Padova: Intelligent City Transformation Overview

ICC Final Deliverable

Executive summary

The city of Padua, in the Veneto Region, north-east of Italy, is an important commercial and communications crossroad for the whole Region. Besides being a remarkable economic centre, it is also a renowned cultural centre and rich in valued history sights.

These positive aspects of the city bring with them important challenges. In 2019, in particular, we decided to tackle the issues of sustainable mobility, looking for solutions that would put the medieval urban structure of the city in agreement with the needs of a modern city, to create smart districts that would encourage the attractiveness of the city for companies and investors, and to develop nature-based solutions, in order to improve the air quality, the adaptation to climate change, and to increase the livability of the city.

After three years we can say that we have carried out part of the planned interventions, while in other cases we are satisfied to have found the funding to plan their implementation. Certainly, however, some priorities have been revised. In particular, the next few years Padua will face the challenge of climate neutrality with a lot of energy, which will see, together with mobility and NBS, many other actions with positive repercussions in terms of combating climate change.

Given the important challenges facing the city of Padua, the collaboration with stakeholders (local but non only) and the comparison with other European cities is more relevant than ever.

Mayor Foreword

The Intelligence City Challenge project has been a very positive experience for the city of Padua. It has given the Municipality of Padua the opportunity to identify some strategic priorities for the city and to work to achieve them, with an approach of collaboration both internally, among the various municipal departments, and externally, with numerous local stakeholders and, above all, with other Italian and European cities. Padua has now in front of her new important challanges and opportunities, such as the Resilience and Recovery Fund and the climate neutrality mission, both somehow linked to the ICC strategic priorities. So, even with the end of Intelligence City Challange, the Municipality work for the development of the city goes on.

Sergio Giordani, Mayor of Padua

The city of Padova pursued an EU-supported transformation over four main stages, and this document details that journey by these sections

Overview to the city's journey and structure of this document

Reported as one section

1 Preparation & assessment

5 months:
September 2020 – January 2021

2 Ambition & roadmap

3 months:
February 2021 – April 2021

3 Implementation

15 months
May 2021 – July 2022

4 Review & way forward

2 months
August 2022 – September 2022

Summary

Find out where a city is, where it should go and who in the ecosystem is going to mobilise make things happen

Develop a concrete plan to achieve measured improvements, collaborating with the community; push action with immediate benefits

Get "big moves" done and see results; take action in partnership with others

Measure success, and commit to keep connections and improvements going

The European Commission's
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CHALLENGE

The European Commission's
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CHALLENGE

Section

1

Padua: Preparation and assessment

ICC transformation

Introduction

Padua was a participant city in the Digital Cities Challenge. The ICC experience, therefore, builds on the two-and-a-half-year DCC programme.

At the end of DCC, the Municipal Council, together with the 12 stakeholders involved in the process, identified 4 key aspects for the evolution of the city: (1) smart and green mobility & transport; (2) E- government and digitalization of public services; (3) transforming and greening construction housing: and (4) urban management and promoting health and wellbeing of citizens.

At the beginning of the ICC, Padua expressed the interest in continuing with the implementation of the strategy, affirming the intention to focus on specific city goals regarding citizen participation and people health and wellbeing. For the selected areas, the City gathered the relevant information, such as strategies, studies, projects identifying city's key challenges and stakeholders to engage enlarging the internal and external networks.

To date the city of Padua has involved 25+ stakeholders in ICC. After the identification of two main goals (mobility and wellbeing of citizens), the stakeholders were divided into groups of 5/6 each, in order to properly identify strengths and weakness, trends, and actions, regarding the evolution of Padua.

The vision developed and illustrated at the end of this section is the result of this collaborative process. The 5 statements highlighted brought to the definition of the ICC priority solutions.

State of the city overview

The state of Padua today

Padova is the capital of the province of Padova, in Veneto region, north-east of Italy. It is also the economic and communications hub of the area.

The annual research made by La Sapienza University of Rome concerning quality of life in Italy ranked Padova as n.4/107, while according to a report drafted by the Observatory on Public Accounts of the Cattolica University of Milan, Padova is n.3/107 in the ranking of the most virtuous and efficient municipalities in Italy.

Smart and digital innovations have been part of the city politics for many years, in accordance with the city's strategy to become a smarter, greener and more human centric city. The Municipality has been focused so far on the following priorities:

- **Public data digitization** to ease citizens' daily interaction with the PA;
- 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 Public Administration;
- Give priority to the environment through the **smart mobility** to reduce pollution.

Key insights from city performance analysis

Higher performance observed	Lower performance observed
1 88.615 enterprises located in the city and 19.332 in the nearby province.	**1** Low usage of public transport
2 Strong interaction among Municipality, Region and University on key areas.	**2** Inadequate protected bike lanes
3 1st city in the Veneto region and 7th at a national level for ICT and digital companies.	**3** Low air quality
4 European volunteering capital for 2020 Unesco Heritage "Padova Urbs Picta" "European Capital of Sport 2023" "Covenant of Mayors Award 2021" for medium cities	**4** Cooperation among private companies may be improved

City Ecosystem: Key topics

The collaboration with the stakeholders engaged brought to the identification of a set of key topics for discussion (slide 10). During the workshops, the following aspects were also discussed:

- **Shared aspirations and vision** – do all stakeholders see the city in the same light and believe we are already on a journey?

- **What we bring and how we work together** – what capabilities are different parties bringing to the party? Do we work together well in ecosystem situations?

- Urban resources for transformation – does our wider city more broadly have the typical assets needed for a major transformation like access to capital, a skilled labour force and critical thinking

The path was set up with a wide and careful openness to the needs, ideas of the stakeholders who actively participated and shared their comments to the definition of the vision.

It was done in line with the two goals identified at the beginning of the path. The city of Padua is lucky to host (and connect together) high profile stakeholders: some of them are able to influence and push the next steps (e.g. Chamber of Commerce, University of Padua, Confindustria Veneto etc)
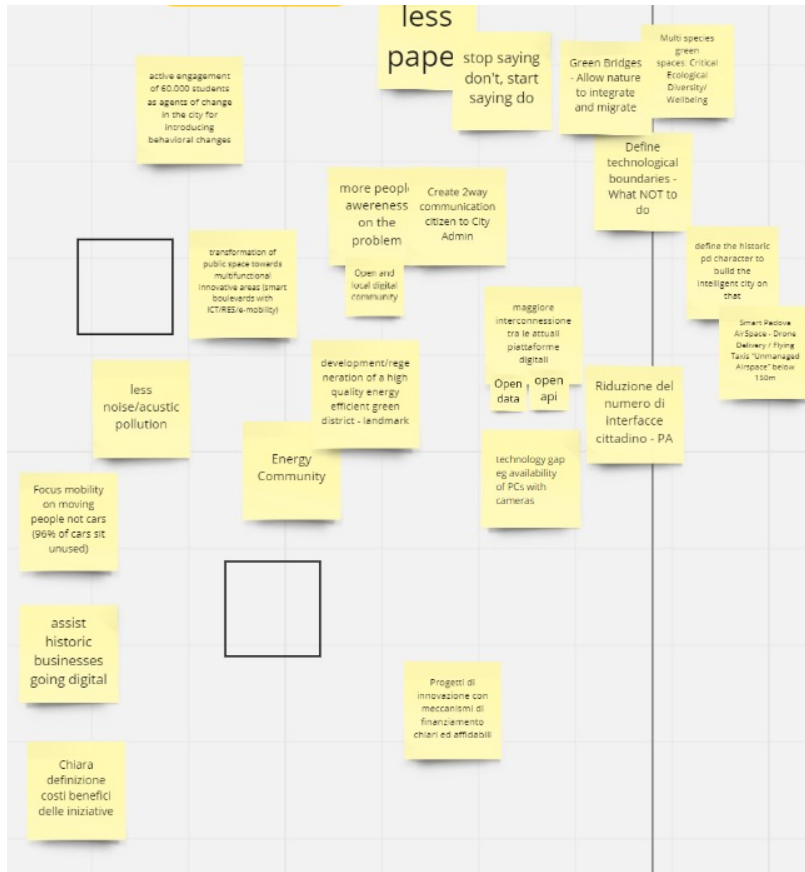
Other stakeholders have the opportunity to emphasize what we are doing (e.g. Blum); others are already preparing the basis for innovative and sustainable projects totally aligned with ICC (eg Paradigma).

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City Ecosystem: Key topics

PADOVA

100

INTELLIGENT
CITIES CHALLENGE

Smart Mobility
Città 15'
Cyber Security
Sicurezza
Approccio **Human** al Digitale
La Fiera di Padova come **HUB fisico di Innovazione**
Creare **nuove occasioni** tra Stakeholders di ICC
Dare vita ad un **Loop** dall'alto valore aggiunto
Innovazione e Sostenibilità
Misurare gli **Impatti** economici, sociali e ambientali
Impact Investing
Realizzare un link tra **Nature based Solutions** e sensori/monitoraggio
Elevare la dignità di luoghi problematici
Smart District
Attenzione alla **Sostenibilità Economica**
Ridisegnare una **Città** più **Sostenibile, Vivibile e Digitale**
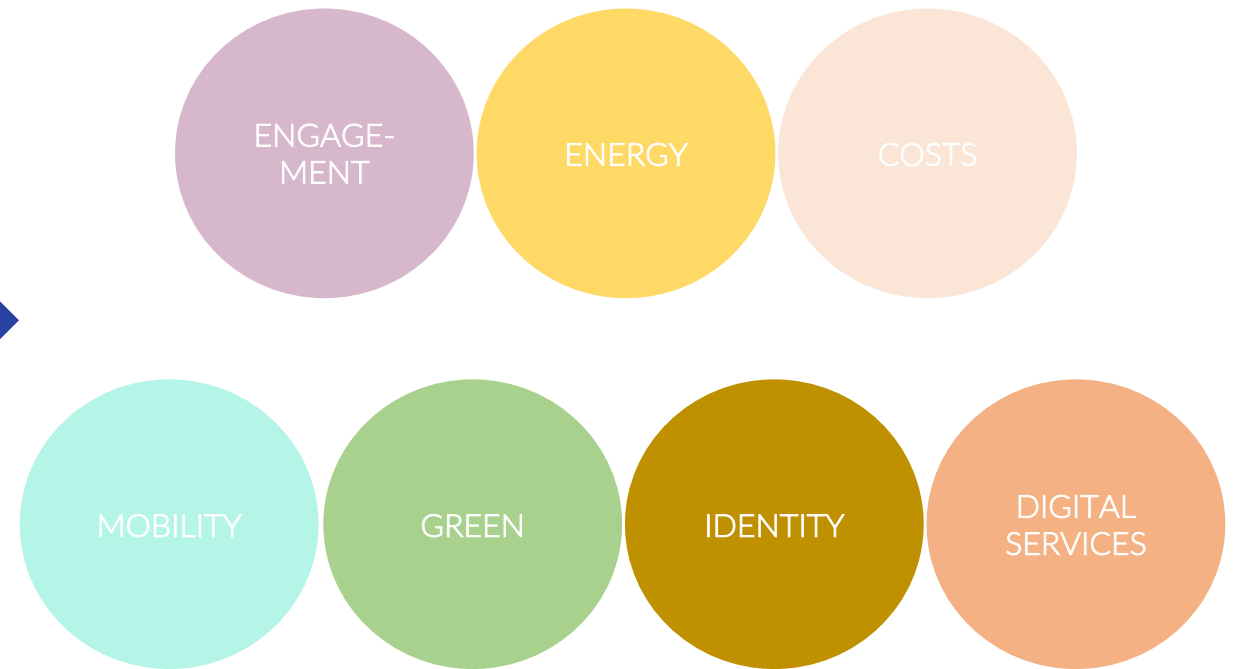Senso di **Comunità** e di **Appartenenza**

