

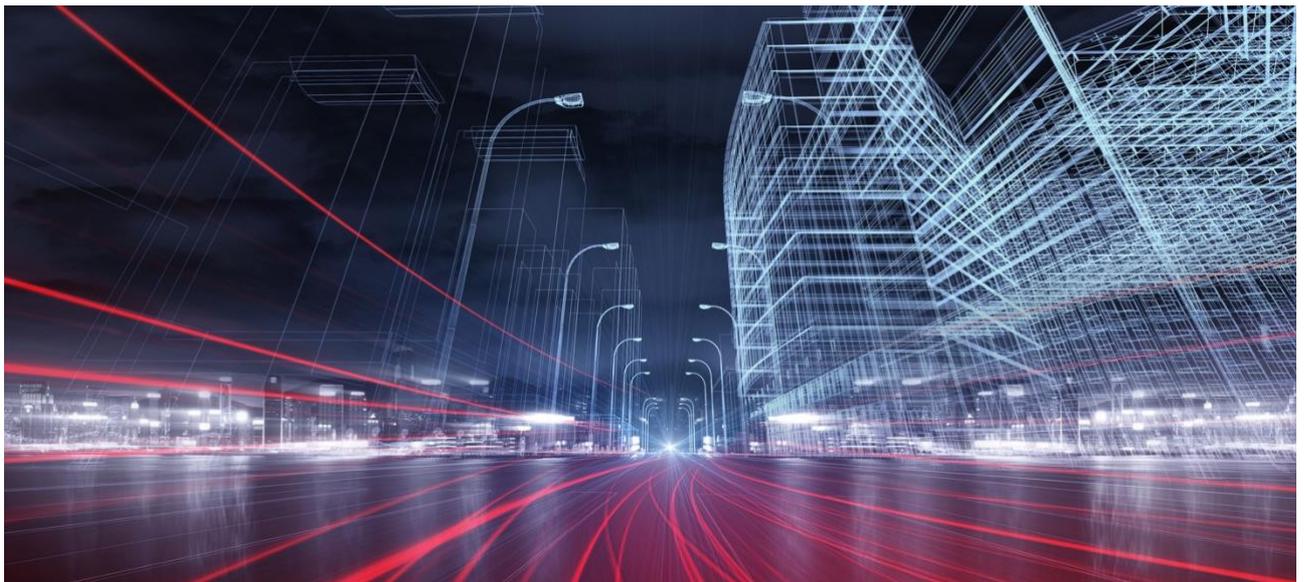


DIGITAL CITIES CHALLENGE

Digital Transformation Strategy for the city of Alcoy

Alcoy Digital Land

July 2019



Digital Cities Challenge

Digital Transformation Strategy for the city of
Alcoy: Alcoy Digital Land

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Executive Summary: Alcoy digital transformation

Alcoy as 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 Alcoy through the integration of advanced technologies. The initiative fosters complementarities and synergies between existing policies involving digital priorities (e.g. city strategic plan, science and innovation, smart city, climate and energy) and the newly planned policy actions supporting digital transformation.

The ambition is that Alcoy will act as model for other Spanish 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 Alcoy to advance and capture the benefits of digital transformation.

The implementation of the digital transformation trajectory in the city of Alcoy

In Alcoy, the Digital Cities Challenge was launched in June 21st, 2018 with a first study to the city on behalf of the expert team. In parallel, the city completed the Digital Cities Self-Assessment Tool, leading to the collection of 32 contributions on behalf of the local community of stakeholders. On the basis of this information, the city team (i.e. city representatives supported by a team of external experts) developed the current digital transformation strategy. The process was carried out interactively, as the team organised at least five local stakeholder workshops aimed at validating findings and collectively building the strategy and identifying key priorities. In addition to this, city representatives participated in four Digital City Challenge academy seminars which brought together representatives from all other participating cities, in light of sharing experiences and exchanging thoughts on the results of the Challenge.

The digital transformation strategy for Alcoy – Alcoy Digital Land

The definitive mission and vision for the city of Alcoy was generated after several iterations and an open discussion process with a wide representation of local stakeholders participating in the vision and ambition workshop, aimed to identify what the city should target first among *people, infrastructure and industry*. A vast majority of participants agreed on the need to increase the digital skillsets of citizens, employees and managers as a mean to enhance the

competences in the economic sectors, create synergies and trigger the improvement of local infrastructures and the level of financial support.

Alcoy envisages its strategy for digitalisation and modernisation of the economic sector placing human capital and local talent at the core of business adaptation and transformation into digital. A strategy oriented to promoting and taking local digital awareness, skills and competences in whatever domain (private, public, educational, etc.) to the next level is understood by Alcoy as the unique invigorating element. This approach is intended to leverage other elements considered key digital enablers for the city, including (a) communication and information sharing, (b) infrastructure, technology and data, and (c) sectorial and public-private cooperation.

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

To promote talent and human capital as the invigorating element for digital transformation in the local companies and the city, strengthening a constant communication between economic, educational and public sectors.

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

1. To consolidate a communication network enabling the exploitation of current and future IoE (Internet of Everything) services in the public administration, educational system, companies and citizens.
2. To improve digital skillsets in human capital in order to dynamise and boost the productive processes and services in the socioeconomic environment.
3. To build an infrastructure oriented to the storage, management and analysis of data generated in the different educational and socioeconomic environments.
4. To foster partnering between digital and non-digital productive sectors through the creation of Hubs.

The roll-out of this strategy will be guided by the implementation of 6 operational objectives:

- OO1.1: To create, consolidate and communicate about the city available infrastructure and e-services and assist the companies to access and exploit it, raising awareness on digitalisation and its benefits.
- OO2.1: To foster the upskilling and increase in digital content and training offers at schools, vocational centres and companies, supported by customised platforms and programs to effectively reach the target public and prepare it for Industry 4.0.

- OO3.1: To design the framework and operational initiatives adapted to the local environment leveraging the collection, management and processing of open data for business purposes, as well as the assessment of local economic impact generated.
- OO4.1: To create an ecosystem connecting digital service/solution providers and user companies, complemented by communication channels through which best practices and knowledge around digital are easily accessible and shared within the local industry.
- OO4.2: To define platforms and tools and support R&D and innovation activity creating the right conditions and facilitating the emergence of synergies between the different productive sectors as well as digital uptake and transition to industry 4.0.
- OO4.3: To design an operational entity capable of centralising and administrating the technological expertise and resources in the city's area of influence, with the purpose of offering on-demand digital-wise capacitation, consultancy and technology experimentation services to the industry.

The strategy roadmap for the city of Alcoy

The city has identified the list of activities to be implemented in the short, medium and long terms, in order to make its strategic mission and ambition a tangible reality. As such, a total of 16 specific activities have been identified, under the different operational objectives of the strategy. Examples of key activities to be implemented as part of the strategy include: *1 Big Data Alcoy Congress, Business Collaboration Platform, ÀgoraLab+ or Digital Innovation Hub. The OpenData Portal, LoRaWAN Network and Enterprise Agency* have been identified by the local working group as the pilot activities for immediate implementation, in order to launch the implementation phase of the digital transformation strategy and start generating immediate results.

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

- As the key element for the digital strategy governance structure, above the implementing agents there is a **steering committee/board** making the main strategic and operational decisions. This body will be led by the municipality of Alcoy under the figure of the City Council, taking the overall responsibility not only for the implementation and monitoring of the digital strategy but the appointment and coordination of the steering committee/board. It will be considered as an evolving open body whose members (persons) can change over time. Each of those members belong to a local organisation representing one of the four different domains either directly

affected or enabling the digital transformation process, that is, public institutions, education, industry and research/innovation.

- There will also be a member of the steering committee/board responsible for the coordination and supervision of the different **agents implementing** the activities and monitoring progress and results under the scope of the digital transformation strategy of the city, which are thoroughly selected for that purpose. Such member will be a person appointed by the Alcoy City Council as the **digital strategy ownership body**, and normally associated to the Innovation and Smart City department.

Last but not least, a performance framework for the strategy has also been designed in light of conducting regular monitoring and appraisal of strategy implementation.

