments.

Monitoring involves tracking the ongoing process to enable stakeholders to obtain regular feedback on the progress being made towards achieving project goals and objectives. Monitoring does not only track Padovanext progress, but also in the broader sense, it tracks strategies and actions being taken by partners towards achieving results.

Evaluation on the other hand is a periodic (quarterly), rigorous and independent assessment of either completed or ongoing activities to determine the extent to which they are achieving stated objectives and contributing to reviews in decision making.

An additional impact evaluation may be conducted after 6 years of strategy implementation. The impact evaluation will be mainly focused on assessing strategy outcomes and likelihood of impact.

When relevant, individual activity managers will be encouraged to conduct activity-specific evaluations and assessments. The information drawn from activity evaluations and assessment will feed into the general strategy evaluations


Monitor
Improve
Evaluate
Report

8. Results achieved and next steps

Participation in the DCC was very interesting from many points of view.

Certainly for having helped us in the construction of important networks: we have already managed to contact other cities present at the DCC to propose the partnership in other European projects, not only digital. Furthermore, at national level, we have been able to propose ourselves as digital partners in calls for innovation.

At the local level, having managed continuous workshops and meetings between stakeholders helped us to have a complete overview of the needs but also of the opportunities that Padova offers and made it possible to speed up communication for many other projects in development.

Participation in the DCC also allowed us to be present in international media, to be able to publish our news at European level and thus to make ourselves better known.

The municipality of Padova, becoming an active part in the presentation of the city also from a digital point of view, strengthened its leadership and was able to communicate with important academic actors. The office set up specifically to manage European projects, starting with the DCC, is receiving good feedbacks and the collaboration opportunities of the Municipality itself are growing.

Ad hoc communications were created with to citizenship and this allowed us to bring the citizens closer to the daily actions of the Municipality, to make them better understand the direction this administration is taking and the innovative vision of the municipal council.

The roadmap is constantly evolving, the bureaucratic difficulties and not only are so many but we are sure to have built a virtuous path of monitoring and stakeholder engagement.

The next steps are very clear:

1. Next future transportation pilot test for a modern and clean mobility.
2. Launch of online platform for public administration services, to speed up paperwork.
3. Inauguration of the Digital Campus for the continuous digital training for all citizens.
4. Opening of the SMACT competence center which will be the HUB of north-eastern Italy with high specialization in technologies in the Industry 4.0 area.

Appendix I: Detailed presentation of activities

Activity number: 1 NEXT	
Link to operational objective	To Create a sustainable mobility platform to reduce CO2 and redevelop urban mobility
Description	Innovative vehicles based on cutting-edge technologies will be deployed and tested to carry both passengers and freight. The cargo hitching concept will be applied to an advanced smart transportation system – called "Next" - based on swarms of (electric) modular self-driving pods. 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. Project activities will produce new, practice-based knowledge about urban mobility policy and contribute to policy-making at local level by fostering the development and adoption of planning decisions and policy initiatives.
Timeframe	• Length: 24 months for pilot test • Estimated date of implementation: Start: June 2019, Planned completion: June 2022
Indicators to be achieved	annual fossil fuel consumption – q/person tons CO2/person NOx, PM10 recharging points
Estimated cost and source of funding	Staff cost: 200.000€ (funding: H2020 + municipality budget) Vehicles: 250.000€ (funding: elena project + municipality budget)
Organisation / unit in charge of delivery (i.e. ownership of the activity)	Mobility Office

Activity number: 2 - Reveal	
Link to operational objective	To Create a sustainable mobility platform to reduce CO2 and redevelop urban mobility
Description	Add a brief description of the justification of the need and the activity which includes the general and specific objectives/goals, target population, means of delivery, expected outcomes and conditions for success
Timeframe	• Length: 24 months • Estimated date of implementation: June 2019 Start: February 2019, Planned completion December2021
Indicators to be achieved	
Estimated cost and source of funding	200.000€ Funding: H2020 + municipality budget
Organisation / unit in charge of delivery	

Activity number: 3 - Digital Campus	
Link to operational objective	To Develop a training offer context with laboratories and technological equipment to accelerate the learning of digital skills
Description	The creation of a Digital Campus is intended as a training centre on skills, innovation and digital and will represent a new benchmark in the field of innovation and computerization, aims to create a generator of knowledge and ideas useful to the city and necessary for both professionals and young people
Timeframe	• Length: no end • Estimated date of implementation: May 2019
Indicators to be achieved	Students and citizens attending courses
Estimated cost and source of funding	50.000 of infrastructure by private funds
Organisation / unit in charge of delivery	Fondazione Fenice Green Park + ZIP