Brainstorming of Padua's key topics

City Ecosystem: Workshop exercise «Defining the needs»

Stakeholder's needs brainstorming

Focus areas highlighted

City Ecosystem: Workshop exercise «Defining the needs»

ENGAGEMENT

Active engagement of 60.000 students as agents of change in the city for introducing behavioral changes

More people awareness on the problem

Stop saying don't, start saying do

ENERGY

Energy community

Development/regeneration of a high quality energy efficient green district - landmark

Transformation of public space towards multifunctional innovative areas (smart boulevards with ICT/RES/e-mobility)

COSTS

Progetti di innovazione con meccanismi di finanziamento chiari ed affidabili

Chiara definizione costi benefici delle iniziative

DIGITAL SERVICES

Less paper

Create 2way communication citizen to City Admin

Technology gap

Open data – open api

Maggiore interconnessione tra le attuali piattaforme digitali

Riduzione del numero di interfacce cittadino - PA

Define technological boundaries – What NOT to do

MOBILITY

Less noise pollution

Focus mobility on moving people not cars (96% of cars sit unused)

GREEN

Green Bridges – Allow nature to integrate and mitigate

Green spaces. Critical Ecological Diversity Wellbeing

IDENTITY

Define the historic character to build the intelligent city on that

Smart Padova – AirSpace – Drone delivery/taxis

City needs

The city performance analysis and the workshops with the stakeholders brought to the identification of the key city needs. The outcomes of the overview were grouped into 6 areas of intervention:

- Mobility: ease and efficiency of movements throughout the city;
- Energy sources and systems available;
- Environment: ecosystem services performance and quality of life;
- Digital: level of city's smartness – accesibility, tools and devices;;
- Community: social inclusion and civic particpation;
- Identity: urban characters that promote attractiveness, place attachment and a strong sense of.place.

The discussion with the stakeholders highlighted gaps and opportunities of intervention, and a set of integrated goals (see the statements components in the next slide).

Mobility
- High presence of vehicular traffic congestion
- Lack of slow/sustainable mobility
- Difficult logistic into historical centre

Energy
- Room for development/regeneration of a high quality energy efficient green district - landmark

Environment
- High presence of air and noise pollution
- High level of soil consumption
- Issues with flooding

Digital
- Room for increasing relationship between digital development and local identity
- Lack of Open Data culture

Community
- Room for increasing awareness of citizens around City's initiatives
- Room for increasing citizens participation

Identity
- Weak identity
- Low attractiveness for young talents to stay in Padua after graduation

City needs

Needs

Mobility

Environment

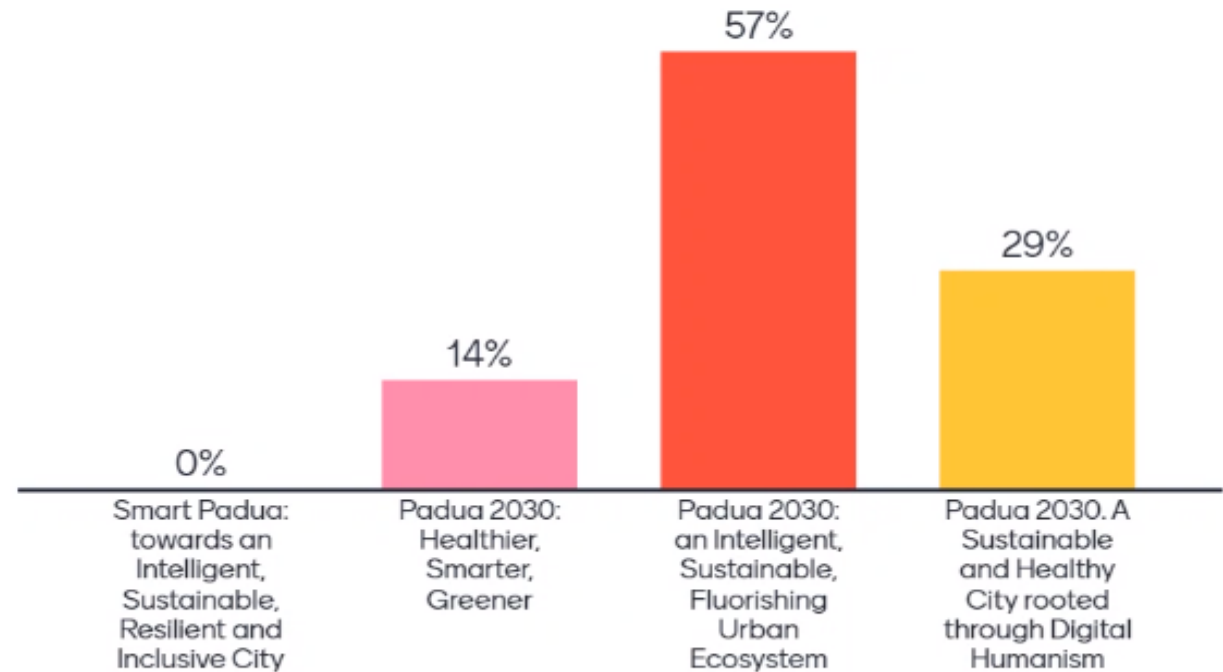Digital

Energy

Community

Identity

Statements components

Citizens awareness on Padua initiatives

Innovative services for stakeholder and citizens engagement

Urban resilience

Sustainability

Enhancing urban identity

Enhancing attractiveness

Investing on intergenerational dynamics

Effective combination of digital and human

Healthy city

ICC strategy: Vision for Padua

Padua had a smooth collective, participatory process where Paduan Public and private organizations, Authorities and municipality agencies, entreprises and SMEs, research bodies and the Academia joined all together to identify digital priorities for the territory, elaborating a shared strategy

The stakeholders agreed with the mission and vision

Which title better describe the ICC Padua Vision?

	0%	14%	57%	29%
	Smart Padua: towards an Intelligent, Sustainable, Resilient and Inclusive City	Padua 2030: Healthier, Smarter, Greener	Padua 2030: an Intelligent, Sustainable, Flourishing Urban Ecosystem	Padua 2030. A Sustainable and Healthy City rooted through Digital Humanism

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ICC strategy: Vision and ambition statements

Padua 2030 : a Fluorishing Urban Ecosystem rooted through Digital Humanism

1. **Community Involvement**

Focus on planning, co-creation and communication to local actors through innovative services and digital instruments

2. **Better life quality**

Widespread urban comfort promoting resilience and sustainability (15 minutes city, forestation) to guarantee high quality standard life

3. **A Sustainable Future by Design**

A city can properly build a sustainable future respecting and enhancing its identity and the peculiarities of its territories, culture, and people.

4. **Young Talent hub**

A city open and able to offer opportunities to students and young talents, in order to let them build their lifes here, even enhancing intergenerational dynamics

5. **Multi sectorial development for the people**

A city where culture, science and technology meet the people, in order to create a flourishing and connected ecosystem

ICC strategy: Vision and ambition statements

Solution #1

Smart, Green and Active Mobility

ICC strategy: Vision and ambition statements

Solution #1

Smart, Green and Active Mobility: a. Public transport system; b. Healthy mobility (biking and pedestrian zone and urban regeneration)

Description

The Municipality wants to develop a public transportation service where different tram lines are connected to smart electric modular mobility services (Next) all over the city. App and digital totem will complete the service. Moreover, Padua is working to make the cycling network more widespread and to have more pedestrian and liveable areas.

Relevant to which city ambition statement

Ambition n. 2: Better life quality and

Ambition n. 3: Multi sectorial development for the people

Benefit to city

Better air quality, less traffic, more time to enjoy life, more tourism.

Business model

Sustainable ecosystem and attractive city for companies and private and public investors.

Income form the use of the service.

Parties interacting

The Municipality, the local municipalized company and the Veneto Region.

Blockers and risks

Covid-19 and the no gathering rule is, at the moment, a risk for the development of public transportation

Spaces and streets setting (mostly in the city centre)

Change of mentality, mostly for elder people

Pending uncertainties

Covid- 19 and the economical sustainability in the long term.

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Solution #1 a. Public transport system | SMART

Already presented to the Minister of Infrastructure, SMART is an entire system that changes the way of moving around Padua and the urban belt, allowing citizen to reach any terminus without changes and by networking the main strategic points of the city.

All this will ensure better circulation and more efficient and sustainable mobility. This system provides 8 transport lines.

Solution #1 a. Public transport system | NEXT

NEXT *at* PADOVA (www.next-future-mobility.com):
- Door to Door
- Self driving
- Modularity
- Logistic
- Services in motion
- Battery Swap solutions

+ Sprout

H2020

TWO PILOT TESTS IN PADUA IN 2021-2022

Next Future Transportation is a Padua-based startup active in the world of mobility and born from the intuition of Tommaso Gecchelin. It is an advanced smart transportation system based on swarms of modular electric vehicles. Each module can join and detach with other modules on Standard city roads. When joined, they create an open, bus-like area among modules, allowing passengers to stand and walk from one module to another.

City solutions and delivery strategy

Solution #1 b. Biking

Connection to VENTO

www.cicloviavento.it

A very important project is the **Bici masterplan**, connected to PUMS (Urban Sustainable Mobility Plan), and is based on:

- a cycling plan based on the concept of network, continuity and safety;
- road works for cyclists defined by quality standards for cycle paths;
- made recognizable by all road users through the emphasis of horizontal and vertical signs, actions and services for urban cycling development.

Solution #1 c. Pedestrian zone + Urban Regeneration

It is necessary to identify a series of interventions in the neighborhoods, aimed at rationalizing traffic and restoring livable spaces for citizens. A possible pedestrianization is being discussed with inhabitants and traders.