1. Introduction to the Digital Cities Challenge

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

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

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



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

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

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

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

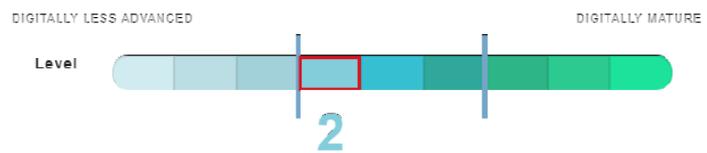
As a result of this, the Digital Cities Challenge has directly engaged with the Mayor of the supported cities. In December 2018, the on Mayors Conference was organized in Brussels to reflect upon the ongoing work and co-design the technological transformation trajectory of European cities.

This digital transformation strategy presented in this document has been developed in the framework of the field advisory services delivered in the Alcoy. 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 Alcoy

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

On the basis of the three levels proposed by the SAT, split into three grades each, Alcoy is at the lowest grade within level 2 (Digitally



Transforming). Even though the current digital condition of the city is low, good improvement opportunities turn up. The analysis of the 8 dimensions show some less mature dimensions like Open Data and Infrastructure, while other dimension, such as Digital Skillset, Support Services and Governance and leadership, shows more maturity.

In general terms, stakeholders involved in the DCC process highlighted that the development of digital competences in the local companies represents a good opportunity for talent attraction and business generation and allows the city to get ready for the upcoming new digital generations. In addition, public authorities, business associations and education institutions must concentrate on the improvement of training and in the development of digital capacities of current and future employees. Without any differentiation, the industry and the service sector (including commerce) need to opt for a digital transformation, by relying on good practices and establishing support links.

The Key Performance Indicators collected and analysed showed a need to dedicate more efforts to local dimensions related to the “Digital competencies of companies”, expected to lead to improvements in other dimensions such as the “Community” and “Support services”. In addition, there is a relatively higher maturity level for KPIs associated with “Digital skillset and education” or “Governance and leadership”, and some other less mature dimensions like “Open Data”.

Building upon the opportunities identified for the different domains/dimensions during interviews with local stakeholders, the following paragraphs highlight the main conclusions about the strategic path to be followed for the digital transformation and modernisation of Alcoy business and industrial sectors.

There is still room for improvement of the IoT/communications infrastructure together with the option to increase the number of IoT services and companies providing coverage for the local network. Based on the infrastructure available, new business opportunities for both companies and entrepreneurs might arise from the offering of public data sets. However, there is also the need to increase the private sector's awareness of the type of data potentially offered from the public administrations and to train companies on reading and understanding open data.

The initiation of a real transition to a fully digital industry in Alcoy may only be achieved through the improvement of digital skillsets and competences in more traditional sectors like textile plastic, etc., without forgetting the commerce and service-based activities. For this purpose, important opportunities are associated, on one hand, with the enhancement of professional training as an alternative to the university (as the most valuable local asset generating education and skills) and, on the other hand, with the retention and attraction of talent from other regional areas. In parallel, consultancy-oriented hubs can provide local companies with high level assistance focused on both the competences and the digital solutions and technologies to be implemented. Moreover, in some sectors large companies and industries can serve as a driving force for smaller businesses.

While there is not a strong technological community in Alcoy, there are opportunities to foster cooperation and interaction not only between different business sectors, but also between large companies without a digital strategy and digital service companies. Some relevant initiatives in the area, like Alicantec.com, must be leveraged as well. Concerning business associations and in some cases technology centres as support service providers, Alcoy should encourage these local players to step up the efforts and offer access to specialised staff or external consultancy resources that can facilitate innovation processes. In this context, concepts such as the Digital Innovation Hub are being considered as well.

Although a high number of stakeholders agree on the fact that the local administration must lead the digital development of Alcoy, the university and the business sector itself must play a key role. The former as knowledge, technology and resources provider and the latter under higher levels of involvement as the final user. Another supporting element is the existence of policies and strategies in the field of Smart City; in the case of Alcoy, smart city strategies have a strong focus on the business and industry side, targeting local growth and economy.

3. Mission and Ambition statements

Mission statement

To promote talent and human capital as the invigorating element for digital transformation in the local companies and the city, strengthening a constant communication between economic, educational and public sectors.

- Digital transformation in companies needs to come along with skills and competences. This will enable to leverage the need for adaptation in the companies, the generation of synergies among them and will demand improvements in infrastructures, funding and access to data. It is for the public administration stakeholder to take the lead.

Ambition statements:

- 1. To consolidate a communication network enabling the exploitation of current and future IoE services in the public administration, educational system, companies and citizens.***

The creation of a public secure network, with a geographic scope beyond the city, enabling a use by educational centres, industry, service providing companies, public administration and citizens. This will facilitate the emergence of innovative and digital projects and environments, and social inclusion initiatives, and will improve the city governance.

- 2. To improve digital skillsets of human capital in order to dynamise and boost the productive processes and services in the socioeconomic environment.***

The need and creation of new services as well as the adaptation of existing ones will draw on the digital skillsets of citizens. A potential high digital capacity in the company staff would lead to an internal transformation, but would at the same time demand new services from the rest of the local companies forcing them to adapt as well. Synergies between local educational centres and companies must be created.

- 3. To build an infrastructure oriented to the storage, management and analysis of data generated in the different educational and socioeconomic environments.***

Digital transformation (Industry 4.0, e-commerce, product tracking, etc.) embraces the analysis of the data produced. The support from public administration and/or business

associations to host and foster data storage platforms can act as an invigorating and normalising element for needs coming from productive sectors.

4. *To foster partnering between digital and non-digital productive sectors through the creation of Hubs.*

A digital transition must promote synergies between more digital mature companies and others that are operating in more traditional sectors or industries. Through the creation of a Digital Innovation Hub and a pool of consultants/experts providing services, the city will be able to facilitate the access of companies to human and technological resources supporting transformation. The communication among sectors and companies will be increasingly fostered by a higher human capacity in a natural way. It us for the public administration stakeholder to take the lead.

4. Alcoy Digital Land - The Digital Transformation Strategy for the city of Alcoy

4.1. Strategy orientation

Alcoy envisages in its strategy for digitalisation and modernisation of the economic sector to place human capital and local talent at the core of business adaptation and transformation into digital. A strategy oriented to promoting and taking local digital awareness, skills and competences in whatever domain (private, public, educational, etc.) to the next level is understood by Alcoy as the unique invigorating element. This approach is intended to leverage other elements considered as key digital enablers for the city as well, which are (a) communication and information sharing, (b) infrastructure, technology and data, and (c) sectorial and public-private cooperation.

Hence the strategy orientation for Alcoy is built upon the following pillars to provide the city with an innovative value proposition and the proper framework of conditions boosting economic development and growth based on digital.

1. Digital upskilling and capacitation and competences profiling as the baseline and tractor for the rest of digitalisation supporting fields.
2. Communication and information and knowledge transfer among stakeholders and domains (industry, public, education, citizens...).
3. Data and e-services creation and usage oriented to business diversification and generation supported by technology and infrastructure.
4. Coordination of resources, clustering and collaboration under a multi-perspective: digital and non-digital, sectorial, private and public, education and business, etc.

Under a more practical view to the above-mentioned action fields defining the digital strategy of the city, Alcoy plans to follow a multiple industry approach, paying special attention to more relevant sectors for the local economy like textile, pharma, plastic, food or retail.

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

Based on this strategic orientation with a clear focus on economic development, growth and competitiveness of the productive sectors in Alcoy, the digital transformation strategy is linked to other existing local strategies and policies as follows:

1. *Strategic city plan “Alcoidemà”*

The plan targets at the revitalisation of the local industry for the consolidation of the urban core and achievement of a more inclusive, sustainable and active city.

2. *“Smart City Alcoi”*

This operational plan consists of specific initiatives or projects that aim to solve the challenges of the city in the short and medium term, through the appropriate use of information technologies, by designing efficient and effective solutions, and by tracing local agents for the development of new local technology-based industries.

