



Dodoni Municipality

INTEGRATED ACTION PLAN

BUILDING THE FUTURE





Smart cities sound like a thing of the future, but in many ways they're already here and they're only getting smarter. In some municipalities, the Internet of Things (IoT) is enabling residents to connect with both each other and community services via smart phones and other mobile devices.

The future of IoT looks even more sophisticated as municipal governments begin leveraging community network data to improve infrastructure, transportation, public safety, healthcare and overall quality of life.

The challenge for municipal governments is managing an increasing array of public services on behalf of a populace that expects more connected and more convenient solutions within their communities.

The most significant challenge facing those responsible for an IoT initiative is the harsh reality that these projects often fall outside the scope of day-to-day work. Municipal officials are often forced to prioritize urgent crises over strategic **improvements**.

Compounding the issue, many municipalities lack the support to deploy IoT solutions. Whether it's due to a lack of political will or stakeholder support, meaningful IoT implementations continue to be delayed.

However, ultimately, the biggest obstacle to overcome is demonstrating how these next-gen solutions can positively impact urban challenges.

The key to solving many of these issues is to create a culture of collaboration that takes all stakeholders into account. Municipalities should invest in building internal communications, nurturing a cohesive approach to IoT and smart city initiatives. After that, the groundwork has been set to begin collaborating with a range of other agencies and third parties and deliver better outcomes.

Here at Dodoni we have a strong will, regarding the implementation of IoT technologies in the area of public services, and our participation in URBACT IoTxchange project will be used as a tool for setting out our plans for future Dodoni.

Christos Dakalatsis

Mayors Statement



Voulfiassa Springs

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IoT Xchange is a program under the URBACT network financed by the European Regional Development Fund under the guidance of URBACT.

4 Introduction

Background

Dodoni municipality is a Rural Area in the NorthWest of Epirus and in the western mainland of Greece

The municipality consists of 56 local communities covers a vast area of 658.880 acres, and with a population of 9.693 inhabitants thus it is sparsely populated.

Internet Of Things

The Internet of Things (IoT) describes the network of physical objects—“things”—that are embedded with sensors, software, and other technologies for the purpose of connecting and exchanging data with other devices and systems over the internet. These devices range from ordinary household objects to sophisticated industrial tools. With more than 7 billion connected IoT devices today, experts are expecting this number to grow to 10 billion by 2020 and 22 billion by 2025

Over the past few years, IoT has become one of the most important technologies of the 21st century. Now that we can connect everyday objects—kitchen appliances, cars, thermostats, baby monitors—to the internet via embedded devices, seamless communication is possible between people, processes, and things.

Urbact

For over 15 years, the URBACT program has been the European Territorial Cooperation program aiming to foster sustainable integrated urban development in cities across Europe. It is an instrument of the Cohesion Policy, co-financed by the European Regional Development Fund, the 28 Member States, Norway & Switzerland

Projects financed under URBACT III are organized around four main objectives: To improve the capacity of cities to manage sustainable urban policies and practices in an integrated and participative way

To improve the design of integrated urban and sustainable strategies/ action plans in cities

To improve the implementation of integrated urban and sustainable strategies/ action plans in cities

To ensure that practitioners and decision makers at all levels have access to knowledge and share know-how on all aspects of sustainable urban development

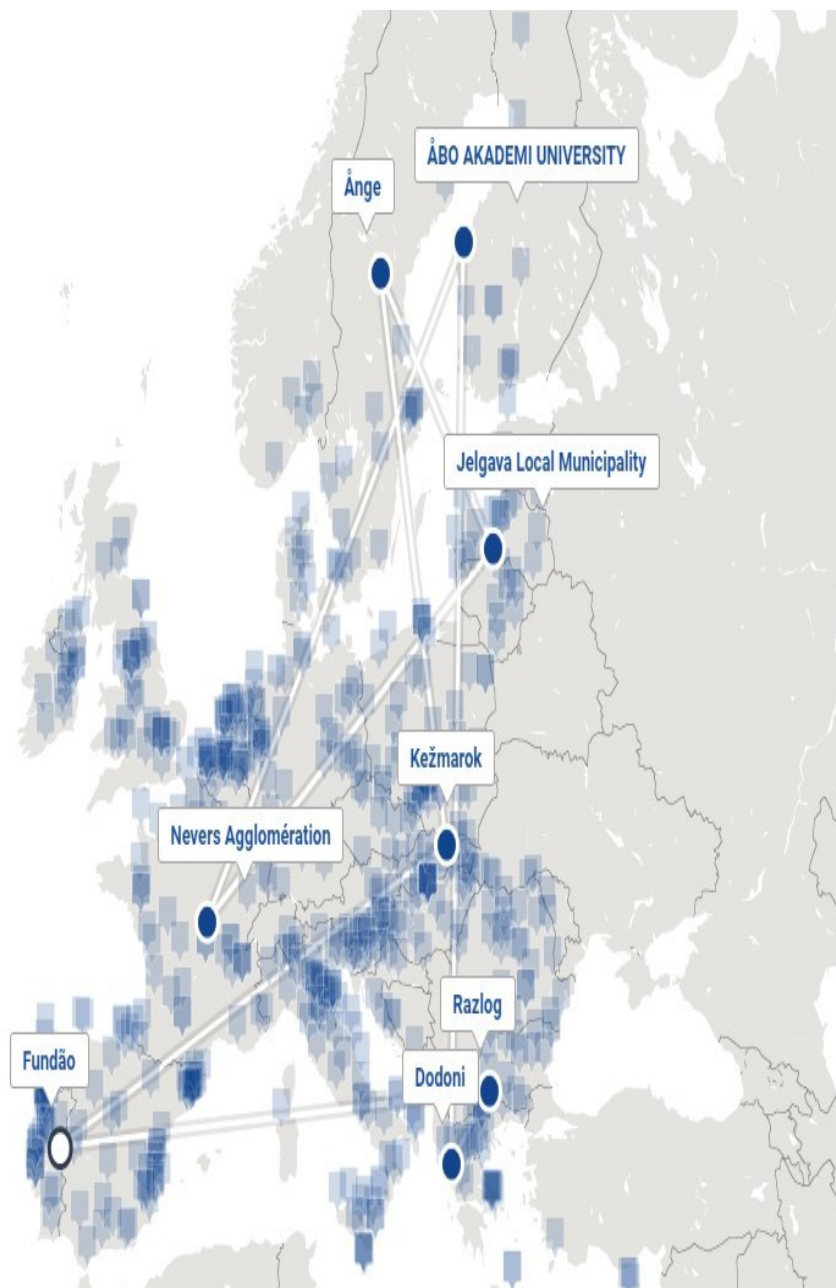


Part 1 Introduction To the IAP

Dodoni has previous experience participating in URBACT networks

The last Participation was in the INT-HERIT network whose goal was to exchange best practices on the field of managing and preserving cultural heritage

Hiking mountain Tomaros



IoTchange

During the years 2019-2022, Dodoni municipality is part of IoTchange program, a project financed by the European Regional Development Fund and organized by URBACT.