Padua, Piazza De Gasperi: a year ago it was a neighborhood in the hands of drug dealers, to the point that 800 families organized themselves with a collection to pay for private security under the house. A year later there is a whole other story to tell and the basketball court built in the middle of the square, between the parking areas of the cars, Is the symbol of this rebirth. Yes, a basket between the high-rises, a few hundred meters from the station.
Now, almost every day, there are groups of kids having fun shooting a basket in this almost New York corner.
From LaRepubblica.it
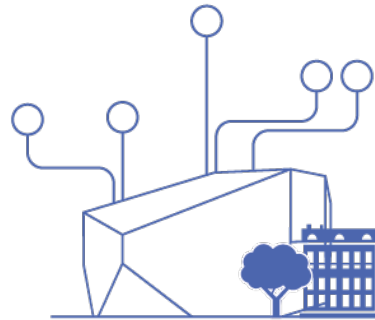
Solution #2

Smart District with strong Urban
and Architectural Identity

ICC strategy: Vision and ambition statements

Solution #2

Smart District with Strong Urban and Architectural Identity: a. Soft-City; b. I-Capital

Description

What are the main features of the solution?

Soft city

http://www.padovasoftcity.it/

Relevant to which city ambition statement

Ambition n. 1: Community involvement

Ambition n. 2: A sustainable future by design and

Ambition n. 4. Young talent hub

Benefit to city

A more dynamic and inspiring economic fabric, more job opportunities, better services for citizens and companies.

Business model

Sustainable ecosystem and attractive city for companies and private and public investors.

Parties interacting

The Municipality of Padua, Chamber of Commerce, private companies, University foundation(UniSmart) and Confindustria Veneto.

Blockers and risks

Covid-19
Slowprivate increasing of the collaboration among public and entities.

Pending uncertainties

Covid- 19

Solution #2 a. Soft City

Padova Soft City is a new model for Smart City, a new epicenter of innovation and development of energy, a place full of job opportunities (culture, entertainment, study and training for citizens and businesses) and innovative services (web-based services for citizens and businesses, innovative trade, energy saving and ecological logistics).
The project stems from the need to focus on sustainability and the development of digital technology in urban centers, demonstrating the potential of this sector to invest in the city of the Northeast where the greatest density of innovative companies and services in the Veneto is located, with a network of over 16,000 businesses that alone generates 11.2% of the provincial wealth.
The project wanted by Confindustria Padova in collaboration with the Municipality and the ancient University of Padua, the Chamber of Commerce and the involvement of all economic categories in the area, makes use of the first phase of the contribution of the Polytechnic of Turin, which will make it possible to map the area and select the companies and smart projects that will become part of Padua 2020.

La smart city delle imprese padovane

Solution #2 b. I-Capital
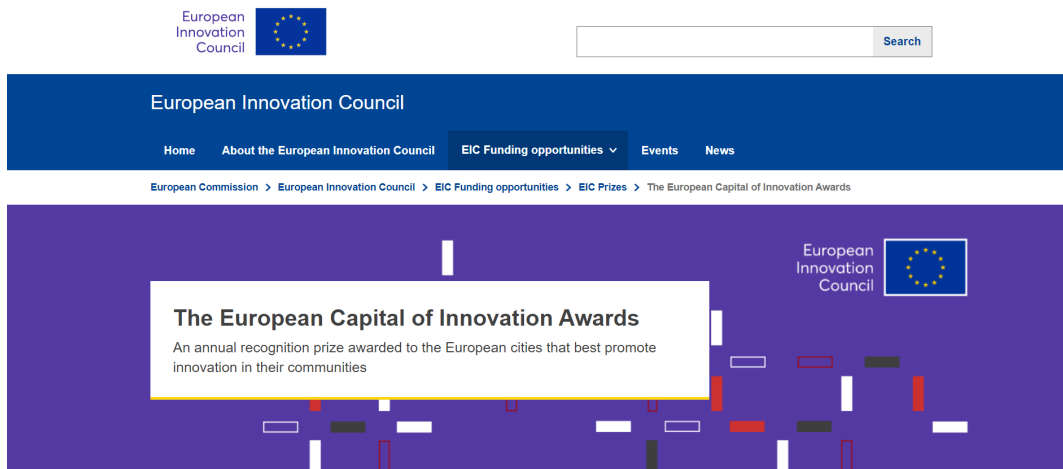
The European Capital of Innovation Awards is an annual recognition prize awarded to the European cities that best promote innovation in their communities. Cities are faced with some of the most severe societal and sustainability challenges but do also have the means to overcome them by developing and applying effective innovative solutions. In particular, the eighth edition recognizes the cities' contribution to developing local innovation ecosystems for the benefit of game-changing innovation and the wellbeing of the public.

Solution #3

Nature Based Solutions
and Innovative Monitoring System

ICC strategy: Vision and ambition statements

Solution #3

Use of Nature Based Solutions and Innovative Monitoring Systems: a. Trees planting; b. Urban resilience solutions

Description

Padua wants to identify strategies, actions, interventions, based on nature that provide environmental services and socio-economic advantages capable, when carried out in an urban context, to increase the resilience of cities.

Relevant to which city ambition statement

Ambition n. 2: Better life quality

Benefit to city

These are solutions that have multiple benefits for health, the economy, society and the environment, and therefore can represent more efficient and economical solutions than traditional approaches, if they are suitable for the territories in which they are created

Business model

Padua aims to develop innovative business models during innovation workshops with local stakeholders and businesses units to create a new market for nature-based solutions. Padua is looking for Horizon funds.

Parties interacting

Municipality + University + living labs open to People-Public-Private

Blockers and risks

Fundings

Pending uncertainties

What major uncertainties still need to be investigated?

Solution #3 a. Trees planting

Making the city more livable, safe and resilient and protecting the health of citizens are priority objectives for the Municipality of Padua. For this reason, Padua has accepted a new challenge to bring greenery and biodiversity back to the city: improving the quality of the air and the quality of life of people by **growing 10,000 new trees, in collaboration with citizens**, companies and associations. And to do so, he conceived the PadovaO2 project by providing new green areas - as large as 12 football fields - for future woods.

PROJECT: Padova o2 by wow nature:
https://www.wownature.eu/padova-o2/

Solution #3 a. Trees planting

BOTANICAL GARDEN OF PADOVA

Created in 1545 on the property of the Benedictine monks of St. Justine, the Botanical Garden of Padova is the oldest existing university botanical garden in the world.
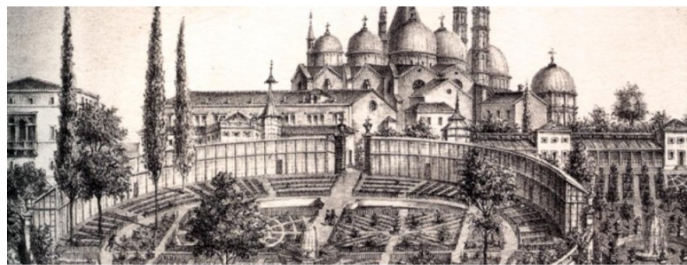
THE BIODIVERSITY GARDEN

The species in the Biodiversity Garden exhibition project number are about 1,300.

Padua has the oldest existing **university Botanical Garden** in the world. It represents the birth of science, of scientific exchanges and of the awareness of the relationship between nature and culture. Padua wants to improve with nature-based solutions its bad quality air due to high levels of pollutant emissions but also to orographic and weather-climatic conditions of the Po basin, which favor the increase in the concentrations of pollutants, making dispersion difficult and slow.

Solution #3 a. Trees planting

Over 250 thousand square meters of greenery: the Iris Park will become the largest in Padua "The Iris Park, which now covers an area of 68,900 square meters, will reach 251,100 square meters in the next few years.

PARCO IRIS ESISTENTE 68900 mq
PATRIMONIO COMUNALE 38200 mq
NUOVE ACQUISIZIONI 144000 mq
TOTALE circa 251100 mq

Solution #3 a. Trees planting

Project for a metropolitan agro-landscape park, aimed at environmental protection and the development of multifunctional agriculture in urban areas, implemented by Bio&diversità - a project of Legambiente and Several other organisations within the framework of the Culturalmente call for proposals. The area features land dedicated to organic crops started up by farms and social cooperatives; public parks such as the Jerusalem Olive Garden with a more traditional layout, and the Sunflower Field for free use; a rustic building under renovation intended to host activities for the development of the park; social vegetable gardens and a new space dedicated to educational agriculture; an inclusive municipal park under construction, and sports and cycling facilities.

Solution #3 b. Urban resilience solutions

Padua wants to provide active ecological air filtration by, for example, denitrifying microbes to capture greenhouse gases, moss walls, de-sealing of soils, or green roofs. The city aims to have satellite monitoring of greenhouses gases and air pollutants, to increase its local sensor data, and is open to innovative citizen science approaches

Through the living labs open to People-Public-Private, Padua wants to discuss decisions concerning the living environment. In this way it's ensured the suitability and acceptability of all solutions. All solutions need to have measurable improved air quality.

Waiting for...
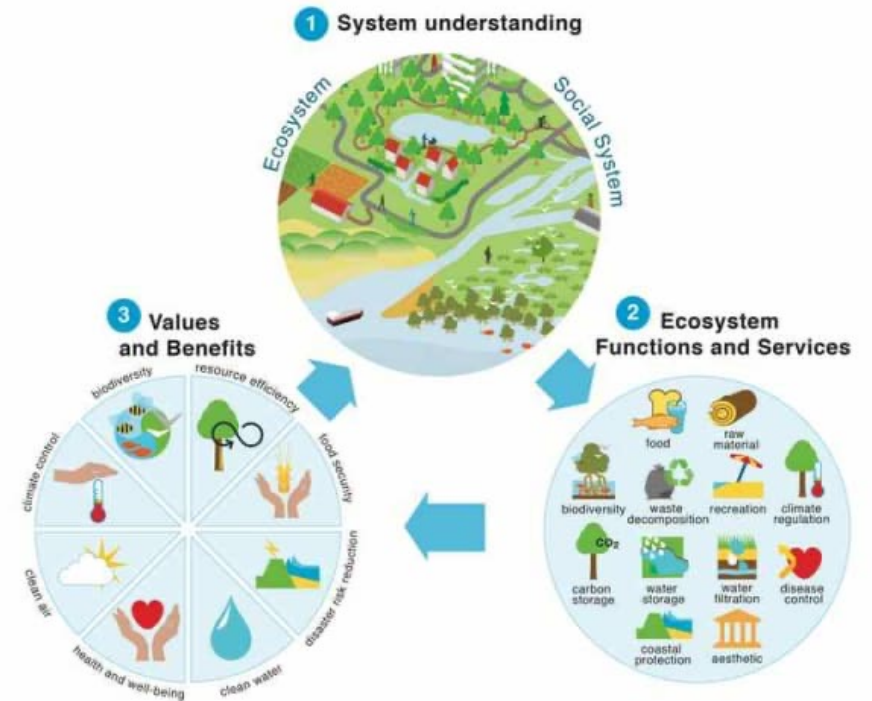
City solutions and delivery strategy