3. *Smart City Alcoy 2017-2020 Master Plan (part of the “Alcoidemà” and “Smart City Alcoi” city strategy)*

This plan aims to convert Alcoy into an intelligent municipality that can offer high added value services based on ICT and innovation strategies not only to citizens and institutions but also to companies.

4. *ERDF Funds – “DUSI Strategy” – “Europe Strategy 2020”*

European Regional Development Fund (ERDF) aims to strengthen economic and social cohesion in the European Union by correcting imbalances between its regions. The Europe 2020 strategy is the EU's agenda for growth and jobs, emphasising smart, sustainable and inclusive growth as a way to overcome the structural weaknesses in Europe's economy, improve its competitiveness and productivity and underpin a sustainable social market economy.

It is obvious that clear synergies and connections raise between the digital transformation strategy and these existing local strategies in terms of common objectives targeting at the reinforcement of the ICT uptake in the industrial landscape. Even though, there is no overlapping among strategies since the nature and in some cases funding source for their implementation are conceptually different.

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

Figure 1 Overview of the Digital Transformation Strategy for the City of Alcoy



4.2. Operational objectives

Operational objectives reflect the means through which the city of Alcoy will seek to achieve its ambition statements. They are called operational because they are of an actionable nature. They represent the 'how' behind the high-level strategic vision which has been developed by the local working group. As demonstrated in the following figure, operational objectives are linked to one or several ambition statements. The city of Alcoy identified an initial number of 11 operational objectives for its digital transformation strategy, that were later prioritised and merged into 6 definitive operational objectives. This simplification will allow to deal with a more manageable strategy implementation process where clearer activities and indicators might be defined.

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

DIGITAL CITIES CHALLENGE – Digital Transformation Strategy

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

Operational objectives and description		Link to ambition statements	Rationale
<p>To create a communication channel capable of channelling and consolidating any knowledge related to digital transformation; addressing companies in a bidirectional way in terms of both collecting information and permitting participation from them.</p> <p>To promote the transfer of knowledge and technology and the sharing of best practices as a tractor element for the spread of digital solutions and technologies among the local industry.</p> <p>To build an ecosystem of service/solution providers and user companies embracing cybersecurity aspects and technologies such as blockchain.</p> <p>To create a marketplace 4.0 capable of connecting different local stakeholders, fostering communication and interaction and serving as a space for offer and demand around digital technologies and services.</p>	<p>OO4.1: To create an ecosystem connecting digital service/solution providers and user companies, complemented by communication channels through which best practices and knowledge around digital are easily accessible and shared within the local industry.</p>	<p>Linked to ambition statements 4 (primary) and 1, 2 (secondary)</p>	<ul style="list-style-type: none"> • Companies make use of the communication channels and participate actively. • The practice becomes a reference for all the companies in the city (and outside of the city), embracing both digital and non-digital as well as all the sectors. • Public administrations strongly support the ecosystem and transfer-oriented initiatives. • It generates aspirations and gives answer to daily problems. • Relevant stakeholders are involved and actively participate. • It includes tools and services needed by the companies.
<p>To foster the upskilling and increase in digital content and training offers at schools, vocational centres and companies; supported by customised platforms and programs as the means to reach the target groups (mainly current and future employees)</p> <p>To work on the culture creation and preparation for Industry 4.0 at infrastructure, technology, human skills and financial levels.</p>	<p>OO2.1: To foster the upskilling and increase in digital content and training offers at schools, vocational centres and companies, supported by customised platforms and programs to effectively reach the target public and prepare it for Industry 4.0.</p>	<p>Linked to ambition statements 2 (primary) and 1, 3 (secondary)</p>	<ul style="list-style-type: none"> • Citizens and workers' access to digital content and training offers. • It is adapted to the needs of companies. • There is coordination between the different educational levels. • It facilitates the generational transition within industries. • It is permanently updated.

DIGITAL CITIES CHALLENGE – Digital Transformation Strategy

Operational objectives and description	Link to ambition statements		Rationale
To raise awareness on digitalisation and its benefits by publishing real time data on both the city investment in infrastructure, technology and e-services (transport, energy, environment...) and their actual use by companies.	OO1.1: To create, consolidate and communicate about the city's available infrastructure and e-services and assist the companies to access and exploit it, raising awareness on digitalisation and its benefits.	Linked to ambition statements 1 (primary) and 2, 3 (secondary)	<ul style="list-style-type: none"> • Increase in e-services has been achieved. • There are no infrastructure nor technological resources underexploited in the city.
To design the framework and operational initiatives adapted to the local environment leveraging the collection, management and processing of open data for business purposes, as well as the local economic impact generated.	OO3.1: To design the framework and operational initiatives adapted to the local environment leveraging the collection, management and processing of open data for business purposes, as well as the assessment of local economic impact generated.	Linked to ambition statement 3	<ul style="list-style-type: none"> • Companies consider open data as a necessity for decision making. • Companies and public institutions are aware of the importance of the creation of datasets. • Existence of a platform used by public institutions and companies to both insert data and have access to it. • Access to data is simple and data is unified.
To define platforms, tools and initiatives creating the proper conditions and facilitating the emergence of synergies between both different productive sectors and digital and non-digital companies.	OO4.2: To define platforms and tools and support R&D and innovation activity creating the right conditions and facilitating the emergence of synergies between the different productive sectors as well as digital uptake and transition to industry 4.0.	Linked to ambition statement 4	<ul style="list-style-type: none"> • There are funds available for specific projects' implementation. • Stakeholders and companies participate in the projects. • There is return on investment for companies.
To boost an increasingly R&D and innovation activity and participation of companies in collaborative projects with access to public funds as a mechanism to smooth the digital uptake and transition to Industry 4.0.			

DIGITAL CITIES CHALLENGE – Digital Transformation Strategy

Operational objectives and description	Link to ambition statements		Rationale
<p>To design an operational entity capable of centralising and administrating the technological expertise and resources in the city's area of influence, with the purpose of offering on-demand digital-wise capacitation, consultancy and technology experimentation services to the industry.</p>	<p>OO4.3: To design an operational entity capable of centralising and administrating the technological expertise and resources in the city's area of influence, with the purpose of offering on-demand digital-wise capacitation, consultancy and technology experimentation services to the industry.</p>	<p>Linked to ambition statement 4 (primary) and 2 (secondary)</p>	<ul style="list-style-type: none"> • Interregional cooperation is achieved. • Companies demand the services. • Degree of entrepreneurship and digital inter-entrepreneurship is increased. • Consultancy provided is adapted to the market needs.

5. Digital strategy roadmap and planned activities

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

5.1. Overview of proposed activities

The digital transformation strategy for the city of Alcoy will be implemented through a group of activities, identified in the framework of the Digital Cities Challenge. Activities are meant to contribute to reaching the operational objectives defined in the framework of the strategy, which in turn will contribute to the city's ambition and mission. The list of priority activities may be expanded with time. For now, the city has decided to implement 16 activities, as described in the following table.