The URBACT IoTchange partners are the following Small and Medium sized Cities

- Fundão, Portugal (Lead Partner)
- Jelgava, Latvia
- Dodoni, Greece
- Kežmarok, Slovakia
- Razlog, Bulgaria
- Nevers, France
- Ånge, Sweden
- Nykarleby, Finland

ULG

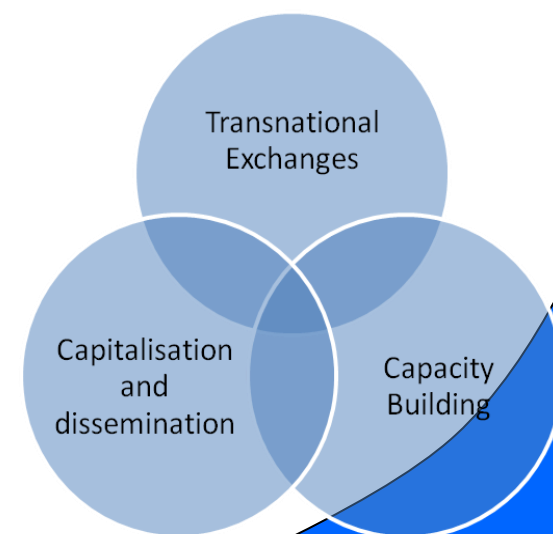
URBACT Local Groups (ULG) are a fundamental building block of the URBACT program.

Each URBACT partner is required to set up a Local Group gathering key local stakeholders in order to co-produce city strategies and action plans.

The integrated approach to sustainable urban development promoted by URBACT builds on the participation of key local stakeholders in policy-making and delivery.

Developing partnerships involving local authorities (including different departments within the local administration), beneficiaries/ users, NGOs, public agencies, the private sector and the civil society (citizens and inhabitants) has proven to be a key component in the design and implementation of efficient urban policies.

Every city partner in an URBACT network is required to set up an URBACT Local Group (ULG) that brings together all relevant stakeholders having a stake in the policy challenge addressed by the city (e.g. youth unemployment, regeneration of deprived neighborhood, energy-efficiency in housing, etc.).



Part 2

Dodoni Municipality



Municipality of Dodoni is a municipality of the Regional Unit of Ioannina of the Region of Epirus, which was established in 2011 by the merge of the pre-existing municipalities of Agios Dimitrios, Dodoni, Lakka Souli, Selloi and its headquarters is Agia Kyriaki. It is one of the largest geographical municipalities of P.E. Ioannina, with 56 Local Communities and more than 120 settlements.

In Dodoni is located one of the most important archeological sites. This is the archeological site of Dodoni, with the largest surviving theater and the oldest oracle of the Greeks. In recent years, restoration works are underway by the Ephorate of Antiquities of Ioannina.

Also, from the mountains of Souli in the Municipality of Dodoni and the Local Community of Sistrouni, springs the mythical river Achéron, while in the Local Community of Seriziana are the Gates of Hades. The Municipality is characterized by the number of Byzantine and post-Byzantine churches and monasteries, which retain their greatness to this day.

DODONI Municipality

At a glimpse

Municipality of Dodoni belongs to Ioannina Regional unit of Epirus Region.

It covers an area of 658,880 acres and the population is 9,693 inhabitants.

Its economy is based primarily on tourism and on agriculture - stock farming sector. In recent years, the character of agro-tourism services sector has been developed by creating shelters – restaurants, while a small part of the population is engaged in producing and trading genuine products (honey, fish etc.).

Epirus Region consists of 4 prefectures. Ioannina, Preveza, Arta, Thesprotia.

Ioannina Regional unit consists of 7 municipalities, 1 urban (Ioannina) and 6 Rural

Dodoni is the third bigger municipality of the regional unit by population and third based on area.

The Municipality is geographically spread and consists of 56 small Local Communities, with a population in each between as little as 20 inhabitants and a maximum of 1,200

Demography

Population

- 9.693 inhabitants

Age distribution :

- 0-5 years : 504
- 6-14 years : 535
- 15-24 years : 821
- 25-39 years : 1009
- 40-54 years : 1191
- 55-64 years : 1333
- 65-79 years : 4642
- Over 80 years : 95

Index of aging : 4,6

Number of residencies: 7.047

Number of buildings: 10.163

In social terms, the main population of the Municipality of Dodoni is quite aged.

Due to the geographical spread, it's quite difficult for citizens to reach the municipal services and its facilities.

Therefore, lack of modern technology, makes things more difficult, especially for handicaps and people with disabilities

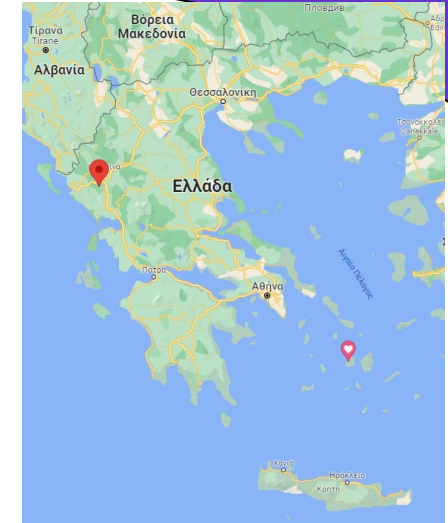
Also sparse public transportation is a disadvantage and creates obstacles for inhabitants to access the city of Ioannina.



Landmarks—transportation

Two main highways cross Dodoni. One crossing Greece East to West and Other North to South.

Commuting between different regions is easy due to the new build highways but the lack of railways and the Rural nature of the area “promote” the use of personal transportation



Natural springs in the area create two rivers “Louros” and “Acheron” and contribute to the natural beauty .

«Tomaros» mountain (1974 m) stands imposing in the center of the municipality creating a natural barrier but also means of life supporting a variety of fauna and flora.



Majestic Wild Horses Spotted Galloping at the wild peaks of Dodoni

IoT ecosystem in Dodoni

Network

Municipality of Dodoni in cooperation with University of Ioannina has created and operates an extensive backbone wireless network. The network consists of 2 parts.

- A backbone transparent wireless network
- Local access points open to public

The network gives the ability to users to install IoT devices in places where the communication cost would be high.

Users or social partners can also induce their own shared nodes thus expanding the network for the common benefit

Water Telemetry System

Dodoni municipality in cooperation with post-graduate students of technical university of Crete designed and implemented (hardware and software) a low cost water facility telemetry system.

The system is installed as proof of concept in a limited number of water pumping stations and water tanks.

It provides real time data for pump working hours and tank level.

It also stores data for future reference and comparison.



Weather Stations

Municipality of Dodoni operates five (5) meteorological stations, in cooperation with the National Observatory of Athens, that provide real time data on line.

Weather stations can be found at

- <http://www.metar.org/upload/metar.php>
- <https://www.dodoni.gr/epikoinonia/info/metar>

IMPLEMENTING I.o.T TECHNOLOGIES

The Internet of Things (IoT) means you can ask your speakers to tell you funny jokes, and it will. You can check your average heart rate for the month with your smartwatch. And if you get tired of driving on the highway, your smart car will take over for you. This is the power of IoT. It constantly collects, analyzes, and uses data before delivering an output. Some people are over the moon about IoT and have introduced this smart technology to every facet of their home. Others are weary after reading about data breaches, hacks, and so they wonder — where is all this data going? **And who's really has access to it?**

Implementing I.O.T technologies S.W.O.T Table



Part 3

INTEGRATED ACTION PLAN

An Integrated Action Plan (IAP) is a policy instrument that can be used to respond in a concrete way to a policy challenge. Each IAP is unique, in terms of local context, theme and coverage.

The URBACT method emphasizes that the participative and transnational process of drafting an Integrated Action Plan is in itself as important as the result.

This IAP is the vision for Dodoni municipality towards the future. It is also a tool for public authorities in order to record the objectives the drawbacks and the actions required for the transition from vision to implementation



TOOLS & PROCEDURES

*"Live in Dodoni
here no one is a stranger"*

The integrated action plan focuses in providing the municipality with the next generation tools needed towards a digitalized future.