Solution #3 b. Urban resilience solutions

Towards an EU Research and Innovation policy agenda for Nature-Based Solutions & Re-Naturing Cities

Goals:

Final report of the Horizon 2020 expert group on 'Nature-based solutions and re-naturing cities'

- Enhancing sustainable urbanization

- Restoring degraded ecosystems

- Developing climate change adaptation and mitigation

- Improving risk management and resilience
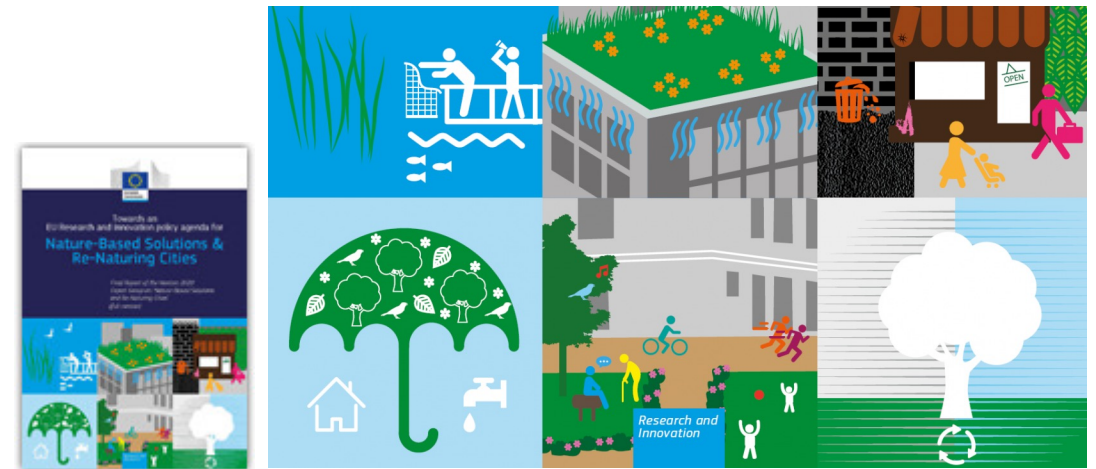
City strategy: justification

Despite the limitations caused by the current international pandemic, the city is proceeding on track and most of the discussions are going in the right way. A team created from scratch in September is managing to interact, promoting conversations and discussions that could affect Padua's future.

The themes emerged are consistent with the ICC, but also with the EU Green Deal.

Concerning what could be improved, we will intensify the communication and citizens involvement in this project, in order to share the progress implemented, and what can be done to improve the life of people living/working/studying/visiting) Padua now, and in the future.

The European Commission's
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Section
2

Padua: Ambition and roadmap

ICC Transformation

February 2021 to May 2021

European Commission | The Intelligent Cities Challenge is funded by COSME, the EU programme for Competitiveness of Enterprises and SMEs

Rationale to road map

With the aim to make better use of public resources, and taking advantage of modern information and communication technologies, the city is ready to increase the quality of services offered and at the same time reduce operational costs of government.

In this context, the city is engaging local stakeholders and promoting greater awareness in order to ensure an improved urban comfort for a better quality of life for everyone.

By involving sectors leaders and primary stakeholders have been identified needs that can be met through three areas of intervention:

Smart, Green and Active Mobility

Smart District with strong Urban and Architectural Identity

Nature Based Solutions and Innovative Monitoring System

The 6 Steps to Roadmapping

1 **Establish Goals** — Determine the purpose of your roadmap and who should be involved

2 **Gather Inputs** — Collect insights from stakeholders and existing research

3 **Create Themes** — Affinity diagram insights into themes (clusters of problems-to-solve)

4 **Prioritize Themes** — Establish criteria and create a scoring framework to rank themes

5 **Visualize & Share** — Plot themes into a visualized timeline and distribute

6 **Revisit & Update** — Routinely return to your roadmap and make adjustments as necessary

NNGROUP.COM

NN/g

High level implementation roadmap for solution ("10000m plan")
Starting Date: 01 September 2021

Smart, Green and Active Mobility

Activity ★ Milestone

		September	October	November	December	January	February
a	Public transport network : NEXT	Pilot 1		Pilot 2			
b	Healthy mobility: Bike mobility, walkability	Public Infrastructure works _new pedestrian area			Public Infrastructure works _new bike lane		

Overarching Milestones

★ Milestone : h2020 sprout Evaluation_1

★ Milestone : h2020 sprout Evaluation_2

★ Milestone: sensors system validation

★ Announcement of call for tender

★ Milestone: call for proposals results (with funding)

The European Commission's
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High level implementation roadmap for solution ("10000m plan")
Starting Date: 1 June 2021

Smart District with strong Urban and Architectural Identity

Activity ▶   ★ Milestone

		June	July	August	September	October	November
a	Soft city				Creation of infrastructures ▶		
b	I- capital	Drafting application ▶					
Overarching Milestones						★ Milestone : competition results of the I-capital	
					★ Milestone: Agreement with local stakeholders		

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High level implementation roadmap for solution ("10000m plan")
Starting Date: 01 September 2021

Nature Based Solutions and Innovative Monitoring System

Activity   ⭐ Milestone

	September	October	November	December	January	February
a Tree planting	10.000 trees planting →					
b Urban resilience solutions		Discussion with local stakeholders/University →				
Overarching Milestones						⭐ 5000 planted trees
					⭐ PM 2.5 and PM 10 new sensor installed	

City Monitoring Dashboard

■ At Risk   ■ On track   ■ Off track

	Overall Status	Things to celebrate	Risks to be monitored	Next milestone expected	Main owner
Solution 1					
1 Initiative a Public transport system	■	Next Pilot; Smart tram system	delays	Starting works on the road	Municipality
2 Initiative b Healthy mobility	■	Bicycle Masterplan, project of regeneration For Piazza De Gasperi	delays	Implementation	Municipality
Solution 2					
1 Initiative a Soft City	■	Meetings back to operation after pandemic crisis	delays		Chamber of Commerce and Stakeholders
2 Initiative b ICapital	■	Project presented in July 2021, negative result released in October 2021.			Municipality

The European Commission's INTELLIGENT CITIES CHALLENGE

City Monitoring Dashboard

■ At Risk　　■ On track　　■ Off track

		Overall Status[1]	Things to celebrate	Risks to be monitored	Next milestone expected	Main owner
Solution 3		■				
①	Initiative a Trees planting	■	Trees planting has started	Failure in the trees rooting	5.000 trees planted by Jan 2022	Municipality
②	Initiative b Urban resilience solutions	■	Application for grants	Lack of fundings	Obtaining grants	Municipality

Solution #1
Smart, Green and Active Mobility

Initiative charter #1 Smart, Green and Active Mobility

Strategy

Description

What: Smart, Green and Active Mobility:

a. Public transport system

Why: Poor air quality

How: Develop a public transportation service where different tram lines connected to smart electric modular mobility services (Next) all over the city. App and digital totem will complete the service. .

Link to vision

Promote smart transport system and efficient traffic management with a widespread service, Introduce the concept of healthy mobility as an alternative form of smart mobility in the context of urban logistics, optimize parking spaces and make them sustainable.

Link to ambition statement

Ambition n. 2: Better life quality

Ambition n. 3: Multi sectorial development for the people

Expected impact and timing

Air quality improvement and better traffic management

By 2030 all the solution should be implemented

Stakeholders involved

Solution lead:

Mobility, Public Works, Financial Reseouces and IT departments of Municipality

Solution working team:

Heads of Departments, technical personnel within the Municipality

Contributors:

ICC Stakeholders group, Cariparo Foundation

Risks and mitigation

Insufficient Funds

Work delays

Capital management

Close project supervision

Inputs, outputs, outcomes and impacts

Source of funding and estimated cost

EU Funding, PNRR (Next generation EU), Por fesr funding, Cariparo Fundation

For the tram line: PNRR fundings 238.057.777,66€ + Municipality fundings

For new busses: POR FESR fundings: around 6.000.000€ + pther

6.000.000€ from BusItaliaVeneto Spa

For Next: EU fundings in H2020 project Sprout 102.757,50€

Solution maturity outputs

Work on the new tram will begin in this semester and will be completed by 2026. The new tram line will connect the city from east to west.
New electric or methane busses: 31 already deployed
Next: pilot already deployed

City performance outcomes and impacts

Air quality and better traffic management More services in remote neighborhoods improved welfare

Less cars entering the city

increased community spirit increased commercial activity

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Initiative charter #1 Smart, Green and Active Mobility

Strategy

Description
What: Smart, Green and Active Mobility:

b. Healthy mobility

Why: Poor air quality

How: . Padua is working to make the cycling network more widespread and to have more pedestrian and livable areas.

Link to vision
Promote sweet mobility and intermodal transport

Link to ambition statement
Ambition n. 2: Better life quality

Ambition n. 3: Multi sectorial development for the people

Expected impact and timing
Air quality improvement and better traffic management

By 2030 all the solution should be implemented

Stakeholders involved

Solution lead:
Mobility, Public Works and IT departments of Municipality

Solution working team:
Heads of Departments

Contributors:
ICC Stakeholders group

Risks and mitigation
Insufficient Funds

Work delays

Capital management

Close project supervision

Inputs, outputs, outcomes and impacts

Source of funding and estimated cost
PNRR funding:

3.540.474,52€

Solution maturity outputs
The Bici Masterplan was deployed in 2018 and it has the medium-term goal of increasing cycle paths from 168 to 300 km by 2030. So far the Schedule has been respected.

