



# DIGITAL CITIES CHALLENGE

## Digital Transformation Strategy for the city of Kavala

### *City as a Platform*

July 2019



# Digital Cities Challenge

Digital Transformation Strategy for the city of  
Kavala: City as a Platform

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## Table of contents

<b>Executive Summary: Kavala digital transformation .....</b>	<b>4</b>
<b>1. Introduction to the Digital Cities Challenge.....</b>	<b>8</b>
<b>2. Overview of the digital maturity assessment for Kavala .....</b>	<b>10</b>
<b>3. Mission and Ambition statements .....</b>	<b>12</b>
<b>4. «City As A Platform» : the Digital Transformation Strategy for the city of Kavala</b>	<b>17</b>
4.1. Strategy orientation .....	17
4.2. Operational objectives.....	20
<b>5. Digital strategy roadmap and planned activities.....</b>	<b>24</b>
5.1. Overview of proposed activities .....	24
5.2. The pilot activities.....	29
5.3. Timetable for implementation.....	30
<b>6. Strategy governance.....</b>	<b>33</b>
6.1. Governance scheme and partners .....	33
6.2. Key processes and roles.....	34
<b>7. Monitoring and evaluation of the Digital Transformation Strategy .....</b>	<b>36</b>
7.1. Performance assessment framework .....	36
7.2. Strategy evaluation plan.....	37
<b>8. Results achieved and next steps .....</b>	<b>38</b>
<b>Appendix I: Detailed presentation of activities .....</b>	<b>39</b>
<b>Appendix II: Performance assessment framework.....</b>	<b>51</b>
<b>Appendix III: Relevant Good practices .....</b>	<b>55</b>
<b>Appendix IV: Bibliography .....</b>	<b>58</b>
<b>Appendix V: Stakeholders consulted .....</b>	<b>59</b>

## Executive Summary: Kavala digital transformation

### Kavala, a central node in the Digital Cities Challenge network

The Digital Cities Challenge, an initiative of the European Commission, helps to achieve sustainable economic growth in Kavala through the integration of advanced technologies. The initiative fosters complementarities and synergies between existing policies involving digital priorities (e.g. sustainable urban development, sustainable tourism development, digital growth, smart-city development, creative-city development, etc.) and the newly planned policy actions supporting digital transformation.

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

### The digital transformation strategy for Kavala: “City as a platform”

#### Mission:

Kavala wants by 2030 to become a digitally advanced “City as a platform”, fostering sustainable development in tourism, agriculture, logistics and ICT sectors, leveraging upon evolving citizens’ and SME’s digital skills and exploiting a state-of-the-art city and private sector digital infrastructure, successfully transforming the region into a vivid entrepreneurial ecosystem, and eventually providing a higher quality of life to its citizens and visitors.

Four Ambition Statements form the key axes of the digital strategy, realising the vision	
<b>Ambition Statement 1</b>	To create a state-of the art City Digital Infrastructure, able to act as an enabler for citizens and local businesses
<b>Ambition Statement 2</b>	To set up and implement a strategy that develops digital skills, promotes awareness and achieves the participation of citizens and SME’s
<b>Ambition Statement 3</b>	To achieve Entrepreneurship Acceleration via Digital Means, contributing to the sectoral development plan of the City
<b>Ambition Statement 4</b>	To leverage the potential of Digital Marketplaces and Open Data for sectoral Development

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

<b>OO 1.1</b>	Improve and share the city's ICT infrastructures (networks, sensors, information systems, facilities)
<b>OO 1.2</b>	Develop new digital services for Citizens and Businesses (one-stop, mobile, fully digital services provision)
<b>OO 2.1</b>	Raise awareness and digital participation of citizens and businesses in city activities (incentives, analytics)
<b>OO 2.2</b>	Training for citizens and SME's in digital technologies
<b>OO 3.1</b>	Establish an Entrepreneurship Acceleration System, heavily utilising Digital Means, targeting the 4 sectors of the local economy
<b>OO 3.2</b>	Develop digital services to support a coordinated agro-food and logistics centre (high precision agriculture, supply agro-food chain management)
<b>OO 3.3</b>	Digitise and market existing and new touristic services, including blue economy offerings
<b>OO 4.1</b>	Establish and maintain a universal infrastructure for open data (research, market, demographic, spatial) that could be used by local enterprises to develop new services

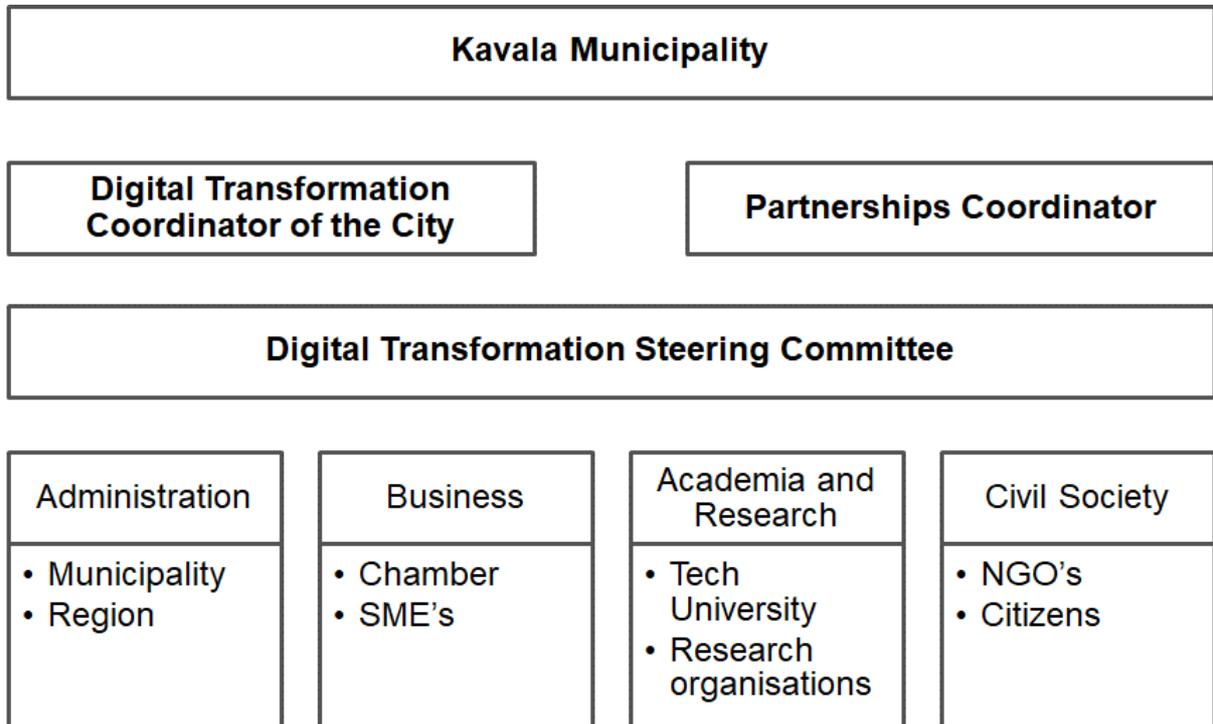
### **The strategy roadmap for the city of Kavala**

The city has identified, through a series of workshops and questionnaires with the local community of citizens and businesses, the list of activities to be implemented in the short, medium and long terms, in order to make its strategic mission and ambition a tangible reality.

As such, a total of 21 specific activities have been identified, under the different operational objectives of the strategy, as listed below. Possible pilot activities that can render a result within the next months are depicted in grey background.

<b>OO #</b>	<b>Key Activity 1</b>	<b>Key Activity 2</b>	<b>Key Activity 3</b>
<b>OO 1.1</b>	Networks planning and sharing (WiFi, Fiber, etc)	Sensors (Air, water, energy, etc) for generating real time open data	Sharing of the LHC Computing Grid - University of Kavala
<b>OO 1.2</b>	New Digital Services for citizens (administrative processes, complaints, e-payments, social media, mobile first principle, once only principles)	New Digital Services in the areas of: Health, Mobility, Parking, Elderly & Disabled	New Digital Services for businesses (malls, mobile apps, branding)
<b>OO 2.1</b>	Kavala e-participation. Platform and incentives programme for citizens and businesses	Kavala Open Collaboration platform and pilot projects on collaborative governance (design a new service, collaborative budgeting, digital strategy)	
<b>OO 2.2</b>	Life-long learning platform and training programmes for citizens in ICT	Training of SME's in ICT, utilising digital platforms	
<b>OO 3.1</b>	The Kavala Business Incubator (University - based and Virtual)	The Kavala Business Accelerator (Technology Park, AgroCentre, Funding, etc.)	Digitally coordinated competitions and events for new startup ideas (in focused sectors) and Networking activities (EEN, Greek startup ecosystem, etc.)
<b>OO 3.2</b>	Precision Farming Technology Centre	Agrofood branding and marketing hub & mall	Digital logistics management centre (port/rail/airport/road)
<b>OO 3.3</b>	Kavala City Advisor (mobile app for tourists and citizens)	Tourism branding digital hub and mall for new touristic services (e.g. culture, conferences, religion, etc.)	Virtual trips and multimedia applications for local cultural sites
<b>OO 4.1</b>	Kavala Open Data Platform - Collection and curation	Kavala Open Data Platform -- Publishing (as datasets and API's) and charging model	

The outlines of the governance of the digital transformation strategy have also been defined, including the overall governance scheme, the key roles and the key processes that will ensure the proper continuation of Kavala digital transformation. The following figure outlines the key players for Kavala's Digital Transformation strategy.



Last but not least, a performance framework for the strategy has also been designed in light of conducting regular monitoring and appraisal of strategy implementation. The performance framework includes KPI's for all the Operational Objectives and Key Activities of Kavala Digital Transformation Strategy,

# 1. Introduction to the Digital Cities Challenge

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

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

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



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

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

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

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

As a result, the Digital Cities Challenge has directly engaged with the Mayor of the supported cities. In December 2019, the on Mayors Conference was organised in Brussels to reflect upon the ongoing work and co-design the technological transformation trajectory of European cities.

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

## 2. Overview of the digital maturity assessment for Kavala

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The perception that the city lies at the threshold between less digitally mature and digitally transforming was confirmed during the assessment stage. Some key findings:

- The 43.40% of households has broadband internet at home with an average speed of 13MBps, not adequate for most bandwidth consuming services. The city's 4G coverage is 80,4% and the average cost of mobile internet is 0,10€/MB at national level. There are no intelligent sensors in the city while there are 4100 unique devices connected to wireless internet that is freely available at public spaces, during September 2018.
- There is an integrated mobility platform to travel across transport modes, a real-time transport monitoring system and fibre network at the main business park of the city. However, there is neither a one-stop shop nor a system for online permits application and the percentage of tickets purchased online is very low (4.68%).
- As there is an absence of internet statistics at city level (an indication of the level of sophistication of the existing ICT infrastructure), the percentage of individuals who used the internet for interaction with the public authorities is not clear (the average for North Greece being 46%).
- There are 17 “Open data” sets offered by the public authorities of the city and 17 % of them provide real time information through APIs, while the city is at the process of collecting the number of downloads of those datasets. Non-digital companies could make use of open data in 27 cases, mainly for data needed to conduct technical studies and to support their business operation.
- In “Digital skillset and education” area, 30% of people bought or ordered goods or services over the internet (EUROSTAT, Northern Greece). According to the statistical data provided by the career office of EMaTTech, 13,17% of its students, studied in digital subjects but only 5,58% of them employed in the city over the last 5 years.
- Public Financing indicators are all very low, as there are not any grants / tax incentives provided at city level to support entrepreneurship. On the contrary, there are private business angels for digital start-ups active in the area.

- There are not any innovation labs / accelerators in the city yet, although the number of 85 participants in events organised within the framework of digital transformation indicates that the local ecosystem is aware of the important role of digitalisation to the development / growth of local economic sectors.

The following figure depicts the digital strengths and weaknesses of Kavala.