IoT technology will provide the means for administration and for residents to improve quality of life, enhance the participation, personalize services and overall make Dodoni

"A place to Live"

URBACT

It is first about capturing and self-reflecting on the lessons learned from one's actions and making sense of this new knowledge. For over 15 years, the URBACT program has been the European Territorial Cooperation program aiming to foster sustainable integrated urban development in cities across Europe. It is an instrument of the Cohesion Policy, co-financed by the European Regional Development Fund, the 28 Member States, Norway & Switzerland.

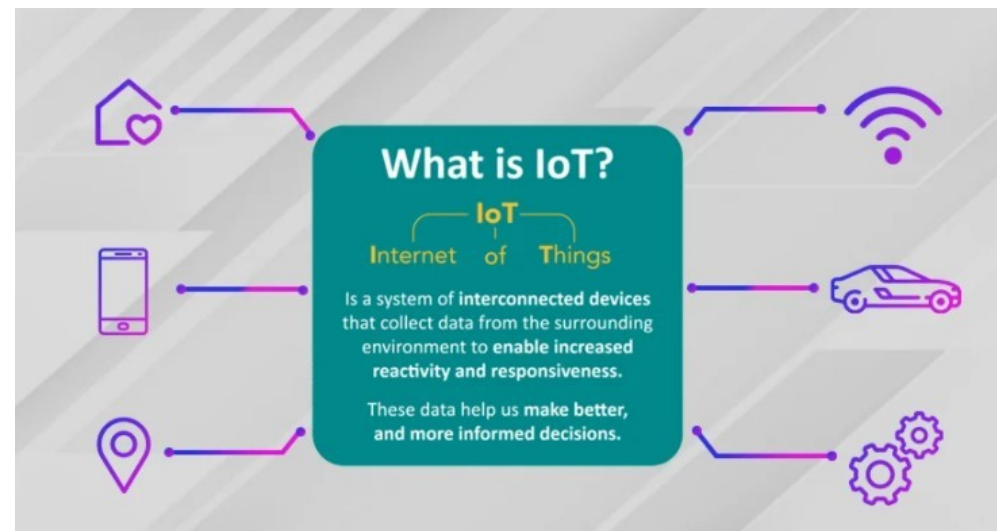
URBACT's mission is to enable cities to work together and develop integrated solutions to common urban challenges, by networking, learning from one another's experiences, drawing lessons and identifying good practices to improve urban policies.

<https://urbact.eu/>

IoT Xchange

Internet of Things as a policy instrument for the city change. It encourages the creation of a network of European partners committed to the design of digitalization plans based on Internet of Things (IoT) solutions to increase the quality of life in small and medium sized EU cities. URBACT methodology based on transnational cooperation between cities and engagement of local groups offer to our network of 9 cities the conditions to each develop an Integrated Action Plan that will guide us through a new age of digital transformation.

<https://urbact.eu/iotxchange>



ULG

URBACT Local Group For Dodoni was established under the IoT Xchange Program and consists of individuals, organizations and companies from the fields of Governance, Knowledge centers and Civil society.

The ULGroup had several online meetings trying to document the problems, and establish solutions through IoT technology using know-how from team experience.

Going Transnational

It is first about capturing and self-reflecting on the lessons learned from one's actions and making sense of this new knowledge

It is then about gathering and disseminating collective knowledge further, helping to sustain actions and to remain resilient in the face of challenges

IoT

In recent years, the Internet of Things advantages, innovations, improvements, and all sorts of applications have been a regular topic in the mass media. The whole concept involving the automatic cooperation of millions of various appliances within a global network is about three decades old. However, its rapid development started relatively recently. Though some inventors take this idea to the extreme by suggesting to connect every toaster, toothbrush, or trash can to the Internet, the network of "smart" devices (sometimes referred to as IoT devices) offers many undeniable benefits

ULG

Urbact Local Group for Dodoni consists of 17 members.

3 members from Governance, 6 members from Know how sector, 2 members from Civil Society, 1 member from Civil Organization, 3 members from Business Community, 1 member from Service providers and 1 member from Press.

ULG held 5 online meetings (Due to Covid-19 Pandemic) and during those meetings using URBACT's tools and knowledge from transnational meetings, Dodoni's Vision was produced and focus areas selected towards a sustainable future.

At ULG meetings the problems were prioritized, **strengths** and **weaknesses** were recorded.

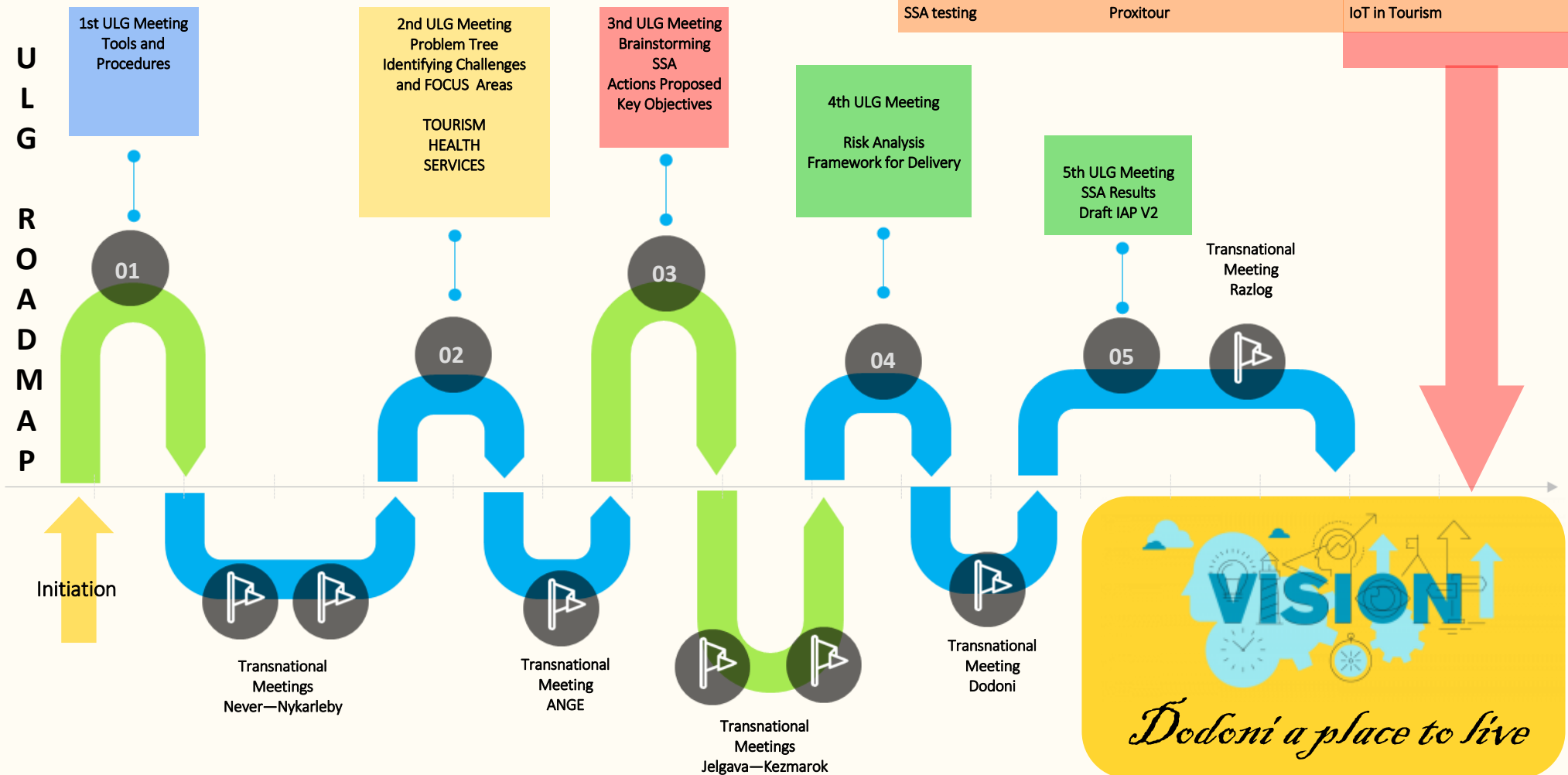
As **challenges** for Dodoni were selected **IoT in Healthcare**, **IoT in Tourism** and **IoT in management**.