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

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
Activity 3.1.1: OpenData Portal	3.1	Alcoy City Council	Implementation of an open data portal composed of around 17 datasets and at least one of them allowing the collection of real time data. This is intended to be the first open data initiative in the city of Alcoy.
Activity 1.1.1: LoRaWAN Network	1.1	Alcoy City Council	Design and setting up of a communication mini network with LoRaWAN technology (one district coverage) available to the public administration, university, citizens and companies for the installation of IoT devices and transmission of data in a free and safe manner.
Activity 2.1.1: AgoraLab	2.1	Alcoy City Council together with educational centres	Strengthening of the training structure launched by the City Council for the fostering of digital competences among young people with training offers on robotics, programming, videogames, etc. The number of participants is increasing each year.
Activity 4.2.1: Enterprise Agency	4.2	Mancomunidad together with Local Development Agencies of different municipalities	Establishment of a territorial enterprise agency with a geographic scope of several municipalities. The agency is initially focused on the companies dynamisation, B2B relationship fostering, innovation promotion and internationalisation; for the second year a more technology centric aim is envisaged.
Activity 4.2.3: I Big Data Alcoy Congress	4.2	Alcoy City Council, Comunidad Valenciana Digital District and AlicanTEC	Organisation of a first edition of the Alcoy Big Data congress as a professional forum oriented to the presentation of progress around Big Data applied to AI and smart territories' management with a business-wise digital transformation purpose.
Activity 4.2.2: Big Data and Small & Medium Smart Cities Congress	4.2	Alcoy City Council and UPV (Chair of Smart Cities)	Merging of the Big Data and Smart Cities congresses in Alcoy and organisation of subsequent editions oriented towards the transformation of small and medium cities aligned with the transformation of companies in a joint effort, as well as the importance of data use and treatment. The cities must create the

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
			proper ecosystem for the companies to participate in such a transformation with a citizen interest related aim.
Activity 3.1.2: Smart Economy Development Project - Backoffice	3.1	Alcoy City Council together with local companies and education centers	Definition of the planning and management side of the several digital projects embraced by the digital transformation strategy defined in DCC. This is part of a framework project in which Alcoy plans to develop a unique and interconnected Big Data-Open Data platform allowing the economic dynamisation. The knowledge of the business sector in Alcoy, its evolution and the comparison with other cities appears to be key in order to understand Alcoy and act in an efficient manner.
Activity 4.3.1: Digital Transformation Office	4.3 (primary) and 4.1 (secondary)	Alcoy City Council together with the “Enterprise Agency”, the Chamber of Commerce and the rest of business associations	Aligned to the activity “Enterprise Agency” and following a similar strategy, creation of an office in charge of the management and governance of digital transformation related projects and services. The aim is to achieve a self-funding public-private partnership (PPP).
Activity 4.1.1: Business Collaboration Platform	4.1 (primary) and 4.2 (secondary)	Alcoy City Council in collaboration with companies and entrepreneurs	Being part of the activity “Digital Transformation Office”, creation of both an online portal and a physical space allowing companies to share information on initiatives, projects, problems and ideas. The approach is to provide solutions to problems raised by companies or entrepreneurs in a collaborative manner.
Activity 1.1.2: IoT Communication Network	1.1	Alcoy City Council and the rest of municipalities joining the network, as well as the companies in the area of influence	Development of an IoT communications network available for citizens, companies, educational centers and public administrations within the area of influence, with a potential to connect any IoT sensor/driver/device and smart nodes.

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
Activity 2.1.4: Training Prospection Agency	2.1	Alcoy City Council, Universities and business-oriented entities	Creation of a prospection agency focused on identifying sectorial training needs on digitalisation in the socioeconomic environment. The agency would support the local companies on identifying the type of professional profiles and digital skills required in the near future.
Activity 2.1.2: ÀgoraLab +	2.1	Alcoy City Council together with educational centers	ÀgoraLab space extended for all the primary and secondary educational centers in Alcoy. The aim is to extend the current offer for training on digital competences to all educational levels in order to generate a further understanding and valuation of the needs and opportunities around digital transformation.
Activity 2.1.3: ÀgoraLab + Enterprise	2.1	Alcoy City Council together with local companies and stakeholders	ÀgoraLab space focused on companies/entrepreneurs. The aim is to provide the local retailers, industries and companies in general with a training centre addressing employees and their understanding on advantages, opportunities and needs to acquire digital competences and skills.
Activity 4.3.2: Digital Innovation Hub	4.3	Alcoy City Council or Alicante County Council (depending on the Hub scope)	Establishment of a Digital Innovation Hub providing capacitation, consultancy and access to technology experimentation services. The first phase of the activity would embrace the development of the Hub business model, the engagement of participating stakeholders and the creation of a service portfolio to initiate operations in the market.
Activity 4.1.2: Pool of Digital Experts	4.1 (primary) and 4.3 (secondary)	Alcoy City Council	Identification and configuration of an advising group of experts as a subproject within the Digital Innovation Hub project. This expert group would assist the local companies throughout the digital transformation process, facilitating the path and transition towards industry 4.0.
Activity 4.1.3: Digitalisation Communication Channel	4.1	UPV and business associations	Design and setting up of a dissemination and communication channel aiming at raising awareness about the need of the digital transformation, having access to related up-to-date knowledge and information, and creating a common meeting point for interaction among the different stakeholders so that they can support and advice each other.

5.2. The pilot activities

In order to begin the implementation of the strategy, the city of Alcoy has decided to carry out 3 pilot activities: OpenData Portal, LoRaWAN Network, and Enterprise Agency. The selection of the pilots is based on two main criteria: (1) being a project already underway with a certain degree of progress and (2) expected impact on a short-term basis.

Pilot 1. OpenData Portal

The objective of the pilot activity is the implementation of an open data portal composed of around 15 datasets where least one of the datasets allows the collection of real time data. This project is framed within a city plan for the development of a unique and interconnected Big Data-Open Data platform allowing the economic dynamisation of the city through the load of data from IoT devices in order to face environmental, mobility, social, cultural and touristic challenges. The pilot activity is already underway, and the portal has been operational since April of 2019 and gradually been improved over time. The organisation in charge of development, implementation and delivery is the City Council under its own funds.

Pilot 2. LoRaWAN Network

The objective of the pilot activity is the design and set up of a communication mini network with LoRaWAN technology (one district coverage) available to the public administration, university, citizens and companies for the installation of IoT devices and transmission of data in a free and safe manner. This project is indeed a pilot within a larger IoT network infrastructure project planned to serve as a production environment for the City Council as well as a proof of concept environment for novel ideas raised in the heart of a smart city. The pilot activity is already implemented since January 2019. The organisation in charge of development, implementation and delivery is the City Council under its own funds.

Pilot 3. Enterprise Agency

The objective of the pilot activity is the establishment of a territorial enterprise agency with a geographic scope covering the following municipalities: Agres, Alcoy, Alcoleja, Alfafara, Banyeres de Mariola, Benimarfull, Cocentaina, Gaianes, Gorga, l'Alqueria d'Asnar, Lorcha, Millena and Muro. The agency is initially focused on the companies' dynamisation, B2B relationship fostering, innovation promotion and internationalisation; for the second year a more technology centric aim will be envisaged. This project is also linked to the creation of a digital transformation office in charge of the management and governance of digital transformation related projects and services. The pilot activity is already underway and the agency is planned to be operational by May of 2019. The organisation in charge of

development, implementation and delivery is the Mancomunidad together with Local Development Agencies from different municipalities under their own funds.

5.3. Timetable for implementation

It is foreseen the core of the strategy will be implemented along the next four 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 Alcoy

Activity	Before 2019	Jan-Jun 2019	Jul-Dec 2019	Jan-Jun 2020	Jul-Dec 2020	Jan-Jun 2021	Jul-Dec 2021	Jan-Jun 2022	Jul-Dec 2022	Jan-Jun 2023	Jul-Dec 2023	2014 and beyond
Activity 3.1.1: OpenData Portal			→									
Activity 1.1.1: LoRaWAN Network			→									
Activity 2.1.1: ÀgoraLab		→										
Activity 4.2.1: Enterprise Agency												
Activity 4.2.3: I Big Data Alcoy Congress												
Activity 4.2.2: Big Data and Small & Medium Smart Cities Congress												
Activity 3.1.2: Smart Economy Development Project – Backoffice												

DIGITAL CITIES CHALLENGE – Digital Transformation Strategy

Activity	Before 2019	Jan-Jun 2019	Jul-Dec 2019	Jan-Jun 2020	Jul-Dec 2020	Jan-Jun 2021	Jul-Dec 2021	Jan-Jun 2022	Jul-Dec 2022	Jan-Jun 2023	Jul-Dec 2023	2014 and beyond
Activity 4.3.1: Digital Transformation Office												
Activity 4.1.1: Business Collaboration Platform												
Activity 1.1.2: IoT Communication Network												
Activity 2.1.4: Training Prospection Agency												
Activity 2.1.2: ÀgoraLab +												
Activity 2.1.3: ÀgoraLab + Enterprise												
Activity 4.3.2: Digital Innovation Hub												
Activity 4.1.2: Pool of Digital Experts												