	Strengths	Weaknesses
 <b>Infrastructure</b>	<ul style="list-style-type: none"> <li>&gt; 4G coverage in the city (industry/utilities)</li> <li>&gt; City care, transportation platform, e-participation (e-gov)</li> <li>&gt; ICT facility – public <u>WiFi</u>, optical <u>fiber</u> broadband (public building, GRID)</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Healthcare to offer e-health services</li> <li>&gt; Using ICT to increase the effectiveness and efficiency for utility providers</li> <li>&gt; Broadband accelerates the digitalization of local industry</li> <li>&gt; Low exploitation of existing MAN (fiber network)</li> </ul>
 <b>Access to data</b>	<ul style="list-style-type: none"> <li>&gt; Public sector institutions &amp; organisations in the city involved in open data contribution (mainly <u>edu</u>)</li> <li>&gt; Policy making (<u>ELSTAT</u>, population, employment)</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Open data used in business development of non-digital companies</li> <li>&gt; Business development of digital companies (including start-ups)</li> <li>&gt; Standards</li> </ul>
 <b>Digital skillset</b>	<ul style="list-style-type: none"> <li>&gt; Digital training level offered in higher education related to non-digital subjects in the city</li> <li>&gt; digital mind-set of children triggered at school (children's university initiative)</li> <li>&gt; young people apply for higher education institutes in digital subjects</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Companies in city able to attract local IT talent</li> <li>&gt; individuals obtain digital training through courses organized by private companies or non governmental organizations</li> </ul>
 <b>Companies' digital competencies</b>	<ul style="list-style-type: none"> <li>&gt; Access to relevant local IT solution providers</li> <li>&gt; Digital processes in companies being driven by senior management</li> <li>&gt; Companies using cybersecurity solutions and privacy procedures</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Digital training offered by companies to their employees</li> <li>&gt; manufacturing companies embracing Industry 4.0 concepts</li> </ul>
 <b>Community</b>	<ul style="list-style-type: none"> <li>&gt; Collaboration amongst digital and non-digital stakeholders from various sectors</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Networking events for digital companies organized in the city</li> <li>&gt; Networking events that bring together digital and non-digital companies</li> </ul>
 <b>Finance</b>	<ul style="list-style-type: none"> <li>&gt; Private investors are willing to invest in digital companies and in non-digital companies for digital projects</li> <li>&gt; Banks are willing to provide bank loans to digital companies</li> </ul>	<ul style="list-style-type: none"> <li>&gt; City encouraging digital start-ups by providing grants / tax incentives</li> <li>&gt; City encouraging digital development of non-digital companies by providing grants / tax incentives for digital projects</li> </ul>
 <b>Support services</b>	<ul style="list-style-type: none"> <li>&gt; Create awareness about the importance of digital development for SMEs through testimonials or case studies (<u>TEDx</u>, open coffee, start up w/e)</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Innovation labs / accelerators / <u>fablabs</u> for non-digital companies (open labs planned)</li> <li>&gt; Support services to its non-digital companies to foster digitalization</li> </ul>
 <b>Governance &amp; leadership</b>	<ul style="list-style-type: none"> <li>&gt; Authority responsible for overall planning and implementation of a digital development plan (tech committee consisting of members of public, task force)</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Clear and defined measurable goals to monitor progress of a digital development plan</li> <li>&gt; Shared vision on digital development</li> </ul>

A separate assessment report has been produced for the city of Kavala, as part of the Digital Cities Challenge.

### 3. Mission and Ambition statements

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#### Mission Statement

“Kavala wants by **2030** to become a digitally advanced “**City as a platform**”, fostering sustainable development in **tourism, agro-food, logistics and ICT** sectors, leveraging upon evolving citizens’ and SME’s **digital skills** and exploiting a state-of-the-art city and private sector **digital infrastructure**, successfully transforming the region into a vivid **entrepreneurial ecosystem**, and eventually providing a **higher quality of life to its citizens and visitors**”

The mission of the digital transformation of the city of Kavala is to leverage ICT in order to digitally transform the city and the broader region: a) by improving the digital services provided to its citizens but also to its visitors, b) achieving sustainable development and a high level of quality of life and c) by fostering a vibrant environment for skills creation, entrepreneurial collaboration and new business development especially in key sectors of the local economy such as tourism and the agro-food industry.

#### Ambition statements

Four Ambition Statements form the key axes of the digital strategy, realising the vision:

<b>Ambition Statement 1</b>	To create a state-of the art City Digital Infrastructure, able to act as an enabler for citizens and local businesses
<b>Ambition Statement 2</b>	To set up and implement a strategy that develops digital skills, promotes awareness and achieves the participation of citizens and SME’s
<b>Ambition Statement 3</b>	To achieve Entrepreneurship Acceleration via Digital Means, contributing to the sectoral development plan of the City
<b>Ambition Statement 4</b>	To leverage the potential of Digital Marketplaces and Open Data for sectoral Development

**Ambition Statement 1 : “To create a state-of the art City Digital Infrastructure, able to act as an enabler for citizens and local businesses”**

This strategic orientation aims to improve existing and create new digital **infrastructures** in the city in order to create a baseline for the city’s digital transformation. Furthermore:

- To achieve substantial embellishment of the City’s digital infrastructures, especially towards interoperability, open data, e-participation, one-stop service provision, red-tape reduction, covering the needs of all actors of the local ecosystem and providing a technological base that will boost economic growth and new service development.
- To invest on new reality technologies (mobile guides and AR/VR applications) for improved information delivery and interaction as well as visualisation in order to increase cultural comprehension and inclusiveness.
- To invest on other technologies that offer valuable solutions for tourism (e.g. location-based services, web-based platforms etc.).

**Rationale**

- Stakeholders acknowledge the importance of digital services, to be provided by an interconnected local government infrastructure.
- The proper operation of the public sector (at municipality and regional level), via automated, one-stop, paperless services is an essential factor for private sector development.

**Expected outcomes**

- Effective development and promotion of new digital services.
- High exploitation of existing infrastructures, via interoperability-enabled interconnection.
- Attract investments and boost development.
- Direct Investments on the development of 5G, LoRa, FTTH and WiFi networks, IoT etc.
- Available buildings and infrastructures should be offered to the most productive sectors of the local economy, as an incentive to attract investment and boost development.

**Ambition Statement 2: “To set up and implement a strategy that develops digital skills, promotes awareness and achieves the participation of citizens and SME’s”**

This ambition statement focuses on **ICT skills creation**, for all stakeholders of the local ecosystem (the public sector, local enterprises and citizens) aiming to improve e-readiness:

- To utilise digital infrastructures in order to boost the digital skills of citizens, practitioners and SMEs in the region improving the readiness for e-services usage and/or development.
- Promote collaboration between local academic community and research institutions with the business community with the aim to identify the actual needs of the market in terms of knowledge.
- To adopt new technologies in agriculture and the agro-food sector and integrate these efforts with other key economic activities of the city (e.g. logistics, tourism) [e.g. make Kavala a pioneer in high precision agriculture and irrigation of local products].

**Rationale**

- There is a lot of potential within the local population that needs orientation towards digital training.
- Limited number of organised networking events for digital companies, or digital and non-digital companies.
- Post-secondary education programs should further be adapted to current digital needs.
- Citizens must have access to basic digital literacy training.
- Developing and highlighting an entrepreneurial culture for SME’s.

**Expected outcomes**

- Life-long training modules, on essential digital skills, for youth and SME’s.
- Systems and incentives programs for promoting active citizenship and collaboration.
- Attracting local and global digital talents parallel to discouraging brain drain.
- Talents would be leading the development process in both their workplace and innovation labs and networks.

**Ambition Statement 3: “To achieve Entrepreneurship Acceleration via Digital Means, contributing to the sectoral development plan of the City”**

This set of actions aims to enhance **innovative entrepreneurship** with the use of digital tools and create a sustainable and innovative ecosystem focusing at the same time on the establishment of a **collaboration culture**. More detailed objectives are the following:

- To establish a startup ecosystem able to generate and scale up new SME's, digital by default (the Kavala accelerator).
- To digitise existing touristic services (e.g. Online booking of tickets for all local travel services) in order to improve management efficiency, monitoring, and quality of the touristic offerings in the area and develop other ICT-enabled, sustainable and diversified touristic offerings, increasing tourist satisfaction and enlarging the touristic period while offering multiplying effects to local complementary economic sectors.
- To provide funding opportunities for e-services and ICT start-ups.
- To achieve a cross-sectoral fertilisation with ICT offerings (e.g. e-marketplaces, collaborative platforms) in Tourism, Agro-Food Sector, Logistics, Quality of Life, etc.

**Rationale**

- Stakeholders acknowledge the importance of digital services, to be provided by an interconnected local government infrastructure.
- The proper operation of the public sector (at municipality and regional level), via automated, one-stop, paperless services is an essential factor for private sector development.

**Expected outcomes**

- Activation of Innovation labs / accelerators / fablabs (innovative environment)
- Basis for a shared vision and a commonly agreed digital strategy
- Strengthened role of the city as a coordinator/facilitator/launchpad
- Achieve social intelligence i.e. the capacity and desire of the community to manage the change

**Ambition Statement 4: “To leverage the potential of Digital Marketplaces and Open Data for sectoral Development”**

This ambition aims at improving existing and creating new **digital platforms** that will promote digital transformation and will support all the key sectors of the local economy through entrepreneurship creation. This will be mainly supported by the utilisation of public and private sector open data at the spatial level, building upon them a series of services. Furthermore, key priorities include:

- To establish a collaborative ecosystem through common infrastructure utilisation (such as marketplace platforms) for the development of new products and services.
- To invest in e-commerce/auction platforms for the promotion of small producers' agro-food products allowing also for greater collaboration among them.

**Rationale**

- Valid and reliable data need to be produced and access to them should be much improved.
- Low utilisation of existing open data sets by either digital or non-digital companies.
- Required support in understanding the use of data to create business application.

**Expected outcomes**

- Data treated as the fuel of the digital, knowledge-based economy.
- Production and contribution of valid and reliable, efficiently accessible (i.e. APIs) open data by public and private sector organisations.
- Application development and solutions based on open data sets.

## 4. «City As A Platform» : the Digital Transformation Strategy for the city of Kavala

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### 4.1. Strategy orientation

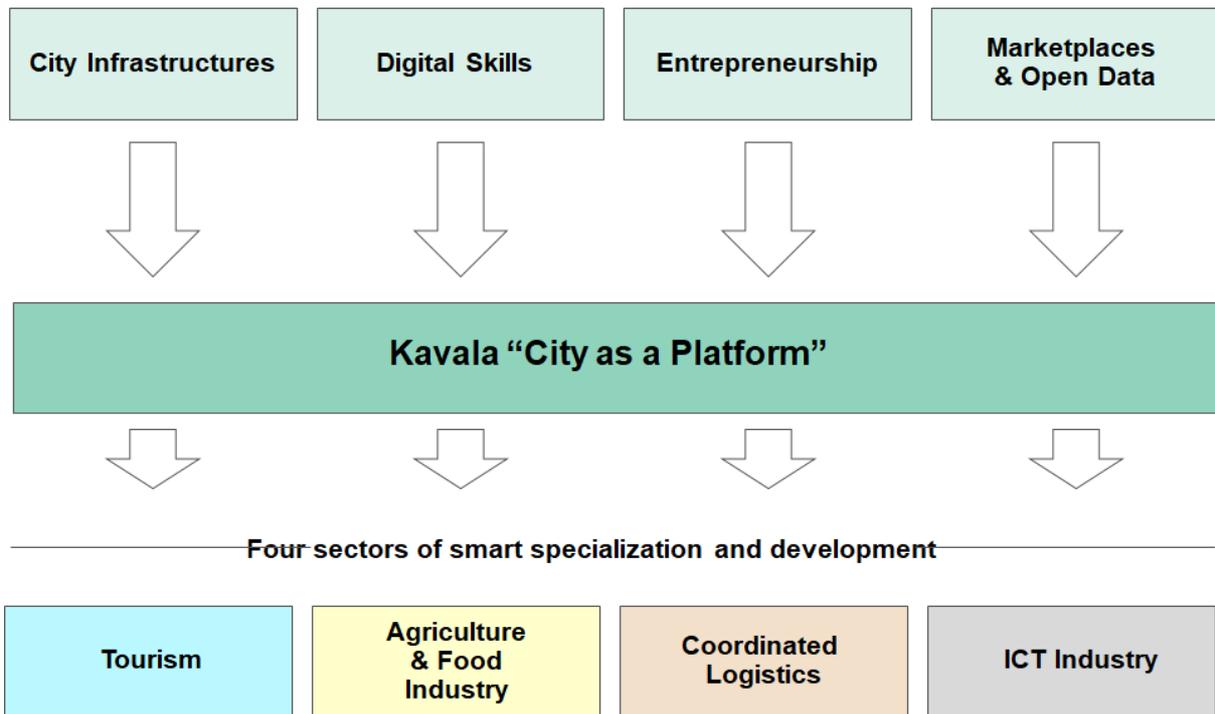
As presented in the previous section, both the Digital Strategy Mission as well as the key Ambition Statements, delineate the overall strategic orientation of Kavala to develop on four key areas of services to be offered as a platform:

- Infrastructures;
- Skills;
- Entrepreneurship;
- Open Data and marketplaces;

Services of this platform are then to be utilised and embedded in products and services, by the four key sectors of the local economy:

- Tourism;
- Agriculture and food industry;
- Logistics (coordination hub of port, rail, airport and road transport);
- Information and Communication Technologies;

Figure 1 Kavala’s Ambition Statements and Key Sectors of the economy

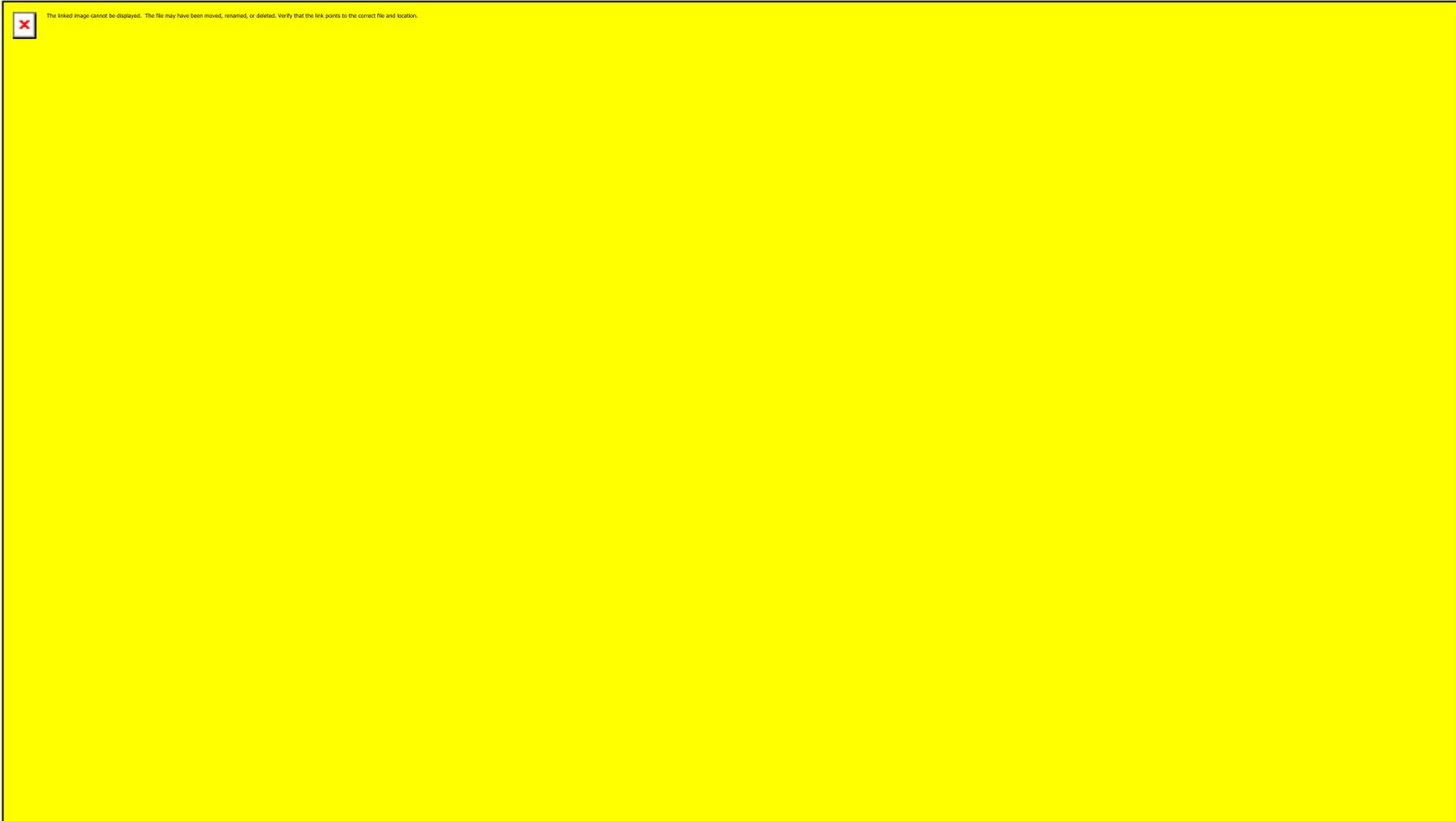


Box 1 The links to other existing strategies at the city level

The presented digital strategy orientation is based upon and extending the Kavala 1 Operational Program (KOP) 2015-2019. The current Digital Strategy will also form the basis of the ICT-related parts of the new Operational Programme 2020-2024, which is currently under preparation. Provisions have been made, so that the current strategy is also in line with the Community Support Financing (CSF) funding scheme for the City and the Broader East Macedonia & Thrace Region (2016-2021).

The following figure provides an overview of the full digital transformation strategy for the city of Kavala. The individual components are described in further detail in the following sections and sub-sections.

*Figure 2 Overview of the Digital Transformation Strategy for the City of Kavala*



## 4.2. Operational objectives

Operational objectives reflect the means through which the city of Kavala will achieve its ambition statements. They represent the ‘how’ behind the high-level strategic vision which has been developed by the local working group. The city of Kavala has identified 8 (eight) operational objectives for its digital transformation strategy, grouped in three stages (core infrastructure, awareness and training, innovation and entrepreneurship) are shown below.

INFRASTRUCTURE and BASIC SERVICES	
OO 1.1	Improve and share the city’s ICT infrastructures (networks, sensors, information systems, facilities)
OO 1.2	Develop new digital services for Citizens and Businesses (one-stop, mobile, fully digital services provision)
OO 4.1	Establish and maintain a universal infrastructure for open data (research, market, demographic, spatial) that could be used by local enterprises to develop new services
AWARENESS and SKILLS	
OO 2.1	Raise awareness and digital participation of citizens and businesses in city activities (incentives, analytics)
OO 2.2	Training for citizens and SME's in digital technologies
INNOVATION and ENTREPRENEURSHIP	
OO 3.1	Establish a Entrepreneurship Acceleration System, heavily utilising Digital Means, targeting the 4 sectors of the local economy
OO 3.2	Develop digital services to support a coordinated agro-food and logistics centre (high precision agriculture, supply agro-food chain management)
OO 3.3	Digitise and market existing and new touristic services, including blue economy offerings

As demonstrated in the following figure, operational objectives are linked to one or two ambition statements (XX – primarily and X – secondary).

#	Operational Objective	Ambition Statement			
		AS1 : A state-of the art City Digital Infrastructure	AS2: Digital Skills, awareness and participation for citizens and SME’s	AS3 : Entrepreneurship Acceleration via Digital Means	AS 4 : Open Data and Digital Marketplaces
OO 1.1	Improve and share the city’s ICT infrastructures (networks, sensors, information systems, facilities)	XX			X
OO 1.2	Develop new digital services for Citizens and Businesses (one-stop, mobile, fully digital services provision)	XX		X	

#	Operational Objective	Ambition Statement			
		AS1 : A state-of the art City Digital Infrastructure	AS2: Digital Skills, awareness and participation for citizens and SME's	AS3 : Entrepreneurship Acceleration via Digital Means	AS 4 : Open Data and Digital Marketplaces
OO 2.1	Raise awareness and digital participation of citizens and businesses in city activities (incentives, analytics)		XX	X	
OO 2.2	Training for citizens and SME's in digital technologies		XX	X	
OO 3.1	Establish a Entrepreneurship Acceleration System, heavily utilising Digital Means, targeting the 4 sectors of the local economy		X	XX	
OO 3.2	Develop digital services to support a coordinated agro-food and logistics centre (high precision agriculture, supply agro-food chain management)			XX	X
OO 3.3	Digitise and market existing and new touristic services, including blue economy offerings			XX	X
OO 4.1	Establish and maintain a universal infrastructure for open data (research, market, demographic, spatial) that could be used by local enterprises to develop new services			X	XX

The above Operational Objectives were formulated through a series of workshops, questionnaires and presentation in wider audiences and experts, in the city and within the DCC project. Initially twelve (12) OO's were formulated, but further analysis and deliberation led to the merging of some into the final eight (8), that lead to a more manageable project, at the Roadmap stage.

A more detailed description of the Operational Objectives is the following.

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

Operational objectives and description	Link to ambition statements and key city challenges and opportunities	Key Success Factors
<p><b>OO 1.1</b> Improve and share the city's ICT infrastructures (networks, sensors, information systems, facilities)</p>	<p>Linked to ambition statements 1 and 4</p>	<ul style="list-style-type: none"> <li>• Secure political commitment in terms of securing funding for public infrastructure expansion</li> <li>• Provide incentives to local enterprises to develop and offer solutions on top of these infrastructures</li> <li>• Encourage public authorities to develop and offer solutions on top of these infrastructures</li> <li>• Combine the offering of such spaces with other services related to common infrastructure usage (3d printers, laser machines)</li> <li>• Develop mechanisms to create open data from the use of such services</li> </ul>
<p><b>OO 1.2 Develop new digital services for Citizens and Businesses (one-stop, mobile, fully digital services provision)</b></p>	<p>Linked to ambition statements 1 and 3</p>	<ul style="list-style-type: none"> <li>• Adapting parts of the municipality's organisational structure and operation processes.</li> <li>• Encourage the use of ICT technologies and new solutions from the staff of the municipality</li> <li>• Coordination with other local service providers for better and more integrated solutions</li> <li>• Encourage collaboration with other municipalities through digital means (e.g. data sharing via web-based platforms)</li> </ul>
<p><b>OO 2.1</b> Raise awareness and digital participation of citizens and businesses in city activities (incentives, analytics)</p>	<p>Linked to ambition statements 2 and 3</p>	<ul style="list-style-type: none"> <li>• Elaborate a long-term strategy for stakeholder engagement</li> <li>• Create mechanisms (training, digital-physical services) for the participation of enterprises and citizens with low level of ICT skills</li> <li>• Focus first on key problems affecting the quality of life in Kavala</li> <li>• Develop trust between the local government and the citizens</li> <li>• Engage the youth of the city</li> </ul>
<p><b>OO 2.2</b> Training for citizens and SME's in digital technologies</p>	<p>Linked to ambition statement 2 and 3</p>	<ul style="list-style-type: none"> <li>• Explore the potential of online tools for ICT training</li> <li>• Create physical and digital networks of interested parties in order to increase collaborative problem solving</li> <li>• Collaborate with the local HEIs and schools</li> </ul>

*DIGITAL CITIES CHALLENGE – Digital Transformation Strategy*

Operational objectives and description	Link to ambition statements and key city challenges and opportunities	Key Success Factors
<p><b>OO 3.1</b> Establish an Entrepreneurship Acceleration System, heavily utilising Digital Means, targeting the 4 sectors of the local economy</p>	<p>Linked to ambition statements 3 and 2</p>	<ul style="list-style-type: none"> <li>• Provide high level mentoring, training, evaluation, matchmaking and support for new business creation and ICT exploitation (growth hacking support, access to data) via conventional and digital services</li> <li>• Create a common digital infrastructure for ICT adoption and collaboration in the key sectors of the local economy, with research and industry, able to nurture new enterprises in the area</li> </ul>
<p><b>OO 3.2</b> Develop digital services to support a coordinated agro-food and logistics centre (high precision agriculture, supply agro-food chain management)</p>	<p>Linked to ambition statements 3 and 4</p>	<ul style="list-style-type: none"> <li>• Provide incentives to SME in order to increase their engagement and participation in this centre</li> <li>• Offer training to participating enterprises in order to maximise access and use of the services due to low ICT skills level</li> <li>• Explore new business models on top of this centre allowing new ways of value creation from local enterprises</li> </ul>
<p><b>OO 3.3</b> Digitise and market existing and new touristic services, including blue economy offerings</p>	<p>Linked to ambition statement 3,2,1 and 4</p>	<ul style="list-style-type: none"> <li>• To develop new offerings (products and services) in the tourism and blue economy sector (tourism, fisheries, transportation, sea logistics)</li> <li>• Create synergies among enterprises operating in these sectors aiming at the development of innovative products and services</li> <li>• Utilise the potential of digital platforms for collaboration</li> <li>• Ensure the collaboration and engagement of local stakeholders responsible for the selected services</li> </ul>
<p><b>OO 4.1</b> Establish and maintain a universal infrastructure for open data (research, market, demographic, spatial) that could be used by local enterprises to develop new services</p>	<p>Linked to ambition statements 4 and 3</p>	<ul style="list-style-type: none"> <li>• Create awareness about the collected data not only to local enterprises but also to other stakeholders (youth community, public organisations etc.).</li> <li>• Organise competitions (e.g. hackathons) to provide opportunities for data usage in new services/apps</li> <li>• Provide incentives to SME for higher engagement and participation</li> <li>• Create mechanisms to allow access and use due to low ICT skills level</li> </ul>

## 5. Digital strategy roadmap and planned activities

### 5.1. Overview of proposed activities

The digital transformation strategy for the city of Kavala will be implemented through a group of activities, identified in the framework of the Digital Cities Challenge. Activities are meant to contribute to reaching the operational objectives defined in the framework of the strategy, which in turn will contribute to the city's ambition and mission. The list of priority activities may be expanded with time. For now the city has decided to further plan and manage the implementation of 24 activities, as described in the following table.