Opportunities for incorporating IoT for behalf of inhabitants were recorded but also threads in the way of the implementation.

Transnational meetings gave ULG members input regarding implemented IoT Solutions from other partner

ACTION Planning

Motivator	Theme	Idea
Jelgava	Jelgava Municipality Operational Information Center (MOIC)	Central Platform For IoT Devices
Ange	IoT for people with disabilities	IoT in Healthcare
SSA testing	Proxitour	IoT in Tourism



Key OBJECTIVES

The Integrated Action Plan was produced within the Local Action Group through Action Planning sessions.

The vision of the I.A. plan is the development of next generation services using IoT technology in order to provide citizens a robust and easy to use environment in the way towards a digitalized future

Objectives

IoT Environment

The first key objective is setting the foundation that IoT technology needs in order to develop.

Network coverage in a rural area is difficult. Stakeholders are difficult to invest in developing networks in rural and sparsely populated areas that lacking critical mass for their investment.

Thus Dodoni must work on the grounds of developing the appropriate network through collaboration with other municipalities or cofounding network development with stakeholders

Knowledge

Knowledge and competence is another keystone in the development of IoT.

Either in the organization or in general public the goal is the same.

Dodoni must invest on increasing the knowledge in the organization by providing employees with courses on IoT and digitalization but also try to familiarize households with the I.o.T in order to improve the use by residents.

CoS, Research

Funding case of study projects is an objective for Dodoni within the effort to engage stakeholders and attract new research projects in I.o.T.

Awareness

The action plan includes acts in the way of improving the technology awareness for stakeholders and residents showing the benefits of digitalization and the positive effect in every day life.

Future

The design and introduction of new public services with the use of IoT technologies is the key stone in order to make the most of digitalization era and provide residents with the tools for living with quality.

KEY OBJECTIVES	INDICATORS	ACHIEVED
Establishing the foundations for a functioning digital ecosystem within the geographical municipality	XX Area Covered by Network	31/12 - 2024
Improving knowledge and competence of digitalization, IoT and AI within the organization	XX employees have finished a course on IoT and digitalization	1/3 - 2023
Improving penetration of digitalization and IoT within the households	XX households use I.O.T	31/12 - 2023
Improving collaborations efforts with neighboring municipalities	XX co-partnered IoT projects	31/12 - 2025
Funding I.o.T. prototype implementation projects for research purposes	XX Projects Funded	31/12 - 2025
Attracting stakeholder establishment focused on Digitalization	XX new establishments	31/12 - 2025
Expand the awareness of the technological solutions for key stakeholders and citizens	XX published articles on the municipal digitalization	31/12 - 2023
Introduce new services based on IoT technologies	XX new services	31/12 - 2028

Daring to fail

Small Scale Actions (SSA) have added a new dynamic to URBACT networks. Carried out with the support of EU partners and URBACT experts, these ‘trial runs’ enable cities to prototype local solutions and de-risk future actions.

URBACT defined them as “an experiment. It is an idea or a concept, perhaps already tried in another city, which can be tested to check the relevance, feasibility and added value of its implementation in different local contexts. The Small Scale Actions are limited in time, scale and space and by their nature have the right to fail.”

ULG members suggested exploring IoT solutions in tourism due to the fact that Dodoni has a world wide known archeological site the largest surviving theater and the oldest oracle of the Greeks with thousands visitors yearly.

The goal was to improve visitors experience to the main archeological site, but also to assess the impact of the solution on traffic for the less known Points Of Interest like Churches, Museums, Hiking paths, monuments of natural beauty etc.

Sensors

Several platforms were evaluated and it was realized that the best solution was to use IoT Sensor technology in order to create a virtual tour guide in a real environment.

Video Presenting SSA : [LINK](#)

Small Scale Action

Results

The smart app was tested for a period of four months in Dodoni. During the testing period, analytics were produced per user and per point of interest.

The analysis showed the tendency of tourists to visit at least one of the proposed points near the original.

Analytics that were gathered from the use of the app were for example : time spend in every P.O.I., languages used etc.

The analysis showed the potential of IoT Technologies in Tourism , producing information needed by administration for the improvement of the tourism plan, but also providing better visiting experience for the tourist.

KNOWLEDGE Gained

Sensor technology and intelligent user friendly apps can improve visitors experience.

IoT technology could be used to gather and disseminate data and make the analysis easier, accurate and in real-time

Services could be benchmarked and quality can be easily monitored

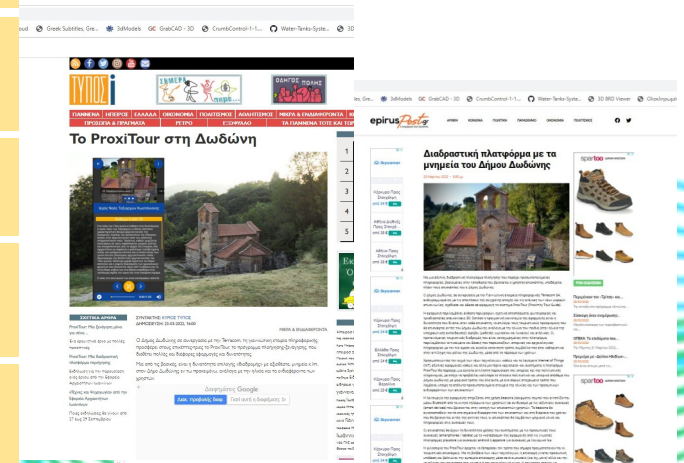
Active analytics produced by intelligent apps can be used by administration to streamline the tourism plan

Smart apps with personalized routes can be used to extend the stay and create traffic in places less known to the tourists



[ProxiTour in Google Apps](#)