DIGITAL CITIES CHALLENGE – Digital Transformation Strategy

Activity	Before 2019	Jan-Jun 2019	Jul-Dec 2019	Jan-Jun 2020	Jul-Dec 2020	Jan-Jun 2021	Jul-Dec 2021	Jan-Jun 2022	Jul-Dec 2022	Jan-Jun 2023	Jul-Dec 2023	2014 and beyond
Activity 4.1.3: Digitalisation Communication Channel												

6. Strategy governance

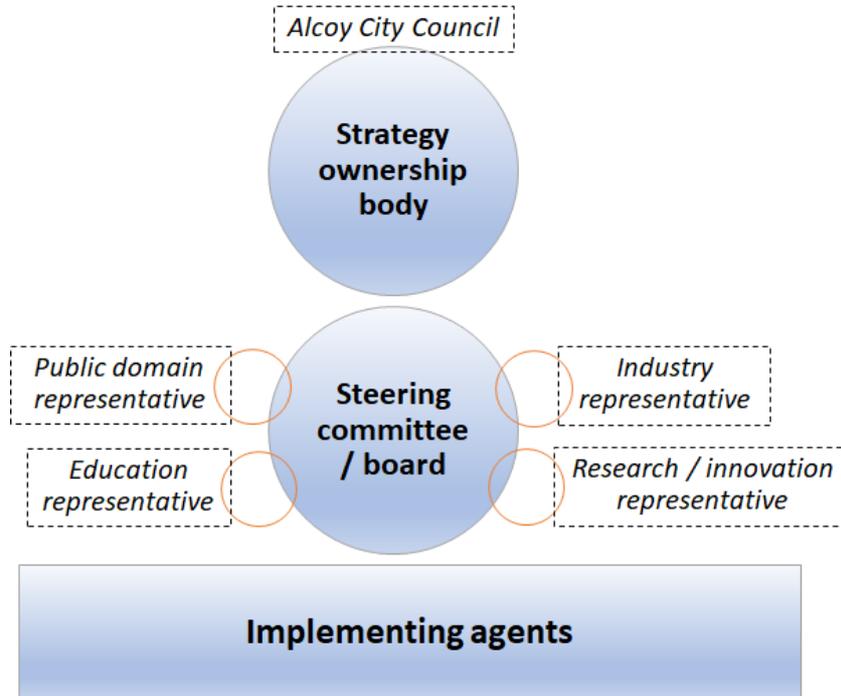
As the key element for the digital strategy governance structure, above the implementing agents there is a **steering committee/board** making the main strategic and operational decisions. This body will be led by the municipality of Alcoy under the figure of the City Council, taking the overall responsibility not only for the implementation and monitoring of the digital strategy but also for the appointment and coordination of the steering committee/board. It will be considered as an evolving open body whose members (persons) can change over time. The overall structure follows a clear and well-configured framework facilitating both the involvement of new members and the withdrawal of existing ones.

Each of those members belong to a local organisation representing one of the four different domains either directly affected or enabling the digital transformation process, that is, public institutions, education, industry and research/innovation domains. The five representative organisations are selected by the entities/companies under such domains, also known as local stakeholders. The selection approach will follow a turning or rotating process among the main existing options within each city domain. The initially proposed representatives are the City Council for public institutions, the UPV and CIP Batoi vocational centre for education, FEDAC for industry and AITEX for research/innovation. In principle, the members will be part of the steering committee/board for a period of 1 year; every 12 months a new steering committee/board will be constituted where new members (persons) and/or representative organisations will be selected. The members will at the same time vote a president for the steering committee/board every year.

The primary responsibility of the steering committee/board is the implementation and monitoring of the digital strategy. Whilst input should be taken from as many internal and external sources as possible and stakeholders should have a thorough understanding of the direction of the city in general and of the digital transformation strategy in particular, the steering committee/board must provide leadership and input into all steps in the process. The steering committee/board will meet 3 times a year. Hence, the most critical decisions are taken in the steering committee/board where every member has one vote. In the event of a tied vote, the elected president shall have the casting vote.

In addition, there will be a member of the steering committee/board responsible for the coordination and supervision of the different **agents implementing** the activities and monitoring progress and results under the scope of the digital transformation strategy of the city, which are thoroughly selected for that purpose. Such member will be a person appointed by the Alcoy City Council as the **digital strategy ownership body**, and normally associated to the Innovation and Smart City department.

Figure 2 Governance Scheme for the Digital Strategy of the City of Alcoy



7. Monitoring and evaluation of the Digital Transformation Strategy

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

7.1. Performance assessment framework

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

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

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

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

7.2. Strategy evaluation plan

In addition to monitoring the progress of strategy implementation, the Digital Transformation Strategy for Alcoy will undergo an internal (external is also an option) evaluation within the next four years (overlapping the political group governing the City Council). The objective of the evaluation will mainly be to verify the extent to which expected strategy results have been achieved, review the relevance of selected strategy priorities and objectives, and review the

efficiency of strategy implementation and governance schemes. The evaluation questions guiding the evaluation will be defined by the City Council (external consultancy body is also an option) with the support of the steering committee/board. Considering a four years' timeframe, there will be a mid-term and a long-term evaluation within the next two and four years of the strategy implementation respectively. The evaluations are foreseen to follow a project/activity-centred approach.

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

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

8. Results achieved and next steps

The most relevant key results achieved within the framework of the DCC, thanks to the advisory services provided, can be summarized as follows:

- Creation of awareness and consolidate a renewed digital-wise leadership in the City Council towards a definitive uptake of digital technologies and culture in the municipality;
- To support the above-mentioned leadership with a governance structure where roles and responsibilities are well defined and communicated from the outset;
- To successfully engage and raise motivation in a large variety of key local stakeholders for the digital strategy to be implemented in a collaborative and efficient manner;
- To obtain a higher understanding of not only the local businesses' digital maturity level but also their expectations on the field towards a short-term digital scenario;
- To be able to reinforce the city's existing digital vision based on inspiration from other European cities and generate an entry point for future connections with them;
- To generate the required push on some local digital pilot actions to definitely come to light, and creating the adequate framework conditions for their implementation.

The following are some of the most significant next steps to be taken upon the completion of the digital transformation trajectory:

- To formalise and make fully operational the governance structure by reaching out to the parties involved and taking the first decisions related to both the follow-up of ongoing activities and the starting date of new ones;
- To get consensus and agreement with the strategy implementing agents for every detail required in the execution and monitoring of the activities included within the city roadmap in terms of mainly resources to be allocated and results to be achieved;
- To define a short-term plan for identifying and opting to available regional, national and European funds as well as the supporting means to access them in success conditions

- To define and consolidate an internal working methodology and practices through which the city can connect and engage in other digitalisation-wise European initiatives and networks on a rolling basis;
- To launch a marketing and communication campaign addressing the different target groups in order to make them fully aware of the digital strategy being implemented and the outcomes, outputs and impacts pursued.