City performance outcomes and impacts
Air quality and better traffic management More services in remote neighborhoods improved welfare

Less cars entering the city

Increased community spirit increased commercial activity

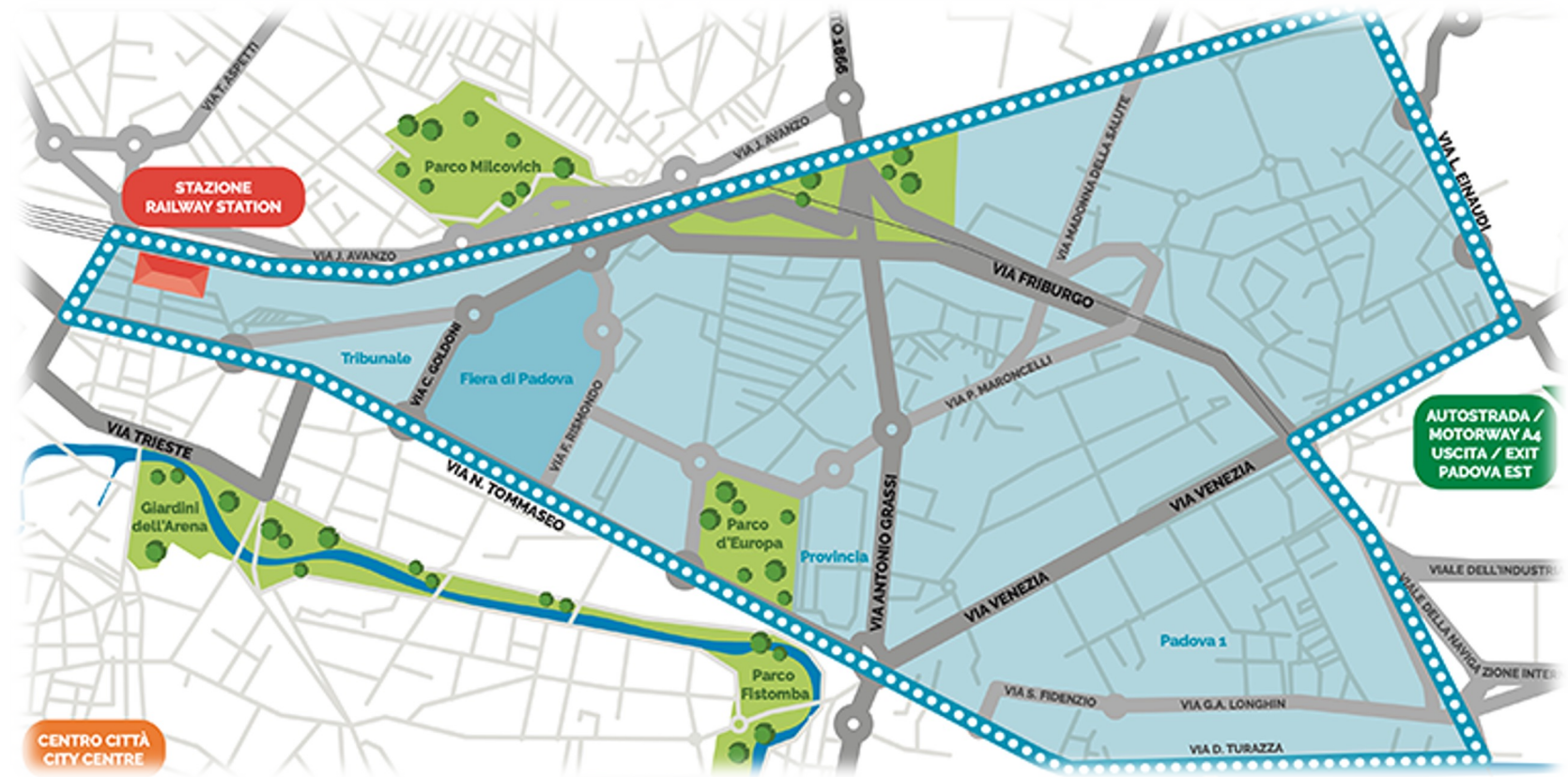The European Commission's
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Governance structure for roadmap implementation | 1. Smart, Green and Active Mobility
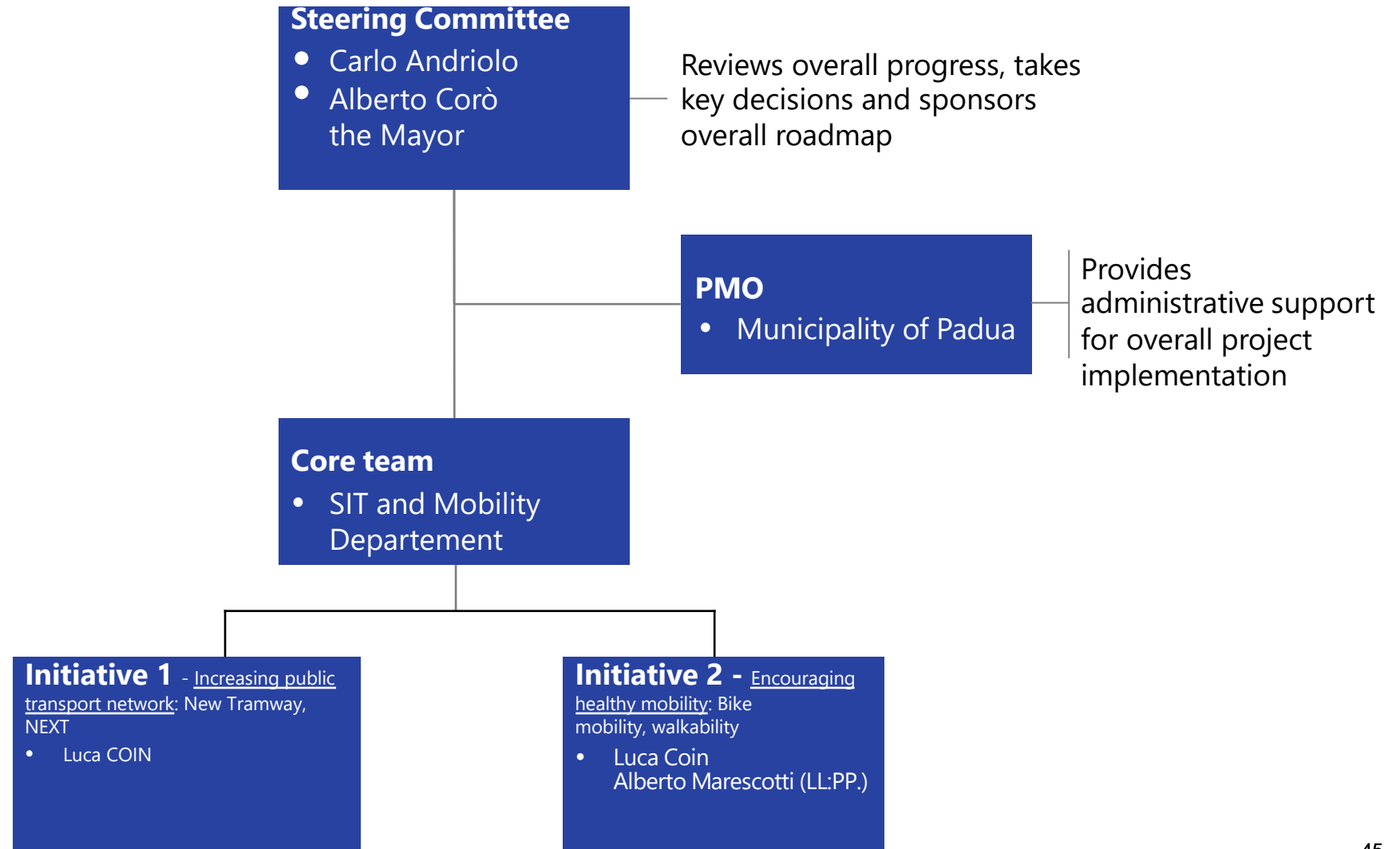
Steering Committee
- Carlo Andriolo
- Alberto Corò the Mayor

Reviews overall progress, takes key decisions and sponsors overall roadmap

PMO
- Municipality of Padua

Provides administrative support for overall project implementation

Core team
- SIT and Mobility Departement

Initiative 1 - Increasing public transport network: New Tramway, NEXT
- Luca COIN

Initiative 2 - Encouraging healthy mobility: Bike mobility, walkability
- Luca Coin
  Alberto Marescotti (LL:PP.)

Solution #2 Smart District with strong Urban and Architectural Identity

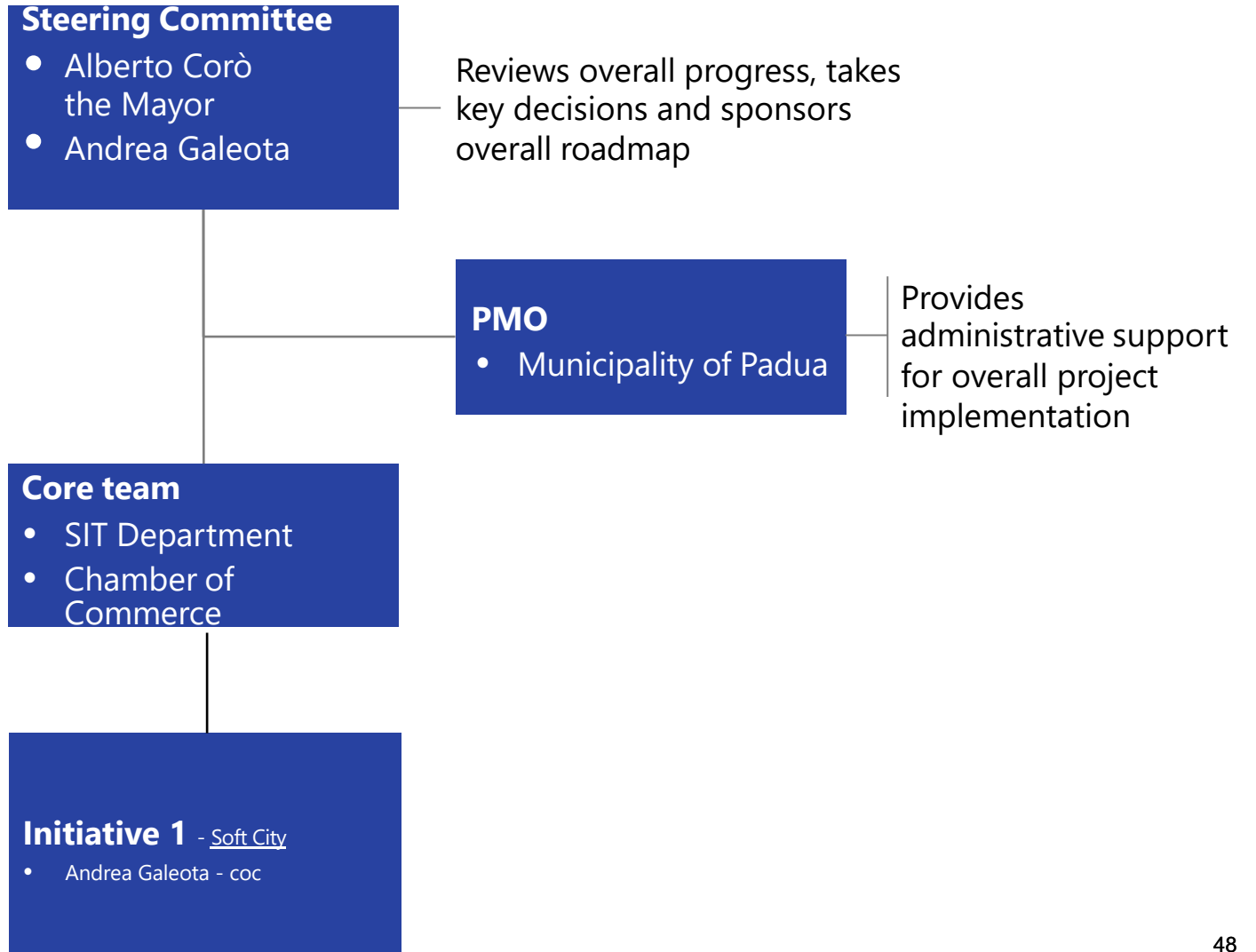# Initiative charter #2 Smart District with strong Urban and Architectural Identity

Strategy

Description

What:

a. Soft City

Why: impetuous growth, but not organised and with no planning

How: contribute to the economic growth and development of the city's innovative services. At the moment there are three lines of intervention: business Community, Infrastructure and environment, Communication and digital.