Articles about SSA in Dodoni



Focus AREA

IoT in TOURism



Action	Description and Intended Result	Funding	Lead Organisation & Lead Partners	Timescale & Budget
Smartphone application presenting P.O.I.'s with Geo-location sensors	<p>Aim of the project is sensitization of citizens and tourists on lesser known points of interest in the area . Through Geo-location sensors we will provide the possibility for autonomous sightseeing with auto narration, and multimedia presentation, auto routes with suggested sights.</p> <p>Result: Increase visits to less known sights</p>	Dodoni Municipality	<ul style="list-style-type: none"> • Dodoni Municipality (L.O.) • Ephorate of Antiquities • Hoteliers association 	<p>2023 - 2028</p> <p>Budget: 60:000.00 €</p>
Virtual Reality—Enhanced Reality museum	<p>Using technologies such as AR we can show visitors the original way exhibits existed, bringing back life into the historic buildings. AR and VR give the potential for personalization, allowing visitors to gather information based on interest-points rather than a predefined tour. Interaction within a museum makes visitor remember more which is beneficial for the learning experience.</p> <p>Result: Enhance visitors experience</p>	Milestones II	<ul style="list-style-type: none"> • Dodoni Municipality (L.O.) • Ephorate of Antiquities 	<p>2023 - 2026</p> <p>Budget: 400:000.00 €</p>
Digital and virtual wandering platform	<p>Aim of the project is to provide an enhanced experiential tour to the user. Through a series of innovative applications, the historical monuments are re-approached, but also the area of special natural beauty that surrounds them, with the use of their computer and / or mobile device, the visitors are informed about the historical events and place them in their natural environment.</p> <p>Result: Showcase Historical and natural beauty monuments</p>	National Program "ANTONIS TRITSIS"	<ul style="list-style-type: none"> • Dodoni Municipality (L.O.) • Ephorate of Antiquities • Local cultural Associations 	<p>2023 - 2025</p> <p>Budget: 297.600,00 €</p>



Action	Description and Intended Result	Funding	Lead Organisation & Lead Partners	Timescale & Budget
Cloud application Connecting Lonely Patients with Doctors and Family	<ul style="list-style-type: none"> • Citizens Health File • Delimitation of a safe movement area of the person and automatic updating of the device • Immediate display and management of alerts in cases of worrying and unjustified absence or in cases of emission of sos signal, fall, etc. • Personalization by beneficiary, notifications and updates of relatives, online notification management,. • Medical observance history & automated submission of their results to contracted physicians, through information technology and telecommunications. <p>Result: Centralized management of Healthcare , telemedicine, surveillance</p>	National Program "ANTONIS TRITSIS"	<ul style="list-style-type: none"> • Dodoni Municipality (L.O.) • Help At Home • Ministry of Health 	<div>2023 - 2028</div> <p>Budget: 240.000,00 €</p>
24/7 monitoring of inhabitants with disabilities	<ul style="list-style-type: none"> • Wearable I.O.T. Device using GPS/WiFi/LBM technologies connected to cloud platform • Position / motion detection, fall detection • SOS button with direct dial to a predefined number and / or sms sending. <p>Result: 24/7 monitoring of inhabitants with disabilities, reduction of sudden deaths</p>	National Program "ANTONIS TRITSIS"	<ul style="list-style-type: none"> • Dodoni Municipality (L.O.) • Help at Home 	<div>2024 - 2030</div> <p>Budget: 70.000,00 €</p>
Introduce smart IoT medical equipment	<p>Smart wireless medical devices that must be compact, portable, easy to use and operated with simple or rechargeable common type batteries. Devices must record biological signals (glucose, blood pressure, heart rate, electrocardiogram, temperature, oximetry) at the touch of a button. The Devices must send the data to cloud application.</p> <p>Result: Centralized management of Healthcare</p>	National Program "ANTONIS TRITSIS"	<ul style="list-style-type: none"> • Dodoni Municipality (L.O.) • Help At Home 	<div>2024 - 2030</div> <p>Budget: 42.000,00</p>

Focus AREA

IoT Services

Action	Description and Intended Result	Funding	Lead Organisation & Lead Partners	Timescale & Budget
Automated Teller Machines for requests, certificates and digital payments	<p>This Action will offer the possibility of self-service for the citizens through Automatic teller machines (ATM's). Citizens will be able to issue a certificate, make a request and propose a solution, see and pay the debts as well as receive valid and up-to-date information.</p> <p><u>Example of services</u></p> <ul style="list-style-type: none"> • Identification of users • Direct application, printing, stamping and delivery of certificates or attestations of the Municipality • Payment of debts to the Municipality using a credit / debit card. <p>Result: Reduction of bureaucracy and visits to the administration</p>	National Program "ANTONIS TRITSIS"	<ul style="list-style-type: none"> • Dodoni Municipality (L.O.) 	<p>2023 - 2028</p> <p>Budget: 167.000,00 €</p>
Unified platform for public services	<p>The unified online platform of electronic services will be for Dodoni an organized and efficient Communication Portal and interfaces serving all the available internet products that the organization has and will acquire in the future, ensuring the easy access of the population group that easily or difficultly use the internet. It will be the main web site where all the relevant applications of this action will be presented to the citizens.</p> <p>Result: Digitalization of public services,</p>	National Program "ANTONIS TRITSIS"	<ul style="list-style-type: none"> • Dodoni Municipality (L.O.) 	<p>2023 - 2028</p> <p>Budget: 187.000,00 €</p>
IoT Security	<p>Internet-enabled devices pose a number of security challenges. But while the Internet of Things has brought connectivity to new devices, cybersecurity issues arise as stated in the SWOT table above.</p> <p>With this Action we will implement technologies and techniques like Network based firewalls, encryption, physical security etc. in order to secure data and communications.</p> <p>Result: Secure IoT technologies in Dodoni</p>	Dodoni Municipality	<ul style="list-style-type: none"> • Dodoni Municipality (L.O.) • National Cyber security Authority • Stakeholders (Telecommunication companies) • External Experts 	<p>2023 - 2024</p> <p>Budget: 30.000,00 €</p>