Appendix I: Detailed presentation of activities

Activity 3.1.1: OpenData Portal	
Link to operational objective	Operational objective 3.1
Description	<p>Implementation of an open data portal composed of around 17 datasets where at least one of the datasets allows for the collection of real time data. This is intended to be the first open data initiative in the city of Alcoy.</p> <p>The open data concept is linked to open government policies, pursuing that data and information proceeding from public administrations is available in an open and reusable manner with the aim of fostering transparency, citizens participation and economic development.</p>
Timeframe	<p>Length: incremental each year</p> <p>Estimated date of implementation: already underway, April 2019</p> <p>Start: 2018, Planned completion: first pilot phase already completed. The portal and its applications are continuous in time</p>
Indicators to be achieved	Number of datasets available in the platform (increase by 20% in a year)
Estimated cost and source of funding	<p>Estimated cost: 18.000€ (start-up phase, already completed)</p> <p>Sources of funding: City Council own funds</p>
Organisation / unit in charge of delivery (i.e. ownership of the activity)	Alcoy City Council

Activity 1.1.1: LoRaWAN Network	
Link to operational objective	Operational objective 1.1
Description	<p>Design and setting up of a communication network with LoRaWAN technology (one district coverage) available to the public administration, University, citizens and companies for the installation of IoT devices and transmission of data in a free and safe manner.</p> <p>The main goal is to establish the basis for the future exploitation of the IoT network and the information generated in the city framework, allowing public administrations, citizens and educational centers to use it in both real and educational/lab environments. It will also aim at putting into operation the different nodes and IoT devices.</p>
Timeframe	<p>Length: incremental each year</p> <p>Estimated date of implementation: already underway, January 2019</p> <p>Start: 2018, Planned completion: continuous in time. Will evolve into the activity “IoT Communication Network”</p>
Indicators to be achieved	Number of e-services offered / used over the network (increase by 25% in a year)
Estimated cost and source of funding	<p>Estimated cost: 15.000€ (start-up phase, already completed)</p> <p>Sources of funding: City Council own funds</p>
Organisation / unit in charge of delivery	Alcoy City Council

Activity 2.1.1: ÀgoraLab	
Link to operational objective	Operational objective 2.1
Description	<p>Strengthening of the training structure launched by the City Council for the fostering of digital competences among young people with training offers on robotics, programming, videogames, etc. The number of participants is increasing each year.</p> <p>ÀgoraLab is a space oriented to learning by doing and generating a cultural change in youngest citizens and the update of oldest ones. Courses offered include: Robotics, Arduino, 3D printers, Videogame programming, Lego mindstorms, etc.</p> <p>ÀgoraLab started in 2014 and grows every year in terms of budget and the number of kids trained. Since 2014 more than 500 alumni have been trained and more than 800 training hours provided.</p>
Timeframe	<p>Length: continuous in time</p> <p>Estimated date of implementation: launched in 2014 and updated annually</p> <p>Start: 2014, Planned completion: continuous in time</p>
Indicators to be achieved	Number of young people accessing to digital capacitation offers (increase by 25% in a year)
Estimated cost and source of funding	<p>Estimated cost: 30.000€ (assigned for 2019). Increased annually</p> <p>Sources of funding: private funds</p>
Organisation / unit in charge of delivery	Alcoy City Council together with educational centres

Activity 4.2.1: Enterprise Agency	
Link to operational objective	Operational objective 4.2
Description	<p>Establishment of a territorial enterprise agency with a geographic scope covering the following municipalities: Agres, Alcoy, Alcoleja, Alfafara, Banyeres de Mariola, Benimarfull, Cocentaina, Gaianes, Gorga, l'Alqueria d'Asnar, Lorcha, Millena and Muro.</p> <p>The agency is initially focused on companies' dynamisation, B2B relationship fostering, innovation promotion and internationalisation; for the second year a more technology centric aim is envisaged.</p> <p>The Chamber of Commerce and FEDAC association also take part in the agency.</p> <p>The enterprise agency would use resources from local development agencies in different municipalities as well.</p>
Timeframe	<p>Length: 2 years</p> <p>Estimated date of implementation: Already underway, May 2019</p> <p>Start: 2019, Planned completion: May 2021</p>
Indicators to be achieved	Number of new companies' products/services embedding digital technologies (increase by 20% in a year)
Estimated cost and source of funding	<p>Estimated cost: 30.000€ for each year</p> <p>Sources of funding: own funds (already assigned budget item for year 1)</p>
Organisation / unit in charge of delivery	Mancomunidad together with local development agencies of different municipalities

Activity 4.2.3: I Big Data Alcoy Congress	
Link to operational objective	Operational objective 4.2
Description	<p>Organisation of the first edition of the Alcoy Big Data congress as a professional forum oriented to the presentation of progress around big data applied to AI and smart territories' management with a business-wise digital transformation purpose. The event counts on the presence of experts, digital companies, technology industry leaders, etc., who share challenges, trends and opportunities on data analysis and treatment.</p> <p>The congress is organised by the Comunidad Valenciana's Digital District in collaboration with the Alcoy City Council and the association of technology-based companies in the Alicante province (AlicanTEC), as well as being advised by the National Association for Big Data and Analytics (ANBAN). The first edition of the congress is taking place on April 4th in Alcoy.</p>
Timeframe	<p>Length: annual or biannual event</p> <p>Estimated date of implementation: April 2019</p> <p>Start: April 2019, Planned completion: continuous in time</p>
Indicators to be achieved	Number of attendees to the congress (increase by 10%)
Estimated cost and source of funding	<p>Estimated cost: 25.000€</p> <p>Sources of funding: own funds and other institutions in Comunidad Valenciana</p>
Organisation / unit in charge of delivery	Alcoy City Council, Comunidad Valenciana Digital District and AlicanTEC

Activity 4.2.2: Big Data and Small & Medium Smart Cities Congress	
Link to operational objective	Operational objective 4.2
Description	<p>Merging of the Big Data and Smart Cities congresses in Alcoy. Organisation of subsequent congress editions focussed on the transformation of small and medium cities aligned with the transformation of companies in a joint effort, as well as the importance of data use and treatment. The cities must create the proper ecosystem for the companies to participate in such a transformation with a citizen interest related aim.</p> <p>Therefore, the goal of the congress is to embrace the discussion about the transformation of small and medium cities in order to face sustainability and joint development challenges. For that purpose, the congress will gather experts from different Spanish areas developing smart city transition projects.</p>
Timeframe	<p>Length: biannual event Estimated date of implementation: April/May 2020 Start: 2020, Planned completion: continuous in time</p>
Indicators to be achieved	Number of attendees to the congress (increase by 10%)
Estimated cost and source of funding	<p>Estimated cost: 30.000€ Sources of funding: funds from the Chair of Smart Cities in UPV together with financing from local companies</p>
Organisation / unit in charge of delivery	Alcoy City Council and UPV (Chair of Smart Cities)

Activity 3.1.2: Smart Economy Development Project - Backoffice	
Link to operational objective	Operational objective 3.1
Description	<p>Definition of the planning and management side of the several digital projects embraced by the digital transformation strategy defined in DCC.</p> <p>This is part of a framework project aiming at the improvement of access, use and quality of the ICT resources available in the city.</p> <p>The project looks forward to know the business sector in Alcoy, its evolution and the comparison with other cities, which appears to be key in order to understand Alcoy and act in an efficient manner.</p> <p>The aim is to enable a new local economy and facilitate the expansion of the companies established in the city.</p> <p>Smart Economic Development is a portal providing indicators related to the stock, birth, death and survival of companies operating in the municipality, offering to institutions, business owners and entrepreneurs a powerful tool for decision making. There will be available, among others, different indicators, graphs and interactive maps where sectorial business segmentations can be visualised. Moreover, those maps will help to know the target public around a desired location and search radius.</p> <p>In that context, Alcoy plans to develop a unique and interconnected Big Data-Open Data platform allowing the economic dynamisation of the city through the load of data from IoT devices in order to face environmental, mobility, social, cultural and touristic challenges.</p> <p>The platform will be built in different phases and through partial developments and therefore covering individual digital projects gradually.</p>
Timeframe	<p>Length: incremental each year. 4 years in two different phases</p> <p>Estimated date of implementation: second half of 2019</p> <p>Start: June 2019 (first phase), Planned completion: end of 2023</p>
Indicators to be achieved	Number of companies/entities accessing to the infrastructure per sector (increase by 15% in a year)
Estimated cost and source of funding	<p>Estimated cost: 40.000€ (first phase) and 60.000€ (second phase)</p> <p>Sources of funding: own funds for the first phase and undefined for the second one</p>
Organisation / unit in charge of delivery	Alcoy City Council together with local companies and education centres

Activity 4.3.1: Digital Transformation Office	
Link to operational objective	Operational objective 4.3 (primary) and 4.1 (secondary)
Description	<p>Aligned to the activity “Enterprise Agency”, utilising the same structure and following a similar strategy, creation of an office in charge of the management and governance of digital transformation related projects and services, allocating human and economic resources for such a purpose.</p> <p>The aim is achieving a self-funding public-private partnership (PPP). The office will define the strategic and relationship among associations responsibilities and will be initially located in the Chamber of Commerce.</p>
Timeframe	<p>Length: 3 years</p> <p>Estimated date of implementation: first quarter of 2020 (depending on the “Enterprise Agency” implementation)</p> <p>Start: first quarter of 2020, Planned completion: first quarter of 2023</p>
Indicators to be achieved	Number of ICT start-ups created and maintained (increase by 20% in a year)
Estimated cost and source of funding	<p>Estimated cost: 300.000€</p> <p>Sources of funding: regional, national or European funds</p>
Organisation / unit in charge of delivery	Alcoy City Council together with the “Enterprise Agency”, the Chamber of Commerce and the rest of business associations.