Activity number: 4 - Smact	
Link to operational objective	To Create an effective platform to share best practices and exchange information useful for business growth
Description	Establishment of a highly specialized Competence Centre in Industry 4.0 technologies.
Timeframe	• Length: no end • Estimated date of implementation: January 2020
Indicators to be achieved	Number of new collaborations between 4.0 companies and public sector
Estimated cost and source of funding	7 millions from the Ministry of Economic Development + private funds
Organisation / unit in charge of delivery	The founding members of SMACT are 8 universities of the Triveneto (Padova, Verona, Ca 'Foscari, IUAV, Trento, Bolzano, Udine and SISSA of Trieste), two research institutions (the National Institute of Nuclear Physics and the Bruno Kessler Foundation), the Padova Chamber of Commerce and 29 private companies

Activity number: My City + My data	
Link to operational objective	To Promote a digital transition of the following PA processes: – digitalization of public heritage documents and urban works – paperless and online procedures
Description	The MyCity project intends to create a sw application capable of providing services through the unification and standardization of administrative procedures, developing a computer system for modeling data and interfaces for managing administrative processes in standard mode and open source. All this will allow the creation of new service delivery models and the online distribution of digital services in which the citizen and the company will be active actors and participants in the administrative procedure. The MyData project intends to achieve the objectives described above by making available IT tools such as DataWareHouse / Business Intelligence / Big Data, for the collection, normalization, processing, distribution and consultation of heterogeneous information sources, with the aim of increasing the capacity of provide direct services to the citizen and analysis services to support both short and medium / long term decisions. MyData also wants to create a platform for collecting data from measurement systems in the following areas: - detection and implementation systems based mainly on sensors and cameras for traffic, parking, environment, lighting systems, etc. - sensors for actions to support social inclusion and energy saving in buildings - ERP.
Timeframe	• 1 year • Estimated date of implementation: 2 years Start: January 2020, Planned completion: June 2021
Indicators to be achieved	App users Mobile services users
Estimated cost and source of funding	6 millions from POR FESR 2014-2020
Organisation / unit in charge of delivery	Municipality of Padova, ICT department

Activity number: UNISMART networking events	
Link to operational objective	To Create an effective platform to share best practices and exchange information useful for business growth
Description	Unismart organizes a busy schedule of events promoting cross-contamination between the Partners, aiming at creating an open innovation eco-system where all attendees can give their contribution and share ideas and projects in a collaborative environment. At least twice a year, Unismart organizes top-level networking dinners attended by the top management of the Partner companies, who have the chance to sit at the table with researchers, start-ups, investors. Once a month, Unismart organizes our "AperiTechs", 3-hour long pre-dinner events focused on showcasing the latest research activities carried out at the University in a certain sector. These Aperitechs normally see 2-3 professors and researchers giving a 30 mins speech on their latest achievements and are then followed by a get-together between attending companies and professors. These events are normally attended by managers heading the R&D, Innovation and Technical departments and are hosted by different community Partners every time. Previous Aperitechs debated of these topics: big data; cyber security; augmented reality; innovation in legal and business models; etc. The thematic events encourage the sharing of the community innovation challenges and the organization of dedicated working groups and thematic tables.
Timeframe	• no end • already implemented
Indicators to be achieved	number of participants
Estimated cost and source of funding	
Organisation / unit in charge of delivery	Unismart

Appendix II: Performance assessment framework

1. Strategy outcomes

	Expected result	Monitoring indicator	Baseline	Target	Timeframe	Means of verification
Ambition statement 1	Focus on public data digitization to ease citizens' daily interaction with the PA and To help the private companies grow their business saving time in dealing with the public authorities	Monitoring indicator 1: People interacting and solving issues online with the PA vs Number of people wasting their time in public offices for bureaucracy matters	No portal available until 2021	50% online autonomous users	2025	PA portal data collection
Ambition statement 2	Strengthen digital skills both of the Public Sector employees, with the aim of a smarter government, and of the SMEs to be more competitive	Monitoring indicator 2: % of people who declare themselves digitally mature	N.A Survey needed	30% over 65 70% 40-64 y.o. 95% 18-39 y.o.	2025	Surveys

	Expected result	Monitoring indicator	Baseline	Target	Timeframe	Means of verification
Ambition statement 3	Build a smart and cooperative network amongst all the main interested stakeholders: University, Enterprises (start-up and spin-off included), Foundations and PA	Monitoring indicator 3: flowing business interconnection between different professional stakeholders	N.A survey needed	25% declared flowing bsn interconnections	2023	surveys
Ambition statement 4	Give priority to the environment through the smart mobility to reduce pollution	Monitoring indicator 4: drastically C02 reduction	Data analysis about CO2, PM10 and Recent epidemiological research	-30% CO2 Upper daily limit PM10 40 µg/m3	2023	Monitoring and Analyses