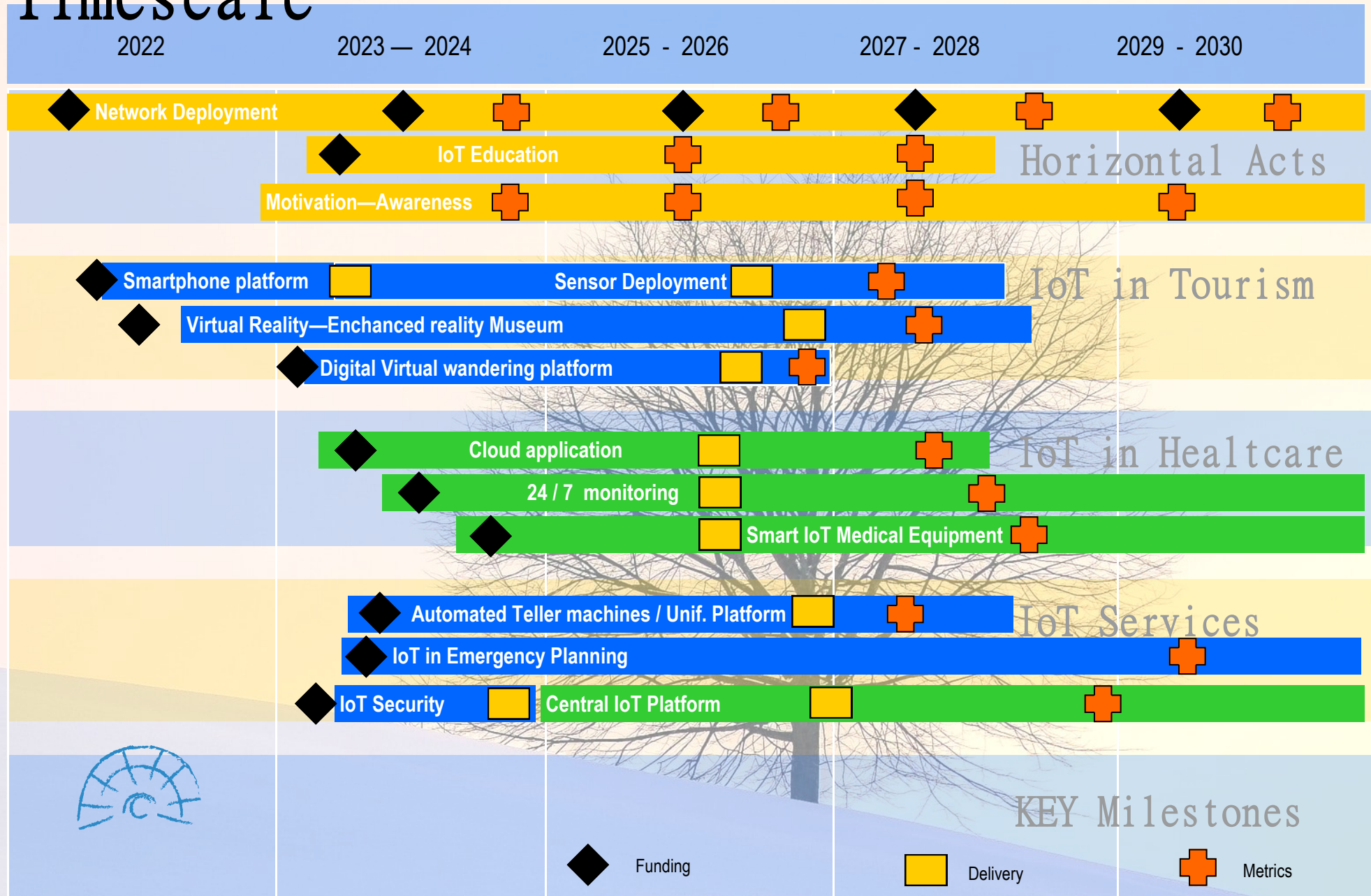
Action	Description and Intended Result	Funding	Lead Organisation & Lead Partners	Timescale & Budget
Central Platform For IoT Devices	<p>IoT platforms and tools are considered as the most significant component of the IoT ecosystem. Any IoT device permits to connect to other IoT devices and applications to pass on information using standard Internet protocols. IoT platforms fill the gap between the device sensors and data networks. It connects the data to the sensor system and gives insights using back-end applications to create a sense of the plenty of data developed by the many sensors.</p> <p>Result: Central IoT management</p>	National Funding	<ul style="list-style-type: none"> Dodoni Municipality (L.O.) 	<div>2025 - 2030</div> <p>Budget: 60.000,00 €</p>
IoT in Emergency Planning	<p>IoT technology in Emergency Planning is one of the most developing areas.</p> <p>Use of Air/water quality sensors help in pollution prevention incidents, heat cameras help in early fire warning, weather sensors (Wind, Rain, temperature etc) help administration for fast and critical decision making in order to prevent life losses, infrastructure damages etc.</p> <p>Further more precise IoT devices recording terrain displacement give an advantage in designing solutions to prevent damages to public infrastructures or citizens estate.</p> <p>Result: Fast and accurate Emergency response</p>	National Funding	<ul style="list-style-type: none"> Dodoni Municipality (L.O.) University of Patras 	<div>2024 - 2030</div> <p>Budget: 150.000,00 €</p>



INTEgrated APProach ACTs

Action	Description and Intended Result	Funding	Lead Organisation & Lead Partners	Timescale & Budget
Network Deployment	<p>Network coverage in a rural area is difficult. Stakeholders are difficult to invest in developing networks in rural and sparsely populated areas that lacking critical mass for their investment.</p> <p>Thus Dodoni must work on the grounds of developing the appropriate network through collaboration with other municipalities or cofounding network development with stakeholders</p> <p>Wifi—4G and 5G technologies should be used in network deployment in order to promote diversity and ease of use.</p> <p>Result: Provide I.o.T Endpoints</p>	Dodoni Municipality	<ul style="list-style-type: none">• Dodoni Municipality (L.O.)• Ioannina Municipality• University of Ioannina	<div>2021 - 2030</div> <div>Budget: 60.000,00 €</div>
IoT Education	<p>In order to implement IoT technologies, administration should educate it's staff in use and management for the under development technologies, through the appropriate seminars .</p> <p>Furthermore with the help of stakeholders and educational organizations , citizens should be educated in the use of IoT Technologies with seminars that should consider Age and education factors</p> <p>Result: Increase the familiarity with I.O.T.</p>	Dodoni Municipality	<ul style="list-style-type: none">• Dodoni Municipality (L.O.)• University of Ioannina• External Experts• Educational Organizations	<div>2023 - 2028</div> <div>Budget: 60.000,00 €</div>
Motivation / Awareness	<p>Workshops should be organized in local communities in order to showcase Actions, increase awareness and show the benefits of IoT technology implemented for residents.</p> <p>Flyers and posts in social media will motivate visitors to use the technology implemented by Dodoni for personalized experience</p> <p>A yearly program for the above acts should be produced.</p> <p>Result: Increase IoT Users</p>	Dodoni Municipality	<ul style="list-style-type: none">• Dodoni Municipality (L.O.)• University of Ioannina• External Experts• Educational Organizations	<div>2023 - 2030</div> <div>Budget: 60.000,00 €</div>

Timescale



Metrics & Funding

Metrics identified in the table below should be accurately determined and monitored by implementation team. Actions should be taken in order to adapt metrics and/or actions in order to keep continuous interest from stakeholders and citizens

Funding opportunities for the IAP's actions and activities are available through different sources. National program "Antonis Tritsis", through its priority axes funds actions for digital convergence. Program Milestones funds actions that Enhance tourism development, The digital Europe program is focused on bringing digital technology to administration, ERDF fund aims to strengthen economic, social and territorial cohesion, Interreg Europe funds innovative and sustainable solutions to regional development challenges. Further more Dodoni Municipality will allocate funds from the main budget to cover integrated approach acts, but also will collaborate with stakeholders in order to co-fund acts that have impact especially in employment.

ACTIONS	INDICATORS	ACHIEVED
IoT in Tourism	XX Combined Visits	2027
	XX Virtual Platform Visits	2027
	XX Thumbs Up in Social Media	2026
	XX Employment Increase	2026
IoT in Healthcare	Cloud App On Line	2027
	XX 24/7 Monitoring Persons	2027
	XX Medical Equipment	2028
IoT Services	XX Teller Machines On Line	2027
	Unified Services Platform Online	2028
IoT Emergency Planning	XX IoT Devices On Line	2029
	XX Devices connected	2028

FUNDING Ops

National Program "ANTONIS TRITSIS"

Aim of the program is the introduction of information and communication technologies in the relationship between local government and the citizen in order to consolidate the concept of digital culture.

<https://eyde.ypes.gr/tritsis>

MILESTONES

Enhancing tourism development through the protection and utilization of cross-border cultural and natural resources.

<http://www.milestones-project.eu/el/>

The Digital Europe Program

The Digital Europe Program (DIGITAL) is a new EU funding program focused on bringing digital technology to businesses, citizens and public administrations.