Activity 4.1.1: Business Collaboration Platform	
Link to operational objective	Operational objective 4.1 (primary) and 4.2 (secondary)
Description	Being part of the activity “Digital Transformation Office”, creation of both an online portal and a physical space allowing companies to share information on initiatives, projects, problems and ideas. The approach is to provide solutions to problems raised by companies or entrepreneurs in a collaborative manner. Agora space is an initial option for launching this activity.
Timeframe	Length: 2 years Estimated date of implementation: third quarter of 2020 Start: first quarter of 2020, Planned completion: third quarter of 2022
Indicators to be achieved	Number of companies using the platform (increase by 15% in a year)
Estimated cost and source of funding	Estimated cost: 200.000€ Sources of funding: regional, national or European funds
Organisation / unit in charge of delivery	Alcoy City Council in collaboration with companies and entrepreneurs

Activity 1.1.2: IoT Communication Network	
Link to operational objective	Operational objective 1.1
Description	<p>As a continuation of the pilot activity “LoRaWAN Network”, development of an IoT communications network with a geographic scope larger than the city itself. It will be available for citizens, companies, educational centers and public administrations within the area of influence, with a potential to connect any IoT sensor/driver/device and smart nodes.</p> <p>The telecommunications network will be private and owned by the City Council under the concept of smart public service network (norm UNE178101), initially covering the urban core and industrial sites in Alcoy and later on the county territory (Mancomunidad).</p> <p>This network infrastructure would achieve a twofold set of task. On one hand it will serve as production environment for the City Council and on the other hand as proof of concept environment for novel ideas raised in the heart of a smart city. This will trigger research and development around the concept of smart cities as one of the most interest prompting domains nowadays, engaging a high number of stakeholders to participate and collaborate.</p>
Timeframe	<p>Length: 2 years</p> <p>Estimated date of implementation: October 2019 – first phase (pilot project with a district coverage “LoRaWAN Network”)</p> <p>Start: June 2019, Planned completion: end of 2021 (first phase). It is foreseen that subsequent phases will extend the project over time</p>
Indicators to be achieved	Number of ICT companies offering / using e-services over the network (increase by 15% in a year)
Estimated cost and source of funding	<p>Estimated cost: 50.000€ (first phase). 100.000€ (latter phases to cover the whole county territory)</p> <p>Sources of funding: own funds for the first phase and undefined for latter ones</p>
Organisation / unit in charge of delivery	Alcoy City Council and the rest of municipalities joining the network, as well as the companies in the area of influence

Activity 2.1.4: Training Prospection Agency	
Link to operational objective	Operational objective 2.1
Description	Based on the core of the mission and vision defined for the digital transformation of Alcoy, creation of a prospection agency focused on identifying sectorial training needs on digitalisation in the socioeconomic environment. The agency would support the local companies on identifying the type of professional profiles and digital skills required in the near future. Alcoy City Council, UPV, University of Alicante, vocational centers and CEFIRE Alcoy (Centre for Training, Innovation and Educational Resources) must collaborate for the implementation of this activity.
Timeframe	Length: 3 years Estimated date of implementation: fourth quarter of 2020 / first quarter of 2021 Start: 2020, Planned completion: third quarter of 2023 / first quarter of 2024
Indicators to be achieved	Increase in the number of digital job vacancies in companies (increase by 10% in a year)
Estimated cost and source of funding	Estimated cost: 100.000€ Sources of funding: regional, national or European funds
Organisation / unit in charge of delivery	Alcoy City Council, Universities and business-oriented entities

Activity 2.1.2: ÀgoraLab +	
Link to operational objective	Operational objective 2.1
Description	ÀgoraLab space extended for all the primary and secondary educational centres in Alcoy. The aim is to extend the current offer for training on digital competences to all educational levels in order to generate a further understanding and valuation of the needs and opportunities around digital transformation. In this way, young people will be able to access to training in fields such as robotics, 3D printing, software development, etc.
Timeframe	Length: 3 years Estimated date of implementation: fourth quarter of 2019 Start: 2019, Planned completion: fourth quarter of 2022
Indicators to be achieved	Number of persons accessing to digital capacitation offers (increase by 20% in a year)
Estimated cost and source of funding	Estimated cost: 450.000€ Sources of funding: regional, national or European funds
Organisation / unit in charge of delivery	Alcoy City Council together with educational centres

Activity 2.1.3: ÀgoraLab + Enterprise	
Link to operational objective	Operational objective 2.1
Description	In line with ÀgoraLab and ÀgoraLab+, ÀgoraLab + Enterprise is a space addressing companies and entrepreneurs. The aim is to provide the local retailers, SME, industries and companies in general with a training centre addressing employees and their understanding on advantages, opportunities and needs to acquire digital competences and skills. Furthermore, this activity will be highly linked to other activities such as the “Enterprise Agency”, “Digital Transformation Office” and “Training Prospection Agency”.
Timeframe	Length: 4 years Estimated date of implementation: second quarter of 2020 Start: 2019, Planned completion: second quarter of 2024
Indicators to be achieved	Number of employees, business managers and entrepreneurs attending digital related events (increase by 15% in a year)
Estimated cost and source of funding	Estimated cost: 600.000€ Sources of funding: regional, national or European funds
Organisation / unit in charge of delivery	Alcoy City Council together with local companies and stakeholders

Activity 4.3.2: Digital Innovation Hub	
Link to operational objective	Operational objective 4.3
Description	Establishment of a Digital Innovation Hub (DIH) providing capacitation, consultancy and access to technology experimentation services. The first phase of the activity would embrace the development of the Hub business model, the engagement of participating stakeholders and the creation of a service portfolio to initiate operations in the local market. Further phases will be more focused on the engagement with European networks of DIHs, the collaboration with other national and European DIHs complementing the services and thematic offer provided by the Alcoy DIH and the participation in the European catalogue of DIHs in order to increase Alcoy DIH's visibility.
Timeframe	Length: 1 year Estimated date of implementation: September 2019 Start: 2019, Planned completion: September 2020
Indicators to be achieved	<ul style="list-style-type: none"> • Number of services provided annually (increase by 20% in a year) • Number of events/workshops organised annually
Estimated cost and source of funding	Estimated cost: 60.000€ Sources of funding: national or European funds
Organisation / unit in charge of delivery	Alcoy City Council or Alicante County Council (depending on the Hub scope)

Activity 4.1.2: Pool of Digital Experts	
Link to operational objective	Operational objective 4.1 (primary) and 4.3 (secondary)
Description	Identification and configuration of an advising group of experts (preferably within a local and regional geographical scope) as a subproject within the Digital Innovation Hub project. This expert group would assist the local retailers and companies in general throughout the digital transformation process, facilitating the path and transition towards industry 4.0. This activity is the result of an analysis on the main needs coming from the economic sectors in Alcoy.
Timeframe	Length: 4 years Estimated date of implementation: first quarter of 2021 Start: 2020, Planned completion: first quarter of 2025
Indicators to be achieved	Digital innovation advice/consultancy services requested vs implemented (increase by 30% in a year)
Estimated cost and source of funding	Estimated cost: 30.000€ annually Sources of funding: own funds combined with national or European funds
Organisation / unit in charge of delivery	Alcoy City Council