Link to vision

Innovative Services: web-based services for citizens and businesses, innovative trade, energy saving and ecological logistics.

Link to ambition statement

Ambition n. 1: Community involvement

Ambition n. 2: A sustainable future by design and

Ambition n. 4. Young talent hub

Expected impact and timing

A more dynamic and inspiring economic setting, more job opportunities, better services for citizens and companies.

Both Solution should be implemented fully by 2026

Stakeholders involved

Solution lead:

Chamber of Commerce and Padua Municipality

Solution working team:

IT dept of Padua Municipality and CC

Contributors:

University and private sector actors

Risks and mitigation

Slow increasing of the collaboration among public and private entities

Lack of funding, lack of cooperation amongst public and private bodies

Create a network, workshops and meetings for the information flow

Inputs, outputs, outcomes and impacts

Source of funding and estimated cost

Regional/eu funding – Not estimated total costs

Solution maturity outputs

Network structure of streets and identification of spaces, workshops scheduled

City performance outcomes and impacts

Complete redevelopment of a central urban area. High impact for economy and environment

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Steering Committee
- Alberto Corò the Mayor
- Andrea Galeota

Reviews overall progress, takes key decisions and sponsors overall roadmap

PMO
- Municipality of Padua

Provides administrative support for overall project implementation

Core team
- SIT Department
- Chamber of Commerce

Initiative 1 - Soft City
- Andrea Galeota - coc

48

Solution #3
Nature Based Solutions and Innovative Monitoring System

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Initiative charter #2 Smart District with strong Urban and Architectural Identity

Strategy

Description

Nature Based Solutions and Innovative Monitoring System

a. Trees planting

Why: Padua wants to improve with nature-based solutions its poor air quality due to high levels of pollutant emissions, but also to orographic and weather climatic conditions of the Po basin, which favor the increase in the concentrations of pollutants, making dispersion difficult and slow.

How: Use of Nature Based Solutions and Innovative Monitoring Systems

Link to vision

Padua wants to identify strategies, actions, interventions, based on nature that provide environmental services and socio-economic advantages capable, when carried out in an urban context, to increase the resilience of cities.

Link to ambition statement

Ambition n. 2: Better life quality

Expected impact and timing

These are solutions that have multiple benefits for health, the economy, society and the environment, and therefore can represent more efficient and economical solutions than traditional approaches, if they are suitable for the territories in which they are created

Timing: 2022

Stakeholders involved

Solution lead: Municipality

Solution working team: Greenery dept

Contributors: University – ICEA, L3GIS

Risks and mitigation

Administrative complications, lack of funding

Admin governance

Inputs, outputs, outcomes and impacts

Source of funding and estimated cost

5M

Municipality funding

Solution maturity outputs

Identified areas to be monitored

Tree planting completed

City performance outcomes and impacts

Reduced impact of cloudburst

More enjoyable open spaces

Better quality environmental monitoring

Initiative charter #2 Smart District with strong Urban and Architectural Identity

Strategy

Description

Nature Based Solutions and Innovative Monitoring System

b. Urban resilience solutions (rain gardens, new parks)

Why: Padua wants to improve with nature-based solutions its poor air quality due to high levels of pollutant emissions, but also to orographic and weather climatic conditions of the Po basin, which favor the increase in the concentrations of pollutants, making dispersion difficult and slow.

How: Use of Nature Based Solutions and Innovative Monitoring Systems as described in the Municipal Green Areas Plan

Link to vision

Padua wants to identify strategies, actions, interventions, based on nature that provide environmental services and socio-economic advantages capable, when carried out in an urban context, to increase the resilience of cities.

Link to ambition statement

Ambition n. 2: Better life quality

Expected impact and timing

These are solutions that have multiple benefits for health, the economy, society and the environment, and therefore can represent more efficient and economical solutions than traditional approaches, if they are suitable for the territories in which they are created

Timing: 2027

Stakeholders involved

Solution lead:

Municipality

Solution working team:

Greenery dept

Contributors:

University – ICEA, L3GIS

Risks and mitigation

Administrative complications, lack of funding

Admin governance

Inputs, outputs, outcomes and impacts

Source of funding and estimated cost

At least 5M

Municipality and regional funding

Solution maturity outputs

In april 2022 the plan for the municipal green areas was published, and it includes actions for the arboreal heritage, the "sponge city", biodiversity, parks and accessibility and cultural itineraries,

The solutions described in the plan are in part already deployed (especially the trees planting), and will be implemented continuously in the next years.

City performance outcomes and impacts

Reduced impact of cloudburst

More enjoyable open spaces

Better quality environmental monitoring

Steering Committee

- Degl'Innocenti the Mayor
- Nuovo caposettore Ambiente

Reviews overall progress, takes key decisions and sponsors overall roadmap

PMO

- Municipality of Padua

Provides administrative support for overall project implementation

Core team

Greenery dept

Environment dept

Initiative 1 - trees planting

Degl'Innocenti

Initiative 3 - Introducing Urban resilience solutions (i.e. rain gardens, green facades, de- paving, etc)

Degl'Innocenti
Unipd- ICEA

LL.PP.

Key Performance indicators - overview

Solution	Activities – Inputs and actions	Solution Maturity - outputs	City performance – outcomes and impacts
Smart, Green and Active Mobility - Increasing public transport network: (New Tramway), NEXT	Planning tram line (SMART project): funded by PNRR sources Launch pilot project Next: within H2020 SPROUT, EU sprout project started in September 2021. Road test was held in the period July-November 2021. The project ended in August 2022.	Budget received and pilot project finalized. Smart mobility services financed with EU POR FESR funds: 5 active and another 4 planned for the beginning of 2023.	Air quality and better traffic management; New suburb areas connected with the city centers; Number of users app; Less cars entering the city.
Smart, Green and Active Mobility - Increasing public transport network: Encouraging healthy mobility: Bike mobility, walkability	Design of new pedestrian zones (De Gasperi) Bicycle Masterplan project execution by Padua's Municipality - Public works department	San Carlo area redevelopment loan - 15M EUR + 3M Municipality PNRR funds for cycle paths, decrees starting from January 2021 (but the PNRR was established in July 2021, they were previous funding then converted into PNRR). Total km of funded cycle paths: 60 "Bike to work" project activated by the Municipality in July 2022 for municipal employees to encourage cycling (the kilometers made on the way home-to-work is kept track with an app, every km = 25 cents EUR)	Number of traffic accidents involving cyclists; Share of woman/elderly/youth that cycle regularly; Number of annual city-wide events promoting cycling; N. of new electric bike chargers; Amount (Km) of new bike lanes; Amount (Sqm) of new pedestrianized space.

Key Performance indicators - overview

Solution	Activities – Inputs and actions	Solution Maturity - outputs	City performance – outcomes and impacts
Smart District with strong Urban and Architectural Identity: Soft City	Select smart companies and projects Obtaining funding Creation of infrastructures, an extensive network of sensors, distribution of services to the ecosystem of apps	The project for the Padova Smart City, called Soft City, promoted in collaboration with Confindustria the Municipality of Padua and the University of Padua, the Chamber of Commerce and the involvement of all economic categories in the area, is in its first phase, mapping the area and selecting the companies and smart projects that will become part of this plan. The ultimate goal is to build a smart city, enhancing the technological cluster that already exists in Padua, consisting of three thousand hi-tech companies operating in the area between the station and south Padua. Promoting a smart territory, sustainable and with digital and web-based services.	Quality of life of citizens; New businesses; Enhanced competitiveness and attractiveness of the area (N. of new Smart-oriented companies established in Soft City); Amount (sqm) of high quality public realm regenerated

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Key Performance indicators - overview

Solution	Activities – Inputs and actions	Solution Maturity - outputs	City performance – outcomes and impacts
Nature Based Solutions and Innovative Monitoring System: Trees planting	Mapping of polluted, impermeable areas to be requalified. Trees choice and planting plan.	The Municipality has found the agreement for the funding of this initiative and has already identified the areas of the city where the 10.000 trees will be planted. Furthermore, trees species have already been selected. January 2021 obtained 2 million euros for the expansion of the Iris park, expansion expected in the coming years. sqm that will be regenerated (+ park) = 9600. the funding was national, it has subsequently become PNRR,	N. of new trees planted; Amount (Sqm) of new permeable surfaces; N. of enjoyable open spaces (sqm of green areas and user perception); Reduced impact of cloud burst (n. of flooding); Mitigated Urban Heat Islands (UTCI).
Nature Based Solutions and Innovative Monitoring System: Introducing Urban resilience solutions (i.e. rain garden)	Development of regeneration plan with NBS, working on agreement with stakeholders and looking for funding opportunities.	The Municipality has already developed a first plan for a pilot project and is working with local stakeholders (University) to obtain fundings.	Air quality; UTCI; Sqm of permeable surface; Sqm of new green areas.

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Key Performance indicators - Cross cutting indicators

Cross cutting indicators
N° smart services activated (mobility PT)
N° of spaces designed for all (% accessible green area, % citizens near open space, % new development near transit locations)
Better quality of life perceived: mobility, services, climate changes response, liveability, job opportunities (as a result of a questionnaire)
Attractive business environment: Young talent/ hubs/ smart SMEs confluence

Rationale to KPI approach

The KPIs highlighted were defined through the organization of a collaborative workshop that involved all the local stakeholders engaged throughout the process.

The KPIs were selected for their validity, availability and the possibility of monitoring.

To discuss/write (10')	To discuss/write (10')	To discuss/write (10')
Solution 1 | KPI's	**Solution 2 | KPI's**	**Solution 3 |KPI's**
1. Number of traffic accidents involving cyclists 2. Share of woman/elderly/youth that cycle regularly 3. Number of annual city-wide events promoting cycling 4. N. of new electric car chargers 5. N. of new electric bike chargers 6. Amount (Km) of new bike lanes 7. Amount (Sqm) of new pedestrianized space ???	1. N. of new Smart-oriented companies established in Soft City 2. Amount (sqm) of high quality public realm regeneration 3. .... 4.	1. N. of new trees planted 2. Amount (Sqm) of new permeable surfaces 3. Amount (Sqm) of new green façade 4. N. of air pollution sensor installed 5. .... 6. ....

Stakeholder's KPIs brainstorming

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Section

3+4

Padua: Impact

ICC Transformation

February 2021 to May 2021

European Commission | The Intelligent Cities Challenge is funded by COSME, the EU programme for Competitiveness of Enterprises and SMEs

Impact executive summary

A key success for Padua ICC programme was the level of local engagement and maturity's implementation of the solutions achieved.

The City has now started the process of monitoring the solutions. The next months will be particularly relevant: before December 2022 there will be the monitoring of 116 actions planned by the Municipality. This activity will give the chance to properly check the KPIs identified. In particular, Padua will have access to new data about mobility, air quality, and nature-based solutions in order to monitor the benefits.

Padua is also started to plan its commitment over the next 3 years, Some of the actions will complete the process ongoing (i.e. creating a system for the planning and the monitoring of the City actions, in order to achieve its strategic goals), others will tackle new City's challenges (i.e. Europe's 100 Climate-Neutral and Smart Cities and develop a food policy).

There are four types of measurable concepts that come together to drive success in the ICC

...makes it easier to undertake certain...

...which work to drive up...

...leading to improved...

Change measured over time during ICC
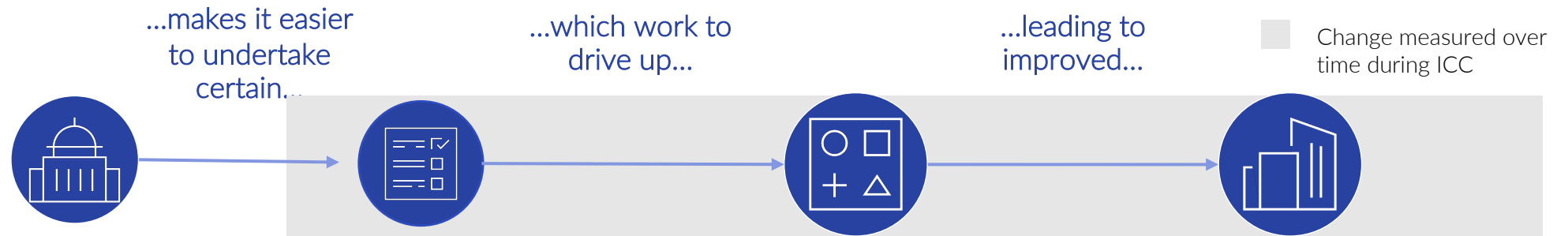
Idea	Local enablers –city characteristics	Activities – actions and inputs	Technology maturity – outputs	City performance – outcomes and impacts
Description	Each city has unique strengths and weaknesses that help action happen. These can be stakeholder networks, local capabilities, cultural factors or many more that drive success in ICC projects.	A cities main intervention on the ICC is to take actions. These can be direct (e.g., procuring technology), or indirect, (e.g., forming a working group on a topic). The right actions can lead to the right inputs going in to the ICC (e.g., funding, time)	Cities can drive technological solutions to try and improve city performance. How well these solutions are currently used can be described as their 'maturity', - considering whether they are available for stakeholder use, what stakeholders think of them, and so on	Success of an intelligent city is ultimately measured by its ability to address city needs. These can be considered an improved quality of citizen life and a better environment for stakeholders
Example	A history of strong collaboration between city and a local university...	...allows the creation of a new e-health pilot project using social housing in the city...	...leads to the launch a new tele-health solution utilising 4G data connections...	...resulting in pre-emptive diagnosis and lower wait times at medical facilities

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Assessment of city performance - discussion

The solutions are still ongoing and the KPIs identified for the assessment of city performance will be monitored in the next months/years.

KPIs to evaluate in the next steps:

- Number of PT users (modal split) – being updated with Busitalia Veneto
- Number of neighbourhoods connected with PT extension;
- Sqm of green areas;
- Number of critical areas for Universal Thermal Climate Index;
- Number of SMEs.

Padua is collecting preliminary data related to the solutions implemented so far. NEXT project, for instance, was completed at the end of August, outcomes will be monitored soon.

Assessment of city ecosystem and activities - discussion

The solutions' implementation is on track for initiatives 1.a, 1.b, 3.a, even if there are delays related to the development of initiatives 2.a and 3.b. Below the KPIs monitored so far:

- 10,000 new trees;
- 9,600 sqm of regenerated green areas;
- 60km of new bicycle lanes funded;
- 5 active smart mobility services (another 4 planned for the beginning of 2023), financed with EU POR FESR funds;
- 1 study, started in May 2022, in collaboration with UNIPd, about food and circular economy.

City's departments are collecting data and pushing further the development of the delayed initiatives. The Soft City project is on the political agenda, and the urban resilience solution is an ongoing priority led by the environmental department. PNNR funds are supporting the programme.

Padua, selected by the EU among the 100 zero impact cities by 2030, organized an internal workshop on the 2nd of September to discuss about the topic of food and its role in this new challenge.

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5 key lessons

Lesson	Reflections
1	Cooperation is key, especially within the municipality departments
2	Having a city advisor was a big help, a further development could be let him/her cooperate with the management of the activities to be deployed
3	The ICC project helped in creating connections with other cities, a further development could be funding pilot eu project
4	The main difficulty was that, without a specific budget allocated for ICC, the project was not always considered a priority. Budget allocation helps justifying the staff effort
5	Specific technical consulting in the strategic fields chosen by the cities could be useful to develop good and new solutions

Reflections on city collaborations

The City had the chance during the City Labs' peer review to share knowledge, common themes and experiences with the other cities of the network. These meetings highlighted successful practices to replicate (i.e. L'Aquila – communication plan and Rome - bicycle masterplan).

Padua has the intent to take advantage of this network also in the next steps of the ongoing projects. The City is now starting to plan the carbon neutrality, best practices and inspiring initiatives will support its success (starting from the food policy goal).

Europe's 100 Climate-Neutral and Smart Cities

Commitments

Commitments to on-going resources	Commitments to on-going collaboration	Commitments to on-going KPIs
The Municipality has already allocated a remarkable amount of money on bicycle lanes, tram and electric busses. The development of a full sustainable mobility system is the first commitment of Padua. Smart solution, such as smart parking, are in a first phase of development.	Local stakeholder as the University of Padua and some local private companies are essential to develop the future of the city. The Recovery Fund and the Net Zero City Mission, furthermore, make a priority the creation (or just the ehancement) of roundtable to discuss the future of the city.	In the next months (before December 2022) there will be the monitoring of 116 actions planned by the Municipality, and this will be the occasion to check the KPIs, especially those related to mobility, quality of air, nature based solutions.

3 Year plan - ambitions

Building on the ICC, what would will the city aim to achieve in 3 years time?	Creating a system for the planning and the monitoring of the City actions, in order to achieve its strategic goals.
	Develop as much as possible innovative actions to help the mitigation and the adaptation to climate change.
	Develop a food policy.
What steps will you take over the next 3 years to achieve these goals?	Monitoring the status quo of some actions planned by the city.
	Creating an action and financial plan to reach our goal up to 2030.
	Developing a managing system to control, correct and improve the plan of action.

3 Year plan - targets

KPI	Category	What commitments will the city make to this end?
1	Climate Neutrality	<Sign of the Climate City Contract by January 2022>
2	<Food Policy>	<Having a study as basis to develop the food policy by March 2022>
3	<Mobility>	<Having a new tram line by March 2026, and one by 2030.>
4	<NBS>	<Having two new parks within the city by the end of 2026>
5	<management system>	<create a new working structure by 2026, and hopefully before>

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Appendix

Padua: Additional information

ICC Transformation

Higher performance areas: well structured and innovative industrial apparatus

Key insight	Data points	Interpretation	So what?
88.615 enterprises located in the city and 19.332 in the nearby province.	Important : logistic sector expertise + ICT	Detailed thoughts on the city's understanding of this learning.	Detailed thoughts on the city's reaction to this learning.

88.615 enterprises located in the city and 19.332 in the nearby province.

The "production districts" based in the Province of Padua, officially recognized by the Region, are those of biomedical, lighting systems, air conditioning and industrial refrigeration.

These are industrial and tertiary specializations and chains that characterize the provincial territory

+

Numerous companies operating in the sector of the use of **IT infrastructures** are located in Padua

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Important : logistic sector expertise + ICT

Interporto Padova SpA, born from the merger of the two most important players in Italian logistics (Interporto and Magazzini Generali di Padova), is one of the most authoritative and concrete realities in the field of integrated logistics, it is positioned among the national and European "leaders" of intermodality. and the advanced interport sector. Next to it, structures such as the Agro-Food Market must be placed.

Interporto Padova S.p.A. operates on a surface area of 968,515 square meters, of which 260,000 square meters are used as covered warehouses (23,000 square meters of which are refrigerated).

+ ICT: also by virtue of the presence of a prestigious University, the regional and interregional offices of many companies operating in the telecommunications sector and their uses are located in Padua. It is estimated that about 40% of these companies operating in the Veneto are based in Padua.

Detailed thoughts on the city's understanding of this learning.

from the postwar period to today, in Padua province, as other Veneto territorially restricted areas, but specialized sectorial ones, have emerged the so called Industrial Districts-Production District.

Detailed thoughts on the city's reaction to this learning.

- Padua is able to optimize and detail its knowledge because it knows the mechanism of the highly specialized industrial district well. Moreover, for the vision of the city of the future, it has the information technology district that easily collaborates with the institutions.

BUT

 Padua still needs a better integration of companies that pursue common goals of innovation exchange, marketing activities, etc

City needs: State of the city overview

Lower performance areas: Low air quality

Key insight	Data points	Interpretation	So what?
The geographical configuration and the meteorological characteristics typical of the Po Valley are such that this area is in fact a single homogeneous basin in which PM10 and ozone tend to spread evenly and, in conditions of atmospheric stability, to accumulate	The historical series show how over the last few decades the quality of the air has constantly improved in the case of the main pollutants, while they report a stationary critical situation for fine particulate matter and ozone. The common characteristic of these pollutants is that they are largely, as regards PM10, or totally as regards ozone, pollutants of secondary origin (i.e. they are formed in the atmosphere as a result of chemical reactions between precursor compounds NOx, SO2 , VOCs directly emitted into the atmosphere by the sources). This means that pollution remains in the atmosphere for long periods and affects a large aerological basin and this obviously makes it more complex to implement effective actions to reduce concentrations of PM10 and O3.	• defining and adopting progressive limitations on the circulation of the most polluting vehicles, in order to accelerate the renewal of the vehicle fleet and to orient the market in the direction of vehicle types with lower impact; • promote and facilitate the installation of particulate filters, and similar devices for reducing emissions, on new and existing vehicles; • define and adopt forms of regulation for the use of fuels, including wood biomass for civil heating, for which it is intended to request the dissemination of technological improvement solutions; • define and adopt common emission "standards" for production activities and civil sources,	**Detailed thoughts on the city's reaction to this learning**. Consider: - Padua needs to orient coordinated and synergistic action to maximize the effectiveness of the prevention and containment policies of atmospheric pollution. - Padua, in addition to making its properties more efficient, needs to support homeowners to invest in increasing the energy efficiency of their properties and stimulate the offer of innovative technical and financial solutions. - it must increase the use of public transport by citizens and must facilitate the use of "healthy" transport such as bicycles

Recap on previous guidance given for solution strategy

Suggested approach to strategy deliverable

Element	Suggest effort	Key elements
Solution strategy for Smart, Green and Active Mobility		**What does the solution set out to solve?** Low air quality **What are the main features of the solution?** + public transport + bicycles use + liveable pedestrian areas + energy efficiency **Why is _this_ the right solution for the city?** These are all answers to the need of breathing high-quality air **What is the business model?** From a public point of view, we needs different types of funding: for public transport→POR FESR and Private Foundations: for bike lanes and Pedestrian areas →infrastructure funds + maybe some new INTERREG: Energy efficiency → H2020 for some strategic projects + National Environment Minister Funds **What are the main blockers and risk and how will the be overcome?** participation in Calls/tenders is often long and complicated, the raising of funds is slow, the change of lifestyle and habits of citizens can be complex to activate and large and engaging communication campaigns are necessary **What, at the highest level, are the main stages from today to getting this solution at full impact?** constant and incisive communication campaigns, supported by concrete actions that lead the citizen to a radical change of lifestyle and full awareness of the reasons. **Who is making it happen?** the Municipality proceeds with the purchases and works of infrastructures, as well as with the awareness campaign. The university develops and supports the communication campaign helps students to move towards environmentally sustainable choices, while each privat company can make ethical choices from an environmental point of view and be spokespersons for the positive change taking place **What major uncertainties still need to be investigated?** there are difficulties due to the structure of the city which has ancient origins, narrow central streets with cobblestones, but these are issues that can be solved with smaller means of transport than the usual buses. Another difficulty is making pleasant for the citizen to travel around the city on foot or by bike, thus embellishing the city and creating new areas of aggregation. The question of financing is always in the foreground: now that the Next Generation EU will start it will be necessary to manage it with competent and numerous staff.

Principles to follow throughout

Explain 'why?' – ensure that you always document the rationale for why the strategy is how it is – this will be critical for testing and refining in implementation

Be data-driven – to strengthen your arguments and to be specific (and thus actionable) think on what data (that you have gathered so far, or could investigate) that justifies your design decisions; this can also more easily enable visuals on your strategy

Refer back to the ten tests – and any other sources that provides good guidance on public sector strategy development – check with your expert

Provide something 'stand alone' - when questioning the level of detail you need to go to, ask if another city could pick this up, understand why you made every main decision, and set about starting the same project tomorrow. The suggested effort is only a guide – add more or less to meet this bar

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Recap on previous guidance given for solution strategy

Suggested approach to strategy deliverable

Principles to follow throughout

Element	Key elements
Solution strategy for Smart, Green and Active Mobility	**How do the solutions interact?** They are all finalized to health and wellbeing **If you could boiled down your strategy to three thoughts that have best guided you on your way, what would they be?** 1- find large funding needed 2- transform the city and make it environmentally sustainable 3- explain every step and your long-term strategy to citizens **What are the key factors that define success across all of your solutions?** Quantitative factors: less PM10, less pollution, more use of public transport and bikes. Qualitative factors: a city more liveable, more pleasant and healthy to visit

Explain 'why?' – ensure that you always document the rationale for why the strategy is how it is – this will be critical for testing and refining in implementation

Be data-driven – to strengthen your arguments and to be specific (and thus actionable) think on what data (that you have gathered so far, or could investigate) that justifies your design decisions; this can also more easily enable visuals on your strategy

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Suggested approach to strategy deliverable

Element	Suggest effort	Key elements
Solution strategy for Smart District with Strong Urban and Architectural Identity		**What does the solution set out to solve?** Economical crisis and young unemployment **What are the main features of the solution?** A sort of "Silicon Valley" in a specific area of the city between Fiera, Train Station, University and 3000+ small enterprises **Why is _this_ the right solution for the city?** contains all the most important and shared purposes for Padua: innovation, modernization, development and therefore also change regarding the whole city of Padua. **What is the business model?** an agreement was recently signed between the Municipality of Padua, the University and Confindustria for a so-called "control room" funded by the European Union, aimed at improving the quality of services to citizens and businesses. In fact, in addition to the objectives listed above, there will be: a clear improvement and increase in public transport and roads, with a new public transport line at peak times; an expansion of the number of car parks (still a critical aspect in Padua currently); guarantees on the issue of citizens' safety during the day and at night with the installation of new surveillance cameras; and, obviously, a great commitment will be addressed to health with the improvement of the existing structures. The change does not end here, since Padua will become a "smart city", with the creation and application of Innovative Services: web-based services for citizens and businesses, innovative trade, energy saving and ecological logistics. **What are the main blockers and risk and how will the be overcome?** long timescales and limited availability of funds **What, at the highest level, are the main stages from today to getting this solution at full impact?** three lines of intervention: Business Community Infrastructure and environment Communication and digital **Who is making it happen?** Chamber of Commerce + Municipality + University + collaboration between SMEs **What major uncertainties still need to be investigated?** schedule

Principles to follow throughout

Explain 'why?' – ensure that you always document the rationale for why the strategy is how it is – this will be critical for testing and refining in implementation

Be data-driven – to strengthen your arguments and to be specific (and thus actionable) think on what data (that you have gathered so far, or could investigate) that justifies your design decisions; this can also more easily enable visuals on your strategy

Refer back to the ten tests – and any other sources that provides good guidance on public sector strategy development – check with your expert

Provide something 'stand alone' - when questioning the level of detail you need to go to, ask if another city could pick this up, understand why you made every main decision, and set about starting the same project tomorrow. The suggested effort is only a guide – add more or less to meet this bar

Suggested approach to strategy deliverable

Principles to follow throughout

Element

Key elements

Solution strategy for

Smart District with Strong Urban and Architectural Identity

How do the solutions interact? Soft City's shared goals are all interacting:

Innovation: in fact, the creation of at least one Smart service platform is planned, with car and bike sharing stations, electric vehicle charging stations and expansion of the Wi-Fi areas.

Environment: the enhancement of green areas is planned with the planting of new road trees and the creation of small squares in the central area of the sector.

Design: actions are planned for information points in the area that identify the access doors to the area, elements of street furniture, horizontal and vertical signage and spaces dedicated to street art.

Accessibility: the removal of architectural barriers and the creation of new cycle paths is envisaged

If you could boiled down your strategy to three thoughts that have best guided you on your way, what would they be?

1- find large funding needed

2- transform the city and make it innovative and competitive

3- encourage joint venture processes and business combinations - both dynamic and flexible, and structural

What are the key factors that define success across all of your solutions?

Quantitative factors: improvement of competitiveness in the public and private market

Qualitative factors: creation of a place full of job opportunities, culture, relaxation, entertainment, study and training for citizens and businesses, easily accessible and comfortable to reach for workers, guaranteeing all kinds of services and relaxation areas for free time

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Suggested approach to strategy deliverable

Principles to follow throughout

Element	Suggest effort	Key elements
Solution strategy for Use of Nature Based Solutions and Innovative Monitoring Systems		**What does the solution set out to solve?** To mitigate climate change and natural disasters ant to improve water security **What are the main features of the solution?** Maximize the use of data to promote monitoring, awareness, and evidence based planning and to face with environmental-social-economic challenge **Why is *this* the right solution for the city?** Because the main goals fits with Padua vision: Sustainable Urbanisation Restoration of Degraded Ecosystems Climate Change Adaptation and Mitigation Improved Risk Management and Resilience **What is the business model?** 1)identification of new sources of financing fro Planning, capital investment and ongoing operational costs. 2) identify local SMEs or industries than can produce sensors or NBS for Padua **What are the main blockers and risk and how will the be overcome?** long timescales and limited availability of funds **What, at the highest level, are the main stages from today to getting this solution at full impact?** Planning, finding sources of financing, transforming the city **Who is making it happen?** Municipality + University + collaboration between SMEs **What major uncertainties still need to be investigated?** Schedule and fundings

Explain 'why?' – ensure that you always document the rationale for why the strategy is how it is – this will be critical for testing and refining in implementation

Be data-driven – to strengthen your arguments and to be specific (and thus actionable) think on what data (that you have gathered so far, or could investigate) that justifies your design decisions; this can also more easily enable visuals on your strategy

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Recap on previous guidance given for solution strategy

Suggested approach to strategy deliverable

Principles to follow throughout

Element	Key elements

Solution strategy for
 	
Use of Nature Based Solutions and Innovative Monitoring Systems
	How do the solutions interact? All NBS aim to build sustainable, resilient and prosperous societies
	
	If you could boiled down your strategy to three thoughts that have best guided you on your way, what would they be?
	
	1- use of sensors to take decisions and to create a systematic map of evidence on the effectiveness of nature-based interventions
	
	2 - new landscape planning
	
	3- transform the city and make it sustainable, adaptive
	
	What are the key factors that define success across all of your solutions?
	
	Creation of Systemic urban governance with different areas of innovation:
	
	    Tech/eco connection
	    Adaptive capacity
	    Risk & resilience
	    Soil less pollutant .
	    Better Air quality and less noise
	    Urban-rural interface
	    Technical networks
	    New Urban landscapes
	    Awareness for nature as a solution
	    Attractive city
	    Community building urban circular economy (urban metabolism)
	    New consumer-producer relationships

Explain 'why?' – ensure that you always document the rationale for why the strategy is how it is – this will be critical for testing and refining in implementation

Be data-driven – to strengthen your arguments and to be specific (and thus actionable) think on what data (that you have gathered so far, or could investigate) that justifies your design decisions; this can also more easily enable visuals on your strategy

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