	Activity name	Link to Operational Objectives	Main implementing partner (i.e. owner of the activity)	Brief description and goals
1.1.1	Networks planning and sharing (WiFi, Fiber, etc.)	OO1.1	Municipality, Prefecture	The development and exploitation of networks infrastructure (e.g. Metropolitan Area Optic Fabric Network, City Centre Public Wi-Fi Network in city squares, shopping/touristic streets, parks, harbour, new applications LoRa and 5G) is expected to increase ICT adoption and the creation of new ICT-based service offerings.
1.1.2	Sensors (Air, water, energy, etc.) for generating real time open data	OO1.1	Municipality, Prefecture, Independent Organisations and NGO's	Examples here include urban water automation systems (system for detection and control of water leakage, telemetry and automation systems for the water supply networks, digital hydrometers), air pollutants monitoring stations, management of energy consumption on

*DIGITAL CITIES CHALLENGE – Digital Transformation Strategy*

	<b>Activity name</b>	<b>Link to Operational Objectives</b>	<b>Main implementing partner (i.e. owner of the activity)</b>	<b>Brief description and goals</b>
				Municipal buildings. All these will generate open data in real time and will allow better management of public services.
<b>1.1.3</b>	Sharing of the LHC Computing Grid - University of Kavala	OO1.1	Municipality, University, Chamber of Commerce	Deployment and exploitation of the LHC Computing GRID for complex computational application development both from companies and researchers
<b>1.2.1</b>	New Digital Services for citizens (administrative processes, complaints, e-payments, social media, mobile first principle, once only principles)	OO 1.2	Municipality, ICT SME's	New Digital Services for the citizens of Kavala (administrative processes, complaints, e-payments, fully digital admin services, social media, mobile, etc.) will increase municipal accountability and citizens' trust.
<b>1.2.2</b>	New Digital Services in the areas of: Health, Mobility, Parking, Elderly & Disabled	OO 1.2	Utility providers, Municipality	New Digital Services in the areas of health, mobility, elderly and disabled will increase quality of life in the city of Kavala.
<b>1.2.3</b>	New Digital Services for businesses (malls, mobile apps, branding)	OO 1.2	Chamber of Commerce, ICT SME's	A digital mall, for example, for all businesses in Kavala will increase participation of businesses in digital services provision. Also, social media adoption and exploitation, mobile apps development could contribute to the city's branding
<b>2.1.1</b>	Kavala e-participation Platform and incentives programme for citizens and businesses	OO 2.1	Municipality, Chamber of Commerce	A platform informing businesses and citizens on issues of interest and providing a space for discussion is expected to increase participation levels of local businesses and citizens.
<b>2.1.2</b>	Kavala Open Collaboration platform and pilot projects on collaborative governance (design a	OO 2.1	Municipality, Chamber of Commerce	The establishment of an Open Collaboration platform and the development of pilot projects on collaborative governance (design a new service, collaborative budgeting, digital strategy) will raise awareness and

*DIGITAL CITIES CHALLENGE – Digital Transformation Strategy*

	<b>Activity name</b>	<b>Link to Operational Objectives</b>	<b>Main implementing partner (i.e. owner of the activity)</b>	<b>Brief description and goals</b>
	new service, collaborative budgeting, digital strategy)			digital participation of citizens and businesses in city activities (incentives, analytics)
<b>2.2.1</b>	Life-long learning platform and training programmes for citizens in ICT	OO 2.2.	Municipality, University	Online platforms with open modules on ICT usage will increase ICT adoption and e-participation
<b>2.2.2</b>	Training of SME's in ICT, utilising digital platforms	OO2.2	Chamber of Commerce	Training of SME's in ICT, utilising digital platforms (Commerce Chamber) will increase ICT adoption and ICT-based service offerings
<b>3.1.1</b>	The Kavala Business Incubator (University - based and Virtual)	OO 3.1	Municipality, University, Chamber of Commerce, selected SME's, NGO's	A virtual, early incubator for ICT-related mentoring and support
<b>3.1.2</b>	The Kavala Business Accelerator (Technology Park, AgroCentre, Funding, etc.	OO 3.1	Municipality, University, Chamber of Commerce, selected SME's, NGO's	The development of an Entrepreneurship Acceleration System, heavily utilising Digital Means, targeting the 4 sectors of the local economy will facilitate the digital transformation of the local enterprises
<b>3.1.3</b>	Digitally coordinated competitions and events for new startup ideas (in focused sectors) and Networking activities (EEN, Greek startup ecosystem, etc.)	OO 3.1	Municipality, University, Chamber of Commerce, selected SME's, NGO's	Organisation of start up competitions to identify promising ideas and innovative offerings that match/exploit the territorial competitive assets of Kavala. Also, networking activities will create a collaboration culture among local enterprises and entrepreneurs for new firm/innovative products development
<b>3.2.1</b>	Precision Farming Technology Centre	OO 3.2	Municipality, University, Agrofood Institute	Exploit the practices of precision agriculture with the aim of improving product quality and saving resources as well as branding. Examples of relevant projects include

*DIGITAL CITIES CHALLENGE – Digital Transformation Strategy*

	<b>Activity name</b>	<b>Link to Operational Objectives</b>	<b>Main implementing partner (i.e. owner of the activity)</b>	<b>Brief description and goals</b>
				producer information system with geographic, meteorological data interconnection through innovative sensors and models etc. The creation of such a technology centre could inform producers about what is commercially and technically (per soil and microclimate) viable to cultivate, agricultural work / proposals based on meteorological or other conditions (GIS based). It could also inform about networking, collaboration and funding opportunities.
<b>3.2.2</b>	Agrofood branding and marketing hub & mall	OO 3.2	Municipality, University, Agrofood Institute, SME's	Development of digital platforms for cooperation between small (local) catering, food processing, agri-food / local products producers and fishermen for more coordinated promotion of their products. Examples of relevant services include the use of e-platforms for a digital basket of local products, B2B / B2C eShop Service for local producers of agricultural or food standard or bulk products with the option of participating at a low monthly cost.
<b>3.2.3</b>	Digital logistics management centre (port/rail/airport/road)	OO 3.2	Municipality, Port Authority, Railway, Chamber of Commerce, Prefecture	Development of an integrated management system of supply chain of agro-food products (port/rail/airport/road)
<b>3.3.1</b>	Kavala City Advisor (mobile app for tourists and citizens)	OO 3.3	Municipality	A mobile application informing tourists for all local places of interest, events, shops and businesses, health and mobility services, etc. Loyalty schemes, payments, cc's
<b>3.3.2</b>	Tourism branding digital hub and mall for new touristic services (e.g. culture, conferences, religion, etc) and certification	OO 3.3	Municipality, Cultural organisations, SME's	Digitisation and marketing of existing and new touristic services, including blue economy offerings and the development of mobile applications, informing tourists for all local places of interest, events (e.g. culture,

*DIGITAL CITIES CHALLENGE – Digital Transformation Strategy*

	Activity name	Link to Operational Objectives	Main implementing partner (i.e. owner of the activity)	Brief description and goals
				conferences, religion, etc), shops and businesses, health and mobility services, etc. aims to increase tourism and visitors' satisfaction
<b>3.3.3</b>	Virtual trips and multimedia applications for local cultural sites	OO 3.3	Municipality, Cultural organisations, SME's	Utilise new reality (augmented/virtual) technologies and geolocated information to provide personalised guides to touristic sites and enhance the experience of tourists providing a new way of sharing, inviting or promoting Kavala's touristic offerings
<b>4.1.1</b>	Kavala Open Data Platform - Collection and curation	OO 4.1	Municipality Chamber of Commerce, University	Establish and maintain a universal infrastructure for open data (research, market, demographic, spatial)
<b>4.1.2</b>	Kavala Open Data Platform -- Publishing (as datasets and API's) and charging model	OO 4.1	Municipality, CoC, SME's	Provide open data and explore ways of exploiting such data from local enterprises to develop new services. The platform will also raise awareness and digital participation of citizens and businesses in city activities (incentives, analytics).

A detailed presentation of each activity is included in the Appendix I.

## 5.2. The pilot activities

In order to begin the implementation of the strategy, the city of Kavala has decided to carry out a number of pilot activities:

A pilot activity by the title “**Integrated information and information system for visitors and citizens of the Municipality of Kavala**” is composed by two sub activities by the name “City Centre Public Wi-Fi Network” which is going to support the “Advanced multimedia information and e-guide tour system” and the sub activity “Innovative Multimedia Information point”. The above activity was chosen as a pilot project, because first of all its part of the agreed Sustainable Urban Development Strategy of the Municipality of Kavala 2014-2020 by the title “**Kavala 2023: Creative city - tourist destination of excellence**”. Secondly this activity has secured funding by EU and finally because it is a matured project regarding the technical and administration processes. The overall implementation period is 12 months (expected to be in operation by the end of 2020). The Municipality of Kavala is in charge of the implementation. The activity is linked to Kavala’s Operational Objectives #1.1 “Improve and share the city’s ICT infrastructures (networks, sensors, information systems, facilities)” and #3.3 “Digitise and market existing and new touristic services, including blue economy offerings”

A second pilot activity would be the “**Entrepreneurship and Innovation Centre in the sector of Tourism and Culture**” the aim of the activity is to improve skills and modernise the entrepreneurial views of those involved in Tourism and Culture. It is a flexible structure that is characterised as a virtual business incubator, as the usual high-cost physical infrastructure for business is lacking and emphasis is placed on providing specialised support services. The above activity was chosen as a pilot because like the previous its part of the agreed Sustainable Urban Development Strategy of the Municipality of Kavala 2014-2020 by the title “Kavala 2023: Creative city - tourist destination of excellence”, it has secured funding by EU and it is a matured project regarding technical and administration processes. The structure will run in annual education and development cycles. Each of the two cycles, includes 25 beneficiaries and has four (4) phases. Participants may include either individuals or business groups (individuals who work collaboratively). The Chamber of Commerce & Industry of Kavala is in charge of the Implementation. The activity is linked to Kavala’s Operational Objective #3.1 “Establish a Entrepreneurship Acceleration System, heavily utilising Digital Means, targeting the 4 sectors of the local economy”.

A third activity is the one by the title “**SNF Fellowships for assisting young scientists in prototyping innovative products by using cutting-edge technology**”. Stavros Niarchos Foundation (SNF) has made a donation to Eastern Macedonia and Thrace Institute of

Technology (EMaTTech) in order to provide Fellowships to help mitigate brain drain from Greece. Young Greek scientists (less than 40 years old) who have know-how on developing a product that may attract commercial interest are invited to apply for a grant. Based on project requirements, up to 15 Fellowships of up to €60,000 each will be issued as follows: a prize of €5,000 for the idea and a grant of €55,000 for developing it. The above activity was chosen as a pilot because is very much linked with the Kavala's Operational Objective #3.1 "Establish an Entrepreneurship Acceleration System, heavily utilising Digital Means, targeting the 4 sectors of the local economy". Eastern Macedonia and Thrace Institute of Technology (EMaTTech) is in charge of the Implementation.

Finally a pilot activity would be the "**Training programs for vulnerable social groups (Graphic Arts, Digital Marketing)**". The purpose of implementing the proposed act is to provide entrepreneurship, professional training and certification of knowledge and skills to vulnerable social group of the unemployed. In particular, it aims at the development of business activities in the fields of tourism and culture. The above activity was chosen as a pilot because like the previous its part of the agreed Sustainable Urban Development Strategy of the Municipality of Kavala 2014-2020 by the title "Kavala 2023: Creative city - tourist destination of excellence", it has secured funding by EU and it is a matured project regarding technical and administration processes. The trained beneficiaries will be almost 40 people. Municipality of Kavala is in charge of the Implementation. The activity is linked to Kavala's Operational Objective #2.2 "Training for citizens and SME's in digital technologies".

### **5.3. Timetable for implementation**

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

**DIGITAL CITIES CHALLENGE – Digital Transformation Strategy**

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

#	Activity	Jan-Jun 2019	Jul-Dec 2019	Jan-Jun 2020	Jul-Dec 2020	Jan-Jun 2021	Jul-Dec 2021	Jan-Jun 2022	Jul-Dec 2022
1.1.1	Networks planning and sharing (WiFi, Fiber, etc)		PILOT						
1.1.2	Sensors (Air, water, energy, etc) for generating real time open data								
1.1.3	Sharing of the LHC SuperComputing Grid - University of Kavala								
1.2.1	New Digital Services for citizens (administrative processes, complaints, e-payments, social media, mobile first principle, once only principles)								
1.2.2	New Digital Services in the areas of: Health, Mobility, Parking, Elderly & Disabled								
1.2.3	New Digital Services for businesses (malls, mobile apps, branding).								
2.1.1	Kavala e-participation Platform and incentives programme for citizens and businesses								
2.1.2	Kavala Open Collaboration platform and pilot projects on collaborative governance (design a new service, collaborative budgeting, digital strategy)								
2.2.1	Life-long learning platform and training programmes for citizens in ICT		PILOT						
2.2.2	Training of SME's in ICT, utilising digital platforms								
3.1.1	The Kavala Business Incubator (University - based and Virtual)		PILOT						
3.1.2	The Kavala Business Accelerator (Technology Park, AgroCentre, Funding, etc)								
3.1.3	Digitally coordinated competitions and events for new startup ideas (in focused sectors) and Networking activities (EEN, Greek startup ecosystem, etc)								
3.2.1	Precision Farming Technology Centre								
3.2.2	Agrofood branding and marketing hub & mall								
3.2.3	Digital logistics management centre (port/rail/airport/road)								
3.3.1	Kavala City Advisor mobile application, informing tourists for all local places of interest, events, shops and								

*DIGITAL CITIES CHALLENGE – Digital Transformation Strategy*

#	Activity	Jan-Jun 2019	Jul-Dec 2019	Jan-Jun 2020	Jul-Dec 2020	Jan-Jun 2021	Jul-Dec 2021	Jan-Jun 2022	Jul-Dec 2022
	businesses, health and mobility services, etc. Loyalty schemes, payments, cc's								
3.3.2	Tourism branding digital hub and mall for new touristic services (e.g. culture, conferences, religion, etc) and certification								
3.3.3	Virtual trips and multimedia applications for local cultural sites		PILOT						
4.1.1	Kavala Open Data Platform - Collection and curation								
4.1.2	Kavala Open Data Platform -- Publishing (as datasets and API's) and charging model								

## 6. Strategy governance

### 6.1. Governance scheme and partners

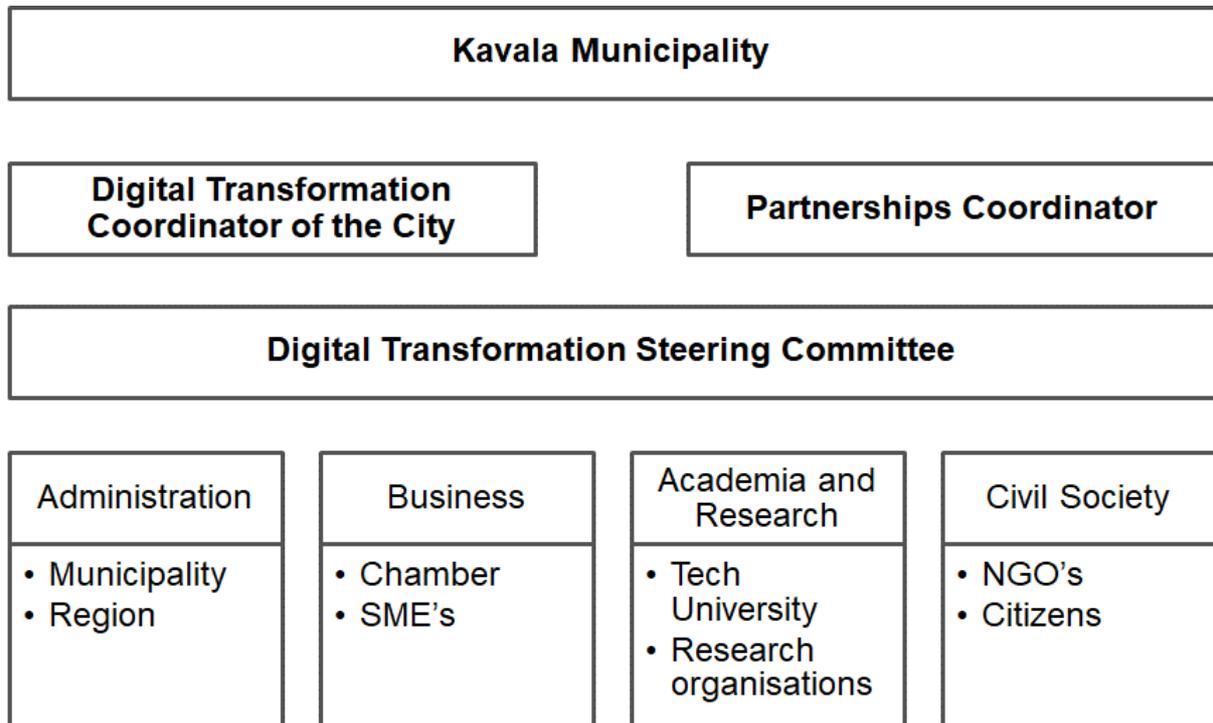
**Strategy Owner, Partner Coordinator** and **Management Authority** of the Digital Transformation Strategy will be the Municipality of Kavala, with Legal Representative the Mayor of Kavala. The City Council will approve the strategy, as well as the **Steering Committee** and a **Digital Transformation Coordinator of the City**.

Kavala will engage stakeholders from all four aspects of the quadruple helix in order to form a **Steering Committee** to operationalise the strategy of digital transformation: Academia & Research, Industry, Government and Civil Society. The members of the Steering committee will be approved by the City Council. The key members of the Committee will come from:

<b>Administration</b>	Municipality of Kavala, which is at the heart of the strategic planning process and has all the necessary resources (funding, infrastructure, personnel) to support the initiative. Additional representatives from government organisations will participate, coming from Water Supply and Sewerage Company, Dimofelia (public benefit organisation of the Municipality of Kavala) and Prefecture of Kavala.
<b>Business</b>	The industry is going to be represented by the most successful innovative local companies (Prisma Electronics, OTE Group, Kavala Port Authority S.A. etc) but also from their institutional associations (Hoteliers, Technical Chamber, Chamber of Commerce & Industry, etc).
<b>Academia and Research</b>	EMaTTech and DUTH which are the leading academic and research institutions in the area and have the infrastructure and human resources to devote to the initiative. This is also true for FRI, especially in the blue growth field.
<b>Civil Society</b>	Finally, civil society stakeholders that are going to participate are the Scientific group “Opsometha”, the software development Meet-up of Kavala and volunteering citizens.

The governance scheme of the Kavala Digital Strategy is illustrated in the following figure.

Figure 3 Kavala's Governance Scheme



## 6.2. Key processes and roles

The Steering Committee is assembled at a meeting, after the invitation of the Legal Representative of Coordination Partner or the Digital Transformation Coordinator of the City and one-third of the members of the Committee. Regular meetings will be held **every three months**. The agenda of the meetings shall be notified to the members at least three working days before each meeting. The above deadline may be abbreviated in exceptional cases. The agenda includes in particular:

- Presentation of the progress of the actions implemented by each member.
- Reference to problems arising during the implementation of an action, proposals of possible solutions.
- Exchange of views and decision-making for the best possible exploitation of know-how by each partner.
- Selecting best practices for implementing actions and information dissemination.
- Suggesting proposals for revising Digital Transformation Strategy.
- Suggesting proposals on the annual and final progress report of the project.

- Monitoring and verifying the correct implementation and financial management of the approved actions, in accordance with applicable EU and national regulations,

The responsibilities of the **Digital Transformation Coordinator of the City** will be to:

- Coordinate the Corporate Partnership,
- Monitor the overall progress and financial management of the Strategy, based on agreed indicators set by the Steering Committee,
- Have a full picture of all the projects being implemented, maintaining constant communication with the private/public organisations that are responsible for the implementation,
- Ensure that the timetable for the implementation of the individual actions is respected,
- Coordinate contacts between the members who have the responsibility of implementing the activities of the Strategy,
- Draw up the Annual Progress Report, which will be sent to the Steering Committee for approval before the Municipal Council.

The invitation of each meeting shall indicate the date, time and place of convocation, as well as items on the agenda. The meetings are chaired by the Legal Coordinator of the Partner Coordinator, and in the absence of this, the Chief Coordinator. During the meetings of the Board of Directors minutes are kept, which will be communicated to all partners.

## 7. Monitoring and evaluation of the Digital Transformation Strategy

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

### 7.1. Performance assessment framework

Strategy implementation and results monitoring will be conducted with the leading role of Kavala Municipality on the basis of the performance assessment framework presented below. Three levels of monitoring indicators and targets have been defined :

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

Kavala Municipality will be in charge of collecting data on all strategy monitoring indicators. However, it is expected that activity implementing partners will also play a key role in generating, collecting and sharing performance data. This information will be used for internal monitoring and reporting purposes. As such it will be communicated to Advisory boards on a regular basis.

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

## **7.2. Strategy evaluation plan**

In addition to monitoring the progress of strategy implementation, the Digital Transformation Strategy for Kavala will undergo an internal and external evaluation within the next 3 to 7 years. The objective of the evaluation is mainly to verify the extent to which expected strategy results have been achieved, review the relevance of selected strategy priorities and objectives, and review the efficiency of strategy implementation and governance schemes. The evaluation questions guiding the evaluation will be defined by Kavala Municipality with the support of the steering committee bodies.

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

## 8. Results achieved and next steps

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The participation of the city of Kavala in the Digital Cities Challenge initiative has led to the achievement of a number of results. More specifically :

- The assessment of the digital maturity of Kavala contributed for raising the awareness both internally in the Municipality and externally among local stakeholders for the need of digital transformation.
- The work performed by the DCC team, created a community of over 50 people, actively engaged in workshops and online assessments. There was a very high level of engagement from IT companies, SME's and public administration entities. These entities and people are a key element for the Digital Strategy implementation in the coming years.
- Due to the marketing efforts of the Kavala municipality team, there is now an increased overall awareness about the DCC project throughout the city, including city and national level officials.
- Through the DCC project, Kavala has now access to a broader network of cities with similar ambitions and barriers to overcome – a network that may prove essential during the next phases of the strategy implementation.

The Digital Cities Challenge initiative is the foundation for further work on Kavala's digital transformation. The next steps include :

- Official presentation and endorsement of the Strategy by City and Region officials, to be newly-elected after the local administration elections of early June 2019.
- Establishment of the governance 38chémas and operations for the Digital Strategy of Kavala.
- Identification of funding opportunities, to carry out the foreseen activities and pilot actions.
- Identification of opportunities for common projects with other cities in Greece and abroad, particularly from the DCC network. Such common proposals are under way, within the URBACT, INTERREG, ENI-CBC programmes.

# Appendix I: Detailed presentation of activities

1.1.1 Networks planning and sharing (Wifi, Fiber, etc.).	
<b>Link to operational objective</b>	OO1.1: Improve and share the city's ICT infrastructures (networks, sensors, information systems, facilities)
<b>Description</b>	The development and exploitation of networks infrastructure (e.g. Metropolitan Area Optic Fabric Network, City Centre Public Wi-Fi Network in city squares, shopping/touristic streets, parks, harbour, new applications LoRa and 5G) is expected to increase ICT adoption and the creation of new ICT-based service offerings.
<b>Timeframe</b>	<ul style="list-style-type: none"> <li>• Length : 12 months</li> <li>• Estimated date of implementation : End of 2020</li> </ul>
<b>Indicators to be achieved</b>	Percentage of coverage for citizens (public wifi), businesses (fiber) and administration (fiber)
<b>Estimated cost and source of funding</b>	2.630.000€ CSF and National Funds
<b>Organisation / unit in charge of delivery (i.e. ownership of the activity)</b>	Municipality, Prefecture

1.1.2 Sensors (Air, water, energy, etc.) for generating real time open data	
<b>Link to operational objective</b>	OO1.1: Improve and share the city's ICT infrastructures (networks, sensors, information systems, facilities)
<b>Description</b>	Examples here include urban water automation systems (system for detection and control of water leakage, telemetry and automation systems for the water supply networks, digital hydrometers), air pollutants monitoring stations, management of energy consumption on Municipal buildings. All these will generate open data in real time and will allow better management of public services.
<b>Timeframe</b>	<ul style="list-style-type: none"> <li>Length : 18 months</li> <li>Estimated date of implementation : June 2021</li> </ul> Start: January 2020, Planned completion: June 2021
<b>Indicators to be achieved</b>	Number of measured quantities
<b>Estimated cost and source of funding</b>	5.695.000€ CSF and National Funds
<b>Organisation / unit in charge of delivery (i.e. ownership of the activity)</b>	Municipality, Prefecture, Independent Organisations and NGO's

1.1.3 Sharing of the LHC Computing Grid – University of Kavala	
<b>Link to operational objective</b>	OO1.1: Improve and share the city's ICT infrastructures (networks, sensors, information systems, facilities)
<b>Description</b>	Deployment and exploitation of the LHC Computing GRID for complex computational application development both from companies and researchers
<b>Timeframe</b>	<ul style="list-style-type: none"> <li>Length : 12 months</li> <li>Estimated date of implementation : June 2021</li> </ul> Start: July 2020, Planned completion: June 2021
<b>Indicators to be achieved</b>	Number of SME projects supported by the LHC Grid
<b>Estimated cost and source of funding</b>	100.000€ CSF and National Funds
<b>Organisation / unit in charge of delivery (i.e. ownership of the activity)</b>	Municipality, University, Chamber of Commerce

<b>1.2.1 New Digital Services for citizens (administrative processes, complaints, e-payments, social media, mobile first principle, once only principles)</b>	
<b>Link to operational objective</b>	OO1.2: Develop new digital services for Citizens and Businesses (one-stop, mobile, fully digital services provision)
<b>Description</b>	New Digital Services for the citizens of Kavala (administrative processes, complaints, e-payments, fully digital admin services, social media, mobile, etc.) will increase municipal accountability and citizens' trust.
<b>Timeframe</b>	<ul style="list-style-type: none"> <li>Length : 12 months</li> <li>Estimated date of implementation : June 2021</li> </ul> Start: July 2020, Planned completion: June 2021
<b>Indicators to be achieved</b>	Percentage of services for citizens at levels 4 and 5 (one-stop shop)
<b>Estimated cost and source of funding</b>	657.000€ CSF and National Funds
<b>Organisation / unit in charge of delivery (i.e. ownership of the activity)</b>	Municipality, ICT SME's

<b>1.2.2 New Digital Services in the areas of: Health, Mobility, Parking, Elderly &amp; Disabled</b>	
<b>Link to operational objective</b>	OO1.2: Develop new digital services for Citizens and Businesses (one-stop, mobile, fully digital services provision)
<b>Description</b>	New Digital Services in the areas of health, mobility, elderly and disabled will increase quality of life in the city of Kavala.
<b>Timeframe</b>	<ul style="list-style-type: none"> <li>Length : 12 months</li> <li>Estimated date of implementation : June 2021</li> </ul> Start: July 2020, Planned completion: June 2021
<b>Indicators to be achieved</b>	Number of new digital services deployed
<b>Estimated cost and source of funding</b>	1.460.000€ CSF and National Funds
<b>Organisation / unit in charge of delivery (i.e. ownership of the activity)</b>	Utility providers, Municipality

<b>1.2.3 New Digital Services for businesses (malls, mobile apps, branding)</b>	
<b>Link to operational objective</b>	OO1.2: Develop new digital services for Citizens and Businesses (one-stop, mobile, fully digital services provision)
<b>Description</b>	A digital mall, for example, for all businesses in Kavala will increase participation of businesses in digital services provision. Also, social media adoption and exploitation, mobile apps development could contribute to the city's branding.
<b>Timeframe</b>	<ul style="list-style-type: none"> <li>• Length : 18 months</li> <li>• Estimated date of implementation : June 2021</li> </ul> Start: January 2020, Planned completion: June 2021
<b>Indicators to be achieved</b>	Number of enterprises supported by the programme
<b>Estimated cost and source of funding</b>	625.000€ CSF and National Funds
<b>Organisation / unit in charge of delivery (i.e. ownership of the activity)</b>	Chamber of Commerce, ICT SME's

<b>2.1.1 Kavala e-participation Platform and incentives programme for citizens and businesses</b>	
<b>Link to operational objective</b>	OO2.1: Raise awareness and digital participation of citizens and businesses in city activities (incentives, analytics)
<b>Description</b>	A platform informing businesses and citizens on issues of interest and providing a space for discussion is expected to increase participation levels of local businesses and citizens.
<b>Timeframe</b>	<ul style="list-style-type: none"> <li>• Length : 12 months</li> <li>• Estimated date of implementation : June 2021</li> </ul> Start: July 2020, Planned completion: June 2021
<b>Indicators to be achieved</b>	Number of e-participation initiatives performed (deliberations, forums), annually
<b>Estimated cost and source of funding</b>	250.000€ CSF and National Funds
<b>Organisation / unit in charge of delivery (i.e. ownership of the activity)</b>	Municipality, Chamber of Commerce

<b>2.1.2 Kavala Open Collaboration platform and pilot projects on collaborative governance (design a new service, collaborative budgeting, digital strategy)</b>	
<b>Link to operational objective</b>	OO2.1: Raise awareness and digital participation of citizens and businesses in city activities (incentives, analytics)
<b>Description</b>	The establishment of an Open Collaboration platform and the development of pilot projects on collaborative governance (design a new service, collaborative budgeting, digital strategy) will raise awareness and digital participation of citizens and businesses in city activities (incentives, analytics)
<b>Timeframe</b>	<ul style="list-style-type: none"> <li>Length : 24 months</li> <li>Estimated date of implementation : December 2022</li> </ul> Start: January 2021, Planned completion: December 2022
<b>Indicators to be achieved</b>	Number of open collaboration initiatives performed annually
<b>Estimated cost and source of funding</b>	250.000€ CSF and National Funds
<b>Organisation / unit in charge of delivery (i.e. ownership of the activity)</b>	Municipality, Chamber of Commerce

<b>2.2. Life-long learning platform and training programmes for citizens in ICT</b>	
<b>Link to operational objective</b>	OO2.2: Training for citizens and SME's in digital technologies
<b>Description</b>	Online platforms with open modules on ICT usage will increase ICT adoption and e-participation
<b>Timeframe</b>	<ul style="list-style-type: none"> <li>Length : 36 months</li> <li>Estimated date of implementation : December 2022</li> </ul> Start: January 2020, Planned completion: December 2022
<b>Indicators to be achieved</b>	Number of citizens participated in training programmes
<b>Estimated cost and source of funding</b>	500.000€ CSF and National Funds
<b>Organisation / unit in charge of delivery (i.e. ownership of the activity)</b>	Municipality, University

2.2.2 Training of SME's in ICT, utilising digital platforms	
<b>Link to operational objective</b>	OO2.2: Training for citizens and SME's in digital technologies
<b>Description</b>	Training of SME's in ICT, utilising digital platforms (Commerce Chamber) will increase ICT adoption and ICT-based service offerings
<b>Timeframe</b>	<ul style="list-style-type: none"> <li>Length : 36 months</li> <li>Estimated date of implementation : December 2022</li> </ul> Start: January 2020, Planned completion: December 2022
<b>Indicators to be achieved</b>	Number of SME's participated in training programmes
<b>Estimated cost and source of funding</b>	500.000€ CSF and National Funds
<b>Organisation / unit in charge of delivery (i.e. ownership of the activity)</b>	Chamber of Commerce

3.1.1 The Kavala Business Incubator (University – based and Virtual)	
<b>Link to operational objective</b>	OO3.1: Establish an Entrepreneurship Acceleration System, heavily using Digital Means, targeting the 4 sectors of the local economy
<b>Description</b>	A virtual, early incubator for ICT-related mentoring and support
<b>Timeframe</b>	<ul style="list-style-type: none"> <li>Length : 36 months</li> <li>Estimated date of implementation : December 2022</li> </ul> Start: January 2020, Planned completion: December 2022
<b>Indicators to be achieved</b>	Number of startup ideas / teams generated
<b>Estimated cost and source of funding</b>	1.810.000€ CSF and National Funds
<b>Organisation / unit in charge of delivery (i.e. ownership of the activity)</b>	Municipality, University, Chamber of Commerce, selected SME's, NGO's

3.1.2 The Kavala Business Accelerator (Technology Park, AgroCentre, Funding, etc).	
<b>Link to operational objective</b>	OO3.1: Establish an Entrepreneurship Acceleration System, heavily using Digital Means, targeting the 4 sectors of the local economy
<b>Description</b>	The development of an Entrepreneurship Acceleration System, heavily utilising Digital Means, targeting the 4 sectors of the local economy will facilitate the digital transformation of the local enterprises
<b>Timeframe</b>	<ul style="list-style-type: none"> <li>Length : 30 months</li> <li>Estimated date of implementation : December 2022</li> </ul> Start: July 2020, Planned completion: December 2022
<b>Indicators to be achieved</b>	Number of new companies created
<b>Estimated cost and source of funding</b>	1.000.000€ CSF and National Funds
<b>Organisation / unit in charge of delivery (i.e. ownership of the activity)</b>	Municipality, University, Chamber of Commerce, selected SME's, NGO's

3.1.3 Digitally coordinated competitions and events for new startup ideas (in focused sectors) and Networking activities (EEN, Greek startup ecosystem, etc.)	
<b>Link to operational objective</b>	OO3.1: Establish an Entrepreneurship Acceleration System, heavily using Digital Means, targeting the 4 sectors of the local economy
<b>Description</b>	Organisation of start-up competitions to identify promising ideas and innovative offerings that match/exploit the territorial competitive assets of Kavala. Also, networking activities will create a collaboration culture among local enterprises and entrepreneurs for new firm/innovative products development
<b>Timeframe</b>	<ul style="list-style-type: none"> <li>Length: 36 months</li> <li>Estimated date of implementation : December 2022</li> </ul> Start: January 2020, Planned completion: December 2022
<b>Indicators to be achieved</b>	Number of events organised
<b>Estimated cost and source of funding</b>	200.000€ CSF and National Funds
<b>Organisation / unit in charge of delivery (i.e. ownership of the activity)</b>	Municipality, University, Chamber of Commerce, selected SME's, NGO's

3.2.1 Precision Farming Technology Centre	
<b>Link to operational objective</b>	OO3.2: Develop digital services to support a coordinated agro-food and logistics centre (high precision agriculture, supply agro-food chain management)
<b>Description</b>	Exploit the practices of precision agriculture with the aim of improving product quality and saving resources as well as branding. Examples of relevant projects include producer information system with geographic, meteorological data interconnection through innovative sensors and models etc. The creation of such a technology centre could inform producers about what is commercially and technically (per soil and microclimate) viable to cultivate, agricultural work / proposals based on meteorological or other conditions (GIS based). It could also inform about networking, collaboration and funding opportunities.
<b>Timeframe</b>	<ul style="list-style-type: none"> <li>• Length : 24 months</li> <li>• Estimated date of implementation : December 2022</li> </ul> Start: January 2021, Planned completion: December 2022
<b>Indicators to be achieved</b>	Number of SME's supported by the centre
<b>Estimated cost and source of funding</b>	420.000€ CSF and National Funds
<b>Organisation / unit in charge of delivery (i.e. ownership of the activity)</b>	Municipality, University, Agrofood Institute

3.2.2 Agrofood branding and marketing hub & mall	
<b>Link to operational objective</b>	OO3.2: Develop digital services to support a coordinated agro-food and logistics centre (high precision agriculture, supply agro-food chain management)
<b>Description</b>	Development of digital platforms for cooperation between small (local) catering, food processing, agri-food / local products producers and fishermen for more coordinated promotion of their products. Examples of relevant services include the use of e-platforms for a digital basket of local products, B2B / B2C eShop Service for local producers of agricultural or food standard or bulk products with the option of participating at a low monthly cost.
<b>Timeframe</b>	<ul style="list-style-type: none"> <li>• Length : 24 months</li> <li>• Estimated date of implementation : June 2022</li> </ul> Start: July 2020, Planned completion: July 2022
<b>Indicators to be achieved</b>	Number of SME's promoted

<b>Estimated cost and source of funding</b>	600.000€ CSF and National Funds
<b>Organisation / unit in charge of delivery (i.e. ownership of the activity)</b>	Municipality, University, Agrofood Institute, SME's

3.2.3 Digital logistics management centre (port/rail/ airport/road)	
<b>Link to operational objective</b>	OO3.2: Develop digital services to support a coordinated agro-food and logistics centre (high precision agriculture, supply agro-food chain management)
<b>Description</b>	Development of an integrated management system of supply chain of agro-food products (port/rail/airport/road)
<b>Timeframe</b>	<ul style="list-style-type: none"> <li>• Length : 24 months</li> <li>• Estimated date of implementation : June 2022</li> </ul> Start: July 2020, Planned completion: July 2022
<b>Indicators to be achieved</b>	Number of businesses / logistics services consumers
<b>Estimated cost and source of funding</b>	250.000€ CSF and National Funds
<b>Organisation / unit in charge of delivery (i.e. ownership of the activity)</b>	Municipality, Port Authority, Railway, Chamber of Commerce, Prefecture

<b>3.3.1 Kavala City Advisor mobile application, informing tourists for all local places of interest, events, shops and businesses, health and mobility services, etc. Loyalty schemes, payments, cc's</b>	
<b>Link to operational objective</b>	OO3.3: Digitise and market existing and new touristic services, including the economy offerings
<b>Description</b>	A mobile application informing tourists for all local places of interest, events, shops and businesses, health and mobility services, etc. Loyalty schemes, payments, cc's
<b>Timeframe</b>	<ul style="list-style-type: none"> <li>• Length : 12 months</li> <li>• Estimated date of implementation : June 2021</li> </ul> Start: July 2020, Planned completion: June 2021
<b>Indicators to be achieved</b>	Number of users, annually
<b>Estimated cost and source of funding</b>	200.000€ CSF and National Funds
<b>Organisation / unit in charge of delivery (i.e. ownership of the activity)</b>	Municipality, Cultural organisations, SME's

<b>3.3.2 Tourism branding digital hub and mall for new touristic services (e.g. culture, conferences, religion, etc.) and certification</b>	
<b>Link to operational objective</b>	OO3.3: Digitise and market existing and new touristic services, including the economy offerings
<b>Description</b>	Digitisation and marketing of existing and new touristic services, including blue economy offerings and the development of mobile applications, informing tourists for all local places of interest, events (e.g. culture, conferences, religion, etc), shops and businesses, health and mobility services, etc. aims to increase tourism and visitors' satisfaction
<b>Timeframe</b>	<ul style="list-style-type: none"> <li>• Length : 24 months</li> <li>• Estimated date of implementation : June 2022</li> </ul> Start: July 2020, Planned completion: June 2022
<b>Indicators to be achieved</b>	Number of touristic SME's promoted
<b>Estimated cost and source of funding</b>	250.000€ CSF and National Funds
<b>Organisation / unit in charge of delivery (i.e. ownership of the activity)</b>	Municipality, Cultural organisations, SME's

3.3.3 Virtual trips and multimedia applications for local cultural sites	
<b>Link to operational objective</b>	OO3.3: Digitise and market existing and new touristic services, including the economy offerings
<b>Description</b>	Utilise new reality (augmented/virtual) technologies and geolocated information to provide personalised guides to touristic sites and enhance the experience of tourists providing a new way of sharing, inviting or promoting Kavala's touristic offerings
<b>Timeframe</b>	<ul style="list-style-type: none"> <li>Length : 12 months</li> <li>Estimated date of implementation : December 2022</li> </ul> Start: January 2020, Planned completion: December 2022
<b>Indicators to be achieved</b>	Number of sites promoted
<b>Estimated cost and source of funding</b>	1.846.500€ CSF and National Funds
<b>Organisation / unit in charge of delivery (i.e. ownership of the activity)</b>	Municipality, Cultural organisations, SME's

4.1.1 Kavala Open Data Platform – Collection and curation	
<b>Link to operational objective</b>	OO4.1: Establish and maintain a universal infrastructure for open data (research, market, demographic, spatial) that could be used by local enterprises to develop new services
<b>Description</b>	Establish and maintain a universal infrastructure for open data (research, market, demographic, spatial)
<b>Timeframe</b>	<ul style="list-style-type: none"> <li>Length : 24 months</li> <li>Estimated date of implementation : December 2021</li> </ul> Start: January 2020, Planned completion: December 2021
<b>Indicators to be achieved</b>	Number of datasets / API's maintained by the city
<b>Estimated cost and source of funding</b>	2.853.000€ CSF and National Funds
<b>Organisation / unit in charge of delivery (i.e. ownership of the activity)</b>	Municipality Chamber of Commerce, University

<b>4.1.2 Kavala Open Data Platform – Publishing (as datasets and API's) and charging model</b>	
<b>Link to operational objective</b>	OO4.1: Establish and maintain a universal infrastructure for open data (research, market, demographic, spatial) that could be used by local enterprises to develop new services
<b>Description</b>	Provide open data and explore ways of exploiting such data from local enterprises to develop new services. The platform will also raise awareness and digital participation of citizens and businesses in city activities (incentives, analytics).
<b>Timeframe</b>	<ul style="list-style-type: none"> <li>• Length : 24 months</li> <li>• Estimated date of implementation : June 2022</li> </ul> Start: July 2020, Planned completion: June 2022
<b>Indicators to be achieved</b>	Number of datasets / API's downloaded (consumed) by citizens and businesses annually
<b>Estimated cost and source of funding</b>	250.000€ CSF and National Funds
<b>Organisation / unit in charge of delivery (i.e. ownership of the activity)</b>	Municipality, CoC, SME's

## Appendix II: Performance assessment framework

### 1. Strategy outcomes

	Expected result	Monitoring indicator	Baseline	Target	Timeframe	Means of verification
<b>Ambition statement 1</b>	To create a state-of the art City Digital Infrastructure, able to act as an enabler for citizens and local businesses	The average level of sophistication of digital services provided to businesses and citizens (based on the DESI – Dimension 5 indicator: 1 to 5)	Currently around 1.5 in the 1-5 EU scale (basically information-only services)	Reach levels 4 and 5 (fully automated service provision) for the majority of services	7 years	Evaluation of service provision levels(Internet Desk Research assessment)
<b>Ambition statement 2</b>	To set up and implement a strategy that develops digital skills, promotes awareness and achieves the participation of citizens and SME's	Number of enterprises and numbers of citizens that will participate in ICT-related training.	A few hundreds	More than 5000 citizens and SME personnel	7 years	Operational data
<b>Ambition statement 3</b>	To achieve Entrepreneurship Acceleration via Digital Means, contributing to the sectoral development plan of the City	The number of new startup companies that will be established, through the incubation and acceleration programs	Practically zero	More than 30	7 years	Operational data
<b>Ambition statement 4</b>	To leverage the potential of Digital Marketplaces and Open Data for sectoral Development	Number of datasets and API's that will be available and used by local SME's and citizens	7	At the level of 100 datasets and real-time API's	7 years	Operational data and online survey

## 2. Strategy intermediate outcomes

	Expected result	Monitoring indicator	Baseline	Target	Timeframe	Means of verification
<b>Operational objective 1.1</b>	Improve and share the city's ICT infrastructures (networks, sensors, information systems, facilities)	% of services that are digitally provided	10%	80%	7 years	Internet Desk Research
<b>Operational objective 1.2</b>	Develop new digital services for Citizens and Businesses (one-stop, mobile, fully digital services provision)	% of services that are digitally provided, in an one-stop shop mode by the city in collaboration with other organizations	5%	80%	7 years	Internet Desk Research
<b>Operational objective 2.1</b>	Raise awareness and digital participation of citizens and businesses in city activities (incentives, analytics)	% of citizens with a digital ID/profile, active on the internet	5%	50%	7 years	Platforms usability analytics
<b>Operational objective 2.2</b>	Training for citizens and SME's in digital technologies	Number of citizens and SME's trained	100	5000	7 years	Operational Data
<b>Operational objective 3.1</b>	Establish a Entrepreneurship Acceleration System, heavily utilising Digital Means, targeting the 4 sectors of the local economy	The number of new startup companies that will be established, through the incubation and acceleration programmes	0	30	7 years	Operational Data
<b>Operational objective 3.2</b>	Develop digital services to support a coordinated agro-food and logistics centre (high precision agriculture, supply agro-food chain management)	Number of enterprises supported	0	50	7 years	Operational Data
<b>Operational objective 3.3</b>	Digitise and market existing and new touristic services, including blue economy offerings	Number of enterprises supported	0	100	7 years	Operational Data
<b>Operational objective 4.1</b>	Establish and maintain a universal infrastructure for open data (research, market, demographic, spatial) that could be used by local enterprises to develop new services	Number of datasets / API's published and maintained online	7	100	7 years	Online survey

### 3. Strategy outputs

	Expected result	Monitoring indicator	Baseline	Target	Timeframe	Means of verification
<b>Activity 1.1.1</b>	Networks planning and sharing (WiFi, Fiber, etc)	Percentage of coverage for citizens (public wifi), businesses (fiber) and administration (fiber)	10/10/50	50/80/90	7 years	Operational Data
<b>Activity 1.1.2</b>	Sensors (Air, water, energy, etc) for generating real time open data	Number of measured quantities	1	10	7 years	Operational Data
<b>Activity 1.1.3</b>	Sharing of the LHC SuperComputing Grid - University of Kavala	Number of SME projects supported by the LHC Grid	1	10	7 years	Operational Data
<b>Activity 1.2.1</b>	New Digital Services for citizens (administrative processes, e-payments, social media, mobile first principle, once only principle)	Percentage of services for citizens at levels 4 – Transaction and 5 – Proactive (one-stop shop)	5%	75%	7 years	Internet Desk Research
<b>Activity 1.2.2</b>	New Digital Services in the areas of: Health, Mobility, Parking, Elderly & Disabled	Number of new digital services deployed	0	10	7 years	Internet Desk Research
<b>Activity 1.2.3</b>	New Digital Services for businesses (malls, mobile apps, branding).	Number of enterprises supported by the programme	0	300	7 years	Operational Data
<b>Activity 2.1.1</b>	Kavala e-participation Platform and incentives programme for citizens and businesses	Number of e-participation initiatives performed (deliberations, forums), annually	2	10	7 years	Operational Data
<b>Activity 2.1.2</b>	Kavala OpenCollaboration platform and pilot projects on collaborative governance (design a new service, collaborative budgeting, digital strategy)	Number of open collaboration initiatives performed annually	1	4	7 years	Operational Data
<b>Activity 2.2.1</b>	Life-long learning platform and training programmes for citizens in ICT	Number of citizens participated in training programmes	100	2000	7 years	Operational Data
<b>Activity 2.2.2</b>	Training of SME's in ICT, utilising digital platforms	Number of SME's participated in training programmes	20	100	7 years	Operational Data
<b>Activity 3.1.1</b>	The Kavala Business Incubator (University - based and Virtual)	Number of startup ideas / teams generated	10	300	7 years	Operational Data
<b>Activity 3.1.2</b>	The Kavala Business Accelerator (Technology Park, AgroCentre, Funding, etc)	The number of new startup companies that will be	0	20	7 years	Operational Data

*DIGITAL CITIES CHALLENGE – Digital Transformation Strategy*

	Expected result	Monitoring indicator	Baseline	Target	Timeframe	Means of verification
		established, through the acceleration programmes				
<b>Activity 3.1.3</b>	Digitally coordinated competitions and events for new startup ideas (in focused sectors) and Networking activities (EEN, Greek startup ecosystem, etc)	Number of events organised	1	8	7 years	Operational Data
<b>Activity 3.2.1</b>	Precision Farming Technology Centre	Number of SME's supported by the centre	0	50	7 years	Operational Data
<b>Activity 3.2.2</b>	Agrofood branding and marketing hub & mall	Number of SME's promoted	0	50	7 years	Operational Data
<b>Activity 3.2.3</b>	Digital logistics management centre (port/rail/airport/road)	Number of businesses / logistics services consumers	0	50	7 years	Operational Data
<b>Activity 3.3.1</b>	Kavala City Advisor mobile application, informing tourists for all local places of interest, events, shops and businesses, health and mobility services, etc. Loyalty schemes, payments, cc's	Number of users, annually	0	10000	7 years	Online Survey
<b>Activity 3.3.2</b>	Tourism branding digital hub and mall for new touristic services (e.g. culture, conferences, religion, etc) and certification	Number of touristic SME's promoted	0	200	7 years	Operational Data
<b>Activity 3.3.3</b>	Virtual trips and multimedia applications for local cultural sites	Number of sites promoted	1	20	7 years	Operational Data
<b>Activity 4.1.1</b>	Kavala Open Data Platform - Collection and curation	Number of datasets / API's maintained by the city	7	100	7 years	Operational Data
<b>Activity 4.1.2</b>	Kavala Open Data Platform -- Publishing (as datasets and API's) and charging model	Number of datasets / API's downloaded (consumed) by citizens and businesses annually	0	25	7 years	Internet Desk Research

## Appendix III: Relevant Good practices

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### Tourism

Granada Human Smart City is one of the initiatives of the National Plan of Intelligent Cities promoted by Red.es, one of the pioneering public entities in the promotion and implementation of the smart city concept in Spain.

The project aims to make the Albaicín neighbourhood universally accessible for all people regardless of their physical condition, age or place of origin as well as the promotion and accessibility of cultural heritage and the promotion of smart and sustainable tourism, all with employment Innovative, integrated and efficient information technologies.

In order to achieve universal accessibility and improve mobility, a **Mobile and Web Application** has been developed that provides the calculation of the optimal route depending on the mobility profile of the user. Thanks to this, people with mobility difficulties (elderly or people in wheelchairs) or families that move pushing baby strollers will be able to obtain information on the most suitable route in their walks through the historic neighbourhood of the Albaicín, including the topographic profile of the route, information about accessibility such as stairs, slopes, types of pavement and the possibility of avoiding routes with stairs or sections of steep slope.

In addition, users will be able to consult different geographic information such as bus stops, taxi, parking spaces of reduced mobility, and tourist information such as routes and tourist attractions that improve the experience of visitors.

For the promotion and accessibility to cultural heritage using laser scanner devices have been raised **3D models of elements of tourist interest** in the area of the study. These models can be viewed in a 3D environment on different devices such as mobile phones, tablets and personal computers. In addition, one of these models, the façade of the Renaissance museum, has served as a base to generate a 3D model using the latest 3D printing techniques which allows blind people to know, through the touch, this unique monument.

The complete platform with web and mobile applications promotes intelligent and sustainable tourism thanks to the use of efficient, innovative and integrated information technologies.

BI and CRM system has been also developed for the technicians of the city to analyse the different demands and needs of residents and tourists in order to offer them a better service and improve their experience as a Granada visitor and make their stay in Granada comfortable and unique.

## **Agro-food**

### **Developer Academy - University of Naples Federico II**

**Why? What was the initial problem diagnosis? How is the good practice helping?:** San Giovanni a Teduccio, a suburb to the east of Napoli, was long home to a large food packing factory that provided work to hundreds of families in the neighbourhood. After the closure of the plant in the 1980s, the neighbourhood was characterised by high unemployment and criminality rates.

In an effort to revitalise the area, the University of Naples Federico II selected it as the location for its new campus. The development was completed in 2015, and the new facilities became the home of the faculty of Engineering.

When US tech giant Apple was looking for a location to launch its first Academy in Europe, the idea of choosing Naples emerged after a meeting between Apple CEO Cook and Italian prime minister Renzi. Renzi suggested that a project like this would considerably benefit not only the San Giovanni neighbourhood but the entire southern Italy, a region often forgotten by foreign investors in favour of the more technological and richer north and suffering from ""brain drain"" - referring to highly-educated and talented young people often seeking professional success abroad. "

What do they do?: "The program provides students with practical skills and experience to help turn their app ideas into reality and bring them to market on the App Store. Training at the Academy focuses on software development, start-up creation and app design with an emphasis on creativity and collaboration to empower and equip students to develop the skills needed to succeed. The Academy aims to attract students from a wide range of backgrounds with the training designed to support not only those with coding or computer science experience but young people interested in areas such as design and business. The program is open to students from across Italy and around the world.

The academic programme, the layout and design of the infrastructure were supervised in detail by Apple experts who also trained the academy's professors on their most innovative techniques. Each of the 400 students who are set to start the training, will be handed the latest iPhone, iPad and MacBook in order for them to learn how to write code and launch apps.

Classes are all based on Challenge Based Learning (CBL) which is a multidisciplinary approach to teaching and learning. Using CBL students are encouraged to leverage the technology they use in their daily lives to solve real-world problems. CBL is collaborative and hands-on, asking students to work with other students, their teachers, and experts in their communities and around the world to develop deeper knowledge of the subjects they are studying, accept and solve challenges, take action, share their experience, and enter into a global discussion about important issues"

Results : The first successful batch of applicants hail from 11 different regions across Italy and include students from Latvia, Germany and the Netherlands. Over three years, 1000 developers and entrepreneurs will study at the Academy.

Although too early to assess the results, there is a keen desire - shared by local authorities, the University and Apple - for the students to be placed in jobs at local companies or create start-ups based in Naples and southern Italy, to combat the areas' brain drain.

Apple announced it expects to expand the Development Academy model to other European countries.

## Appendix IV: Bibliography

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## Appendix V: Stakeholders consulted

NAME	FIELD / TITLE	ORGANISATION
ADAM FILIPPIDIS	Education & Research	Fisheries Research Institute (FRI)
ANASTASIOS MARKOULIDIS	Education & Research	Opsometha to Filippoi
ANNA ALEXOPOULOU	Government	Municipality of Kavala
APOSTOLOS VAGENAS	Director	Secondary education Kavalas
APOSTOLOS PAVLIDIS	Society	Technical Chamber of Greece - Department of Eastern Macedonia
ARGYRIS SAPOUNIDIS	Education & Research	Fisheries Research Institute (FRI)
ARGYRO VELISSARIDOU	Government	Municipality of Kavala
ATHANASIOS KOMVOKIS	Teacher (Computer science)	Secondary education Kavalas
ATHINA IOANNIDOU	Education & Research	Opsometha to Filippoi
AVGOUSTOS TSINAKOS	Education & Research	EMaTTech (East Macedonia and Thrace Technology Institute)
CHARALAMPOS PAPAPOPOULOS	DCC Kavala Project Manager	City of Kavala
CHARALAMPOS TSOUROUKIDIS	Education & Research	Opsometha to Filippoi
CHRISOULA GABILI	Education & Research	Fisheries Research Institute (FRI)
CHRISTINA KAKDERI	Local expert for DCC of Kavala	URENIO Research - Aristotle University of Thessaloniki
CHRONIS MOSKOFIDIS	Industry	WISETECH
DESPOINA PARASIRI	Partner	Chamber of Kavala Prefecture
DESPOINA SARAFIDOU	Government	Municipality of Kavala
DIMITRIS ANDAVOGLU	Industry	INTEC SYSTEMS
DIMITRIS KYRIAZIDIS	President	Technical Chamber of Greece
DIMOSTHENIS KARAGEORGIU	Industry	Prisma electronics
DIMOSTHENIS TOULKIDIS	Deputy Mayor of Kavala	City of Kavala
DOXAKIS ANASTASOPOULOS	Industry	Intec Systems
ELEFThERIOS MOYSIADIS	Education & Research	EMaTTech (East Macedonia and Thrace Technology Institute)
ELENI MENTESIDOU	Government	DIMOFELIA
ELENI VAZAKIDOU	Society	Citizen
EVAGGELOS GERASIMOU	TEE employee	Technical Chamber of Greece
EVANGELIA LYMPEROPOULOU	Industry	Anaptixiaki Kavala AE (ANKA)
EVRIPIIDIS ZAIMIDIS	Government	Regional Unit of Kavala
GEORGIOS GAITATZIS	Professor (Production Engineering & management)	Democritus University of Thace
GEORGIOS SILAIOS	Professor (Environmental Enigneering)	Democritus University of Thace
GIANNIS CHARALAMPIDIS	Lead Expert for DCC of Kavala	Professor Aegean Uninersity
GIANNIS KALFAS	Lucy Hotel director	Lucy Hotel
GIORGIOS GIORDAMLIS	Board president	Prisma electornics

NAME	FIELD / TITLE	ORGANISATION
GIORGOS PAPADOPOULOS	Industry	Kavala Union of Agricultural Cooperatives
GIORGOS NASTOS	Industry	Technical Chamber of Greece - Department of Eastern Macedonia
GRIGORIS IOSIFIDIS	Director	Public IEK Kavallas
GRIGORIS KREI	Researcher	INALE
ILIAS GIARMATZIDIS	Strategy Consultant	City of Kavala
ILIAS GRINIAS	Project Team Member	City of Kavala
IOANNIS DAGOULIS	Industry	Kavala SW meeting group
KATERINA NASOU	Project manager	Manbiz
KLEOMENIS TSAROUCAS	Government	Municipality of Kavala
KLIMIS KARASAVVAS	Government	Municipality of Kavala
KONSTANTINOS PAPADOPOULOS	Anathesis Consulting	
KONSTANTINOS RANTOS	Education & Research	EMaTTech (East Macedonia and Thrace Technology Institute)
KONSTANTINOS VLASTARIS	Education & Research	2nd primary school of Kavala
KONSTANTINOS KLEANTHIDIS	Government	Regional Unit of Kavala
KOSTAS GIANNIKOPOULOS	Sales section manager	OTE - cosmote
KOSTAS TSAKIRIS	Government	Municipal Water Supply and Sewerage Company of Kavala
KYRIAKOS OVALIADIS	Education & Research	OAED-EPAS
MAKRINA STRATILATI	Government	DIMOFELIA
MANOS KOUTRAKIS	Researcher	INALE
MARIA DALKITSI	Vice president	Chamber of finance
MARIA PROKOPI	Former Lead Expert for DCC of Kavala	Digital Catapult - Head of Project Delivery Assurance
MARIA SIDIRELLI	Institute of Chemicca, Microbiological & Environmental Analysis	ICMEA
MARIA TSAKALIDOU	Education & Research	Opsometha to Filippoi
MARKOS DEMPAS	Industry	Chamber of Kavala Prefecture
MARY VALSAMA	Society	Citizen
MICHALIS SKORDAS		ANKA
NIKOLAOS DELIGIANNAKIS	Education & Research	Opsometha to Filippoi
NIKOLAOS MITSINIS	Government	Regional Unit of Kavala
NIKOLAOS NIKOU	Industry	Vertitech AE/Classter
ODISSEAS TRIANTAFILLOS	Industry	Nortech
PANAGIOTIS DELIGIANNIDIS	Director	Enter computers Deligiannidis
PANAGIOTIS MAKIOS	Public sector support	INTEL System AE
PAVLOS TSOUMAKIS	President - Department of transformation	Chamber of Kavala Prefecture
PETROS PAPADOPOULOS	Society	CITIZEN
POLYVIOS BALETAS	Education & Research	OAED-EPAS
SAVVAS BERBERIS	Society	CITIZEN
SOFIA ANGELOU	Society	Citizen
SOTIRIS ORFANIDIS	Education & Research	Fisheries Research Institute (FRI)
SOTIRIS PAPADOPOULOS	Government	Regional Unit of Kavala
SOUZI MAVROMMATI	Industry	Chamber of Kavala Prefecture
SPIROS KETZETZIS	Industry	Private Tuition Schools

<b>NAME</b>	<b>FIELD / TITLE</b>	<b>ORGANISATION</b>
STAVROS KANARAKIS	Community member	Kavala SW meeting group
THEODOROS AMPELIDIS	Industry	Geotechnical Chamber of Greece (GEOTEE), Brach of East Macedonia
VASILIS KALPAKIS	Society	CITIZEN
ZAFEIRIS MYSTAKIDIS	Industry	Geotechnical Chamber of Greece (GEOTEE), Brach of East Macedonia

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