Activity 4.1.3: Digitalisation Communication Channel	
Link to operational objective	Operational objective 4.1
Description	Design and setting up of a dissemination and communication channel aiming at raising awareness about the need of the digital transformation, having access to related up-to-date knowledge and information, and creating a common meeting point for interaction among the different stakeholders so that they can support and advice each other. This activity is highly linked to the activity “Business Collaboration Platform”.
Timeframe	Length: continuous in time Estimated date of implementation: November of 2019 Start: November of 2019, Planned completion: continuous in time
Indicators to be achieved	Number of active participants in the channel (increase by 30% in a year)
Estimated cost and source of funding	Estimated cost: 100.000€ Sources of funding: own funds combined with European funds
Organisation / unit in charge of delivery	UPV and business associations

Appendix II: Performance assessment framework

1. Strategy outcomes

	Expected result	Monitoring indicator	Baseline	Target	Timeframe	Means of verification
Ambition statement 1	To consolidate a communication network enabling the exploitation of current and future IoE services by the public administration, educational system, companies and citizens.	1.1 Increase in the coverage of new and existing e-services	Unknown. Survey to companies, retailers and institutions making use of the network	Increase by 50%	2019-2023	Survey to companies, retailers and institutions making use of the network
Ambition statement 2	To improve digital skillsets of human capital in order to dynamise and boost the productive processes and services in the socioeconomic environment.	2.1 Increase in the number of employees covering digital positions in companies	Unknown. Survey to companies and retailers	Increase by 30%	2019-2028	Survey to companies and retailers
Ambition statement 3	To build an infrastructure oriented to the storage, management and analysis of data generated in the different educational and socioeconomic environments.	3.1 Number of companies or new business lines created from access to open/big data	Unknown. Study and analysis of the industry sector and related businesses complemented with surveys.	Increase by 100%	2019-2023	Survey to companies and retailers

DIGITAL CITIES CHALLENGE – Digital Transformation Strategy

	Expected result	Monitoring indicator	Baseline	Target	Timeframe	Means of verification
Ambition statement 4	To foster partnering between digital and non-digital productive sectors through the creation of Hubs.	4.1 Increase in the number of digital solutions/services acquired by industries and commerce companies	Unknown. Survey to companies, retailers and business associations	Increase by 25%	2019-2023	Survey to companies, retailers and business associations

2. Strategy intermediate outcomes

	Expected result	Monitoring indicator	Baseline	Target	Timeframe	Means of verification
Operational objective 1.1	To create, consolidate and communicate about the city available infrastructure and e-services and assist the companies to access and exploit it, raising awareness on digitalisation and its benefits.	1.1.1 Number of facilities/equipment incorporated to the network annually	Unknown. Analysis of registers in the communication network complemented with survey to the network users	Increase by 15% per year	2019-2021	Analysis of registers in the communication network
		1.1.2 Increase in the broadband and speed access to the network	Unknown. Analysis of the services offer from telecommunications provider in the whole territory	Increase by 10% per year	2019-2021	Analysis of the services offer from telecommunications provider in the whole territory
Operational objective 2.1	To foster the upskilling and increase in digital contents and training offers at schools, vocational centers and companies, supported by customised platforms and programs to effectively reach the target public and prepare it for Industry 4.0.	2.1.1 Number of companies/entities with digital training programs	Unknown. Survey to companies and training oriented entities	Increase by 10% per year	2019-2023	Survey to companies and training oriented entities
		2.1.2 Number of University degrees/masters or vocational centers with digital capacitation offers	Unknown. Analysis of the local digital capacitation offer in training oriented entities and existing programs	Increase by 10% per year	2019-2023	Analysis of the local digital capacitation offer in training oriented entities and existing programs
Operational objective 3.1	To design the framework and operational initiatives adapted to the local environment leveraging the collection, management and processing of open data for business purposes, as	3.1.1 Number of applications/services created upon the data	Unknown. Survey to companies	Increase by 20% per year	2019-2021	Analysis of queries to the platform complemented with survey to companies
		3.1.2 Volume of data stored	Unknown. Analysis of the information obtained from the stored data structure	Increase by 20% per year	2019-2021	Analysis of the information obtained from the stored data structure

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	Expected result	Monitoring indicator	Baseline	Target	Timeframe	Means of verification
	well as the assessment of local economic impact generated.					
Operational objective 4.1	To create an ecosystem connecting digital service/solution providers and user companies, complemented by communication channels through which best practices and knowledge around digital are easily accessible and shared within the local industry.	4.1.1 Number of cooperation projects/agreements among digital and non-digital companies	Unknown. Survey to companies and business associations	Increase by 10% per year	2019-2021	Survey to companies and business associations
Operational objective 4.2	To define platforms and tools and support R&D and innovation activity creating the right conditions and facilitating the emergence of synergies between the different productive sectors as well as digital uptake and transition to industry 4.0.	4.2.1 Number of cooperation projects/agreements among productive sectors and business and research domains	Unknown. Survey to educational entities, business associations and institutions	Increase by 10% per year	2019-2021	Survey to educational entities, business associations and institutions

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	Expected result	Monitoring indicator	Baseline	Target	Timeframe	Means of verification
Operational objective 4.3	To design an operational entity capable of centralising and administrating the technological expertise and resources in the city's area of influence, with the purpose of offering on-demand digital-wise capacitation, consultancy and technology experimentation services to the industry.	4.3.1 Number of cooperation projects/agreements among stakeholders (education, public institutions, business representatives...)	Unknown. Survey to stakeholders in general: educational entities, business associations and institutions, etc.	Increase by 15% per year	2019-2021	Survey to stakeholders in general: educational entities, business associations and institutions, etc.

3. Strategy outputs

	Expected result	Monitoring indicator	Target	Timeframe	Means of verification
Activity 1.1.1	LoRaWAN Network (Pilot)	1.1.1.1 Number of e-services offered / used over the network	Increase by 20% in a year	January/February 2019 Continuous in time	Analysis of the data in the registration platform
Activity 1.1.2	IoT Communication Network	1.1.2.1 Number of ICT companies offering / using e-services over the network	Increase by 15 % in a year	October 2019 2 years duration	Analysis of the data in the registration platform
Activity 2.1.1	ÀgoraLab	2.1.1.1 Number of young people accessing to digital capacitation offers	Increase by 20% in a year	Since 2018 Continuous in time	Register of attendees
Activity 2.1.2	ÀgoraLab +	2.1.2.1 Number of persons accessing to digital capacitation offers	Increase by 25% in a year	September/October 2019 2 years duration	Register of attendees
Activity 2.1.3	ÀgoraLab + Enterprise	2.1.3.1 Number of employees, business managers and entrepreneurs attending digital related events	Increase by 15% in a year	May 2020 4 years duration	Survey to companies/entities
Activity 2.1.4	Training Prospection Agency	2.1.4.1 Increase in the number of digital job vacancies in companies	Increase by 15% in a year	January 2021 3 years duration	Survey to companies/entities
Activity 3.1.1	OpenData Portal (Pilot)	3.1.1.1 Number of datasets available in the platform	Increase by 20% in a year	April 2019 Continuous in time	Analysis of datasets in the platform
Activity 3.1.2	Smart Economy Development Project - Backoffice	3.1.2.1 Number of companies/entities accessing to the infrastructure per sector	Increase by 15% in a year	June 2019 4 years duration	Analysis of registers in the platform. Survey to companies/entities
Activity 4.1.1	Business Collaboration Platform	4.1.1.1 Number of companies using the platform	Increase by 15% in a year	September 2020 2 years duration	Survey to companies
Activity 4.1.2	Pool of Digital Experts	4.1.2.1 Digital innovation advice/consultancy services requested vs implemented	Increase by 30 % in a year	January 2021 4 years duration	Survey to companies
Activity 4.1.3	Digitalisation Communication Channel	4.1.3.1 Number of active participants in the channel	Increase by 30% in a year	November 2019 Continuous in time	Analysis of activity registers. Survey to companies/entities

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	Expected result	Monitoring indicator	Target	Timeframe	Means of verification
Activity 4.2.1	Enterprise Agency (Pilot)	4.2.1.1 Number of new company