<https://digital-strategy.ec.europa.eu/en/activities/digital-programme>

European Regional Development Fund

The European Regional Development Fund (ERDF) aims to strengthen economic, social and territorial cohesion in the European Union by correcting imbalances between its regions. In 2021-2027 it will enable **investments in a smarter, greener, more connected and more social Europe that is closer to its citizens.**

https://ec.europa.eu/regional_policy/en/funding/erdf/

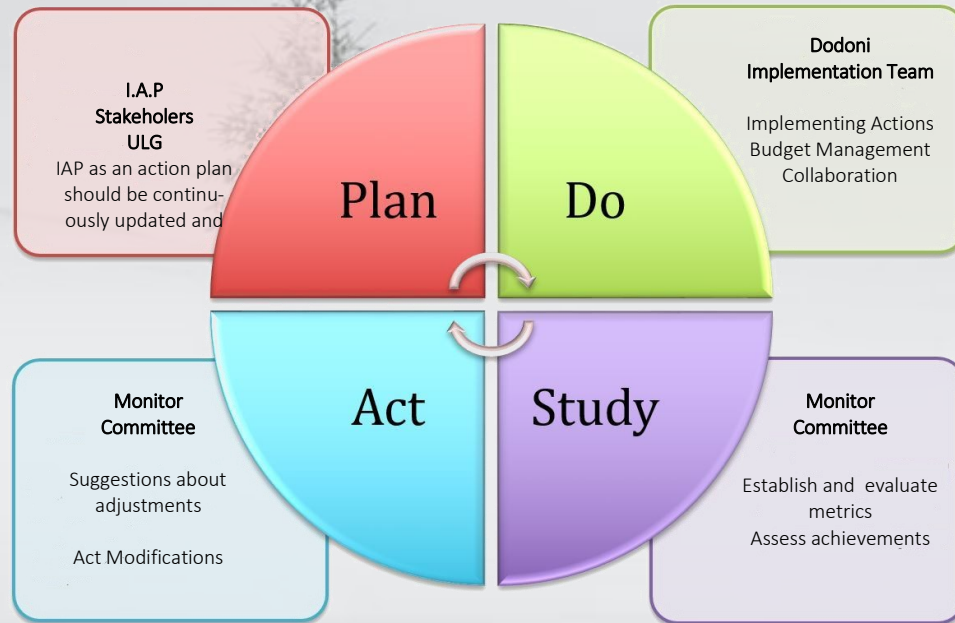
INTERREG Europe

We bring people together to share innovative and sustainable solutions to regional development challenges.

<https://www.interregeurope.eu/discover-the-programme>



PDSA Cycle



Study : To ensure proper coordination and follow– up for the proposed action plan a **monitoring committee** will be assembled as follows

Municipality Of Dodoni: 1 member of Governance, 1 I.T. Expert, 1 Financial Expert from staff.

Universities: 1 member from I.T. department of U.O.I and 1 member from University of Patras Physics Department

Society: 2 members of local society

External Experts: 1 Member as I.T. consultant and 1 member as communication consultant

Local municipalities: 1 member of Governance from Ioannina municipality and 1 member from I.T. Dep.

Union of municipalities: One member from union of Ioannina Municipalities

Act : The committee will meet two times per year to ensure that the actions of the parties involved are followed, assess the progression of the objectives and discuss the problems.. The committee will

- **Assess** the degree of achievement of the general objectives and established goals
- **Evaluate** the development and impact of the different actions
- **Assess** problems and impact on the actions and action plan

Plan: Continuous adjustment of the Actions and action plan will be made after considering output from Implementation Team and Monitor Committee. This will ensure that Actions will not be depreciated and interest from citizens and stakeholders will be continuous.

FRAMEwork for DELIVERY

Do : To ensure implementation and follow– up of the proposed action plan an **implementation team** will be assembled in Dodoni Municipality as follows.

Governance : 1 or 2 members from administration in order to ensure loyalty for the contiguous support of the Actions.

Staff : 1 member from I.T. Department
1 member from finance department
1 member from management department

External Experts: 1 Member as I.T. consultant and 1 member as communication consultant

PEST Analysis

This PEST Analysis identifies factors that could be items that help Dodoni for the implementation of I.o.T or factors that hinder it. The analysis gives a Macro picture of the environment that IoT will be implemented



RISK Analysis

Network Offline Time

Being a Rural area besides the beauty it comes with a lot of problems when it is time to implement digital technology.

Weather conditions, accessibility problems, property issues, even security issues arise, and it is difficult to ensure network up-time and quality.

Realizing multiple technologies (Wifi,LoRa,5G) in network design is a way for solving some problems but it is not cost efficient.

Budget prioritation

Small organizations are tied on their budget, and when new problems arise (e.g. infrastructure damages) it is difficult to secure budget for technology. Keeping management cost low is a way to avoid budget issues.

Changes on the organization

Changes on the organization like abolition - merger are difficult to be predicted and do not secure the continuity of the on the way projects

Changes in administration priorities

Administration consists of elected members that can change every four years. New administration may have different priorities.

Establishing a robust plan and secure a critical mass of users ensures the prioritation of the project.

System depreciation

Moore's law applies on every aspect of technology. Depreciation is an issue and during planning period it must be taken into account. Systems must be customizable, and administration must secure budget for modernization

Integrity and privacy concepts

GDPRegulation applies to all the Actions of this plan. Privacy, Security, should be taken into account in system design.

Maintenance Funding issues

Funding for maintenance and monternization is a critical part of the design process.

Either an external funding could be applicable or internal financing will be applied as alternative.

Insufficient Staff for maintenance

As stated above alternative solutions should be stated in the design (e.g. external partners)

User oriented issues

Either reduced interest or knowledge from users should be taken into account and horizontal actions to be taken have been stated above.

RISK Analysis

This analysis foresees Risks that are applicable today and in the near Future. A mechanism of Risk analysis should be designed for continuous adaptation to the future Risks.

Risk	PROBABIL- ITY [0-5]	IMPACT [0-5]	PRIORITY [P*I]
Network Offline Time	5	5	25
Change in budget prioritation	3	5	15
Changes on the organization (abolition - merger)	2	5	10
Changes in administration priorities	3	4	12
System depreciation	2	5	10
Integrity and privacy concepts	3	3	9
Unable to secure service Funding	3	3	9
Insufficient Staff for maintenance	3	3	9
Reduced interest from Users	3	2	6
Insufficient competence and knowl- edge from users	2	2	4

What's Next

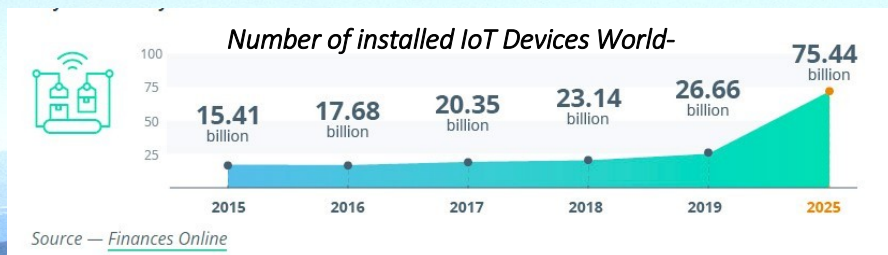
Promoting the implementation of smart cities must mean for the citizens:

- Increased efficiency and accessibility to services
- Reduction of poverty, unemployment and social exclusion,
- Reduction of pollution and environmental impact and data collection for disposal and reuse for effective policy making.

In addition, as the recent **COVID-19 pandemic** has shown, the transformation of cities into 'smart cities' has a positive effect on the daily lives of individuals, workers and businesses through a series of changes related, for example, teleworking, e-democracy and enhancing transparency, and enabling citizens to be more actively involved in the decision-making process

A smart City should target in

- **enhancing** sustainable, urban mobility through technological means.
- **enhancing** the physical security of the public through technological means.
- **strengthening** the creative stakeholders by involving them in the development of digital content.
- **Conserving** of natural resources, as a result of reducing the consumption of electricity and fuel
- the **monitoring** of the quality parameters of the environment, the atmosphere and the collection of municipal waste, within the urban fabric.
- the **collection** and distribution of data and the interoperability with open data platforms..



Lessons Learned

Building process for this I.A.P. Introduced to Dodoni municipality new tools that will help to develop action plans with pragmatic solutions for other urban topics in the future.

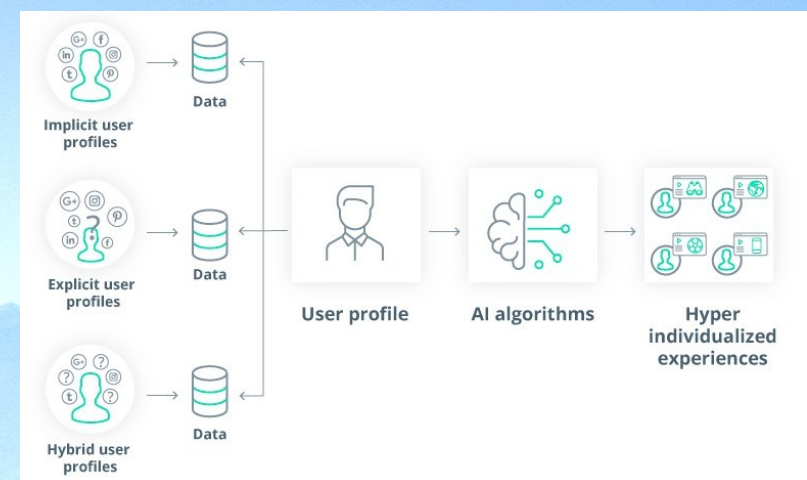
The **experience gained** from collaboration, setting and meeting objectives, exploring and exchanging good practices, involve stakeholders in the decision process will help us in the way to a sustainable future.

SSA project implementation and testing has added a new dynamic to design process. These 'trial runs' enable cities to prototype local solutions and de-risk future actions, while engaging local stakeholders in 'doing'

The Future Beyond

Future IoT technology trends will help administration get maximum efficiency and productivity out of their equipment and staff. This will translate into immense economic and political value for local governance that adopt IoT. The evolution of IoT will bring further improvements in mass personalization, virtual prototyping, cyber security, connectivity, and healthcare.

Hyper personalization gives services a human touch. Thanks to the use of big data, AI, and machine learning, you can now set new goals, save time and resources, and tap into new sources of Policy delivering. Modern citizens expect to receive services that are truly theirs, which makes mass personalization one of the key Internet of Things trends.





CONCLUSION

Overall, the Municipality of Dodoni as member of the Urbact IoTX-change Network has gained a fruitful experience, although that many challenges have arisen due to the covid-19 pandemic, since almost the beginning of the project.

Throughout the two-year journey in which best practices in the field of IOT have been exchanged within transnational meetings and then these practices were further discussed and elaborated in the Urbact Local Group, the Municipality has been able to make some important steps towards its digitalization.

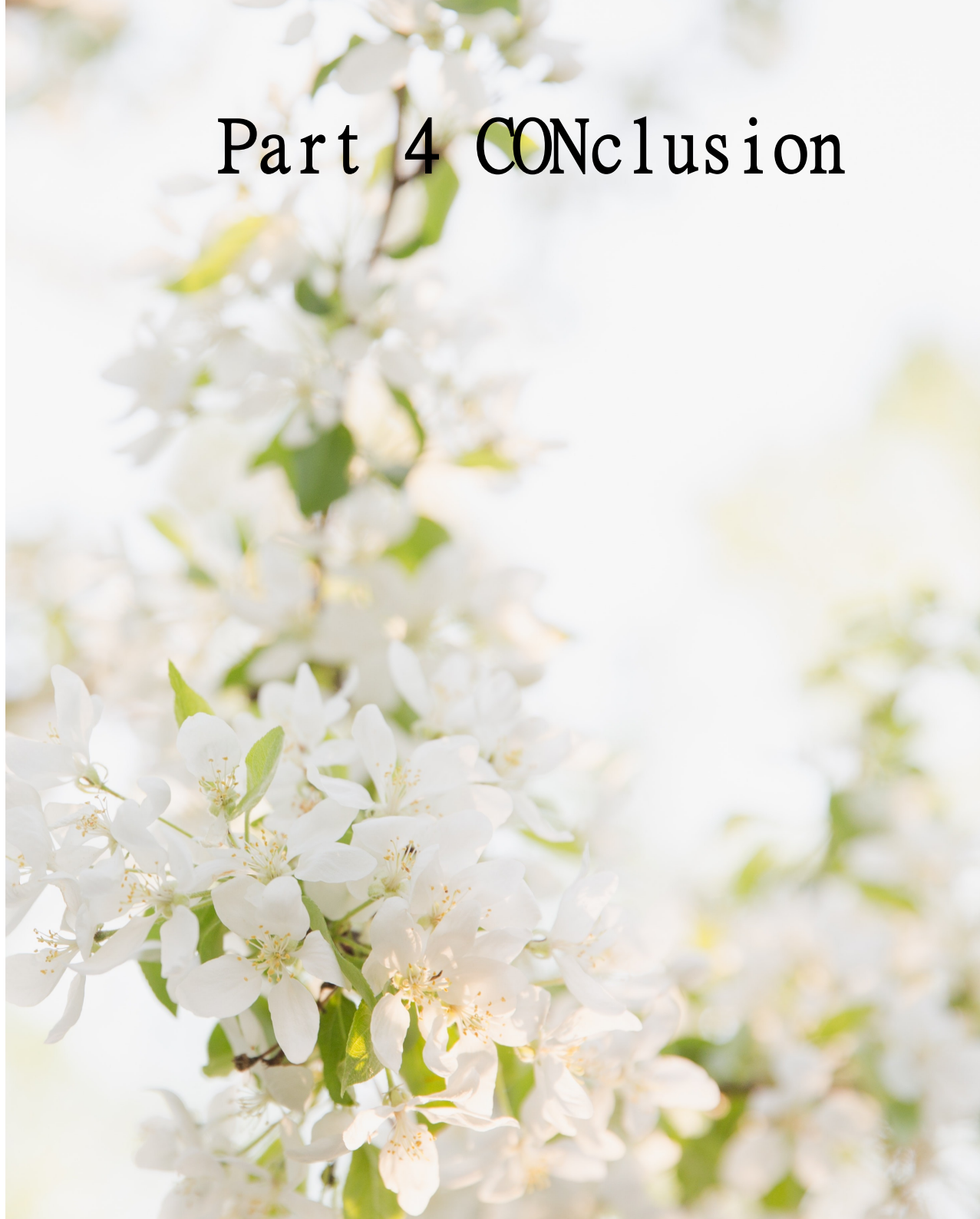
Moreover, the participation in the project has been an excellent opportunity for networking and setting the basis for constant and future cooperation with other partners that share common challenges and visions, even after the completion of the project. The Integrated Action Plan (IAP), which is result of hard work and depicts the process of learning from and giving lessons to other partners, is a strategic document that will be a reference point and that will continue to orientate the Municipality's future steps in terms of Internet of Things.

Finally, on behalf of the Municipality of Dodoni, the IoTXchange team would like to thank a) the Urbact Secretariat for giving us the opportunity to participate in the project and take advantage of the Urbact Tools and Methodology to our benefit, b) other partners for having an excellent cooperation and c) any other stakeholders that have contributed to the successful implementation of the project. We would also like to let you know that the Municipality of Dodoni always remains 'open' to the prospect of being member in Urbact Projects in the future and we wish good luck to the other Network members.

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Part 4 CONCLUSION





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