2. Strategy intermediate outcomes

	Expected result	Monitoring indicator	Baseline	Target	Timeframe	Means of verification
Operational objective 1.1	To Promote a digital transition of the PA processes with paperless and online procedures	Monitoring indicator 1.1.1 number of practices initiated and completed (complete path) online by citizens	At the moment there is not a common platform but just some distinct apps	60% of totally completed path	2024	PA portal data collection
Operational objective 2.1	To Develop a training offer context with laboratories and technological equipment to accelerate the learning of digital skills in the areas: continuous training of citizenship	Monitoring indicator 2.1.1 n. of attendees of courses for citizens in the digital field	At the moment there are only several private courses	15 per year at Digital Campus	2021	List of courses supported by Padovanext stakeholders
Operational objective 2.2	To Develop a training offer context with laboratories and technological equipment to accelerate the learning of digital skills in the areas: Young apprenticeship programme/ - second-level schools	2.2.1 n. of students admitted with internships or Young apprenticeship programme within SME ICT and n. of students attending ICT post-diploma professional courses	At the moment internship and post-diploma pro courses esist but we need to promote them better	+15% in comparison to 2019	2021	
Operational objective 2.3	To Develop a training offer context with laboratories and technological	2.3.1 n. of attendees of 4.0 courses for pro	At the moment there are only	+15% in comparison to 2019	2022	List of courses supported by

	Expected result	Monitoring indicator	Baseline	Target	Timeframe	Means of verification
	equipment to accelerate the learning of digital skills in the areas: SMEs and R&D		several private courses			Padovanext stakeholders
Operational objective 3.1	To Create an effective platform to share best practices and exchange information useful for business growth (with awards for virtuous initiatives, possibly also with crowdfunding steps)	3.1.1 Number of people who declare themselves satisfied by the content of the platform	Platform does not exist today	50% users satisfied	2022	surveys
Operational objective 4.1	To Create a sustainable mobility platform to reduce CO2 and redevelop urban mobility: - when traveling by private vehicle	4.1/2/3.1 reduction of Daily max value of PM10 n. of tickets for public transport 4.1.2bis capacity of daily public transport 4.1.3 real bike users	We have data analysis both about pollution and public transport	-3% daily +5% tickets +10% users	2024	analyses
Operational objective 4.2	To Create a sustainable mobility platform to reduce CO2 and redevelop urban mobility: promoting smart working-car sharing	4.2.2 number of smart working-car sharing real users	We have only data about number of contract but not a real policy	Beginning of this kind of contracts	2021	Data analyses

	Expected result	Monitoring indicator	Baseline	Target	Timeframe	Means of verification
			about smart working			
Operational objective 4.3	To Create a sustainable mobility platform to reduce CO2 and redevelop urban mobility: optimizing the operations of heavy-duty vehicles	4.3.1 reduction of heavy-duty vehicles	Only data about number of vehicles	-5% vehicles outbound Industrial area	2024	Data analyses

3. Strategy outputs

	Expected result	Monitoring indicator	Target	Timeframe	Means of verification
Activity 1.1.1	Guidelines preparation of guidelines dedicated to citizens for the comprehension of PA online processes	1.1.1.1. number of consulted guidelines	20% populations	2022	Platform Data
Activity 2.1.1	2.1.1.Activity: organization of courses and Opening of Digital Campus	Monitoring indicator: 2.1.1.1 Number of courses organised with appropriate promotion	15 per year	2022	Data from Digital Campus
Activity 2.1.2	agreements with SMEs and popularization of post-diploma courses	Monitoring indicator: 2.2.1.1 Number of agreements with SMEs provided and number of students getting familiar with post-diploma pro courses	100 agreements 50% ICT high schools students getting familiar	2022	Data collections
Activity 2.1.3	Opening of Digital Campus and agreement with SMACT Competence Centre pro.	2.3.1.1 Number of pro courses organised with appropriate promotion	15 per year	2022	Data collection
Activity 3.1.1	creation of best practices sharing digital platform	3.1.1.1 n. of access to the best practices sharing digital platform	30% city companies	2025	Data collection
Activity 3.1.2	organization of meetings / business network events	3.1.2.1 n. of meetings / business network events	20 per year by Unismart	2025	Data collection
Activity 4.1/2/3.1	4.1/2/3.1 reduction of Daily max value of PM10	4.1/2/3.1.1 number of public zero- and low-emission vehicles	+15% low emission vehicles	2022	BusItalia data

	Expected result	Monitoring indicator	Target	Timeframe	Means of verification
4.1.2	extension of public bus fleet and their routes	4.1.2.1 number of new public bus users	+15% users	2022	BusItalia data
4.1.3	placement of new bike sharing system and building of new cycle lane	4.1.3.1 number of bike sharing contracts + 4.1.3.2 number of new bike users vs car users	+10% bike sharing users +15% bike users-> -12% cars	2023	City assembled analysis
4.2.2	incentives to car sharing contracts	4.2.2.1 number of car sharing and smart working contracts	+15% car sharing contracts +10% smart working	2025	Data analysis + Data from Chamber of Commerce
4.3.2	new UVAR	4.3.1.1 limitation to heavy good vehicles	-10% heavy vehicles in the industrial area -25% heavy vehicles in the city centre	2023	Data analysis from surveillance cameras and TLZ authorization

Appendix III: Relevant Good practices

Appendix IV: Bibliography

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Appendix V: Stakeholders consulted

DIGITAL
Cities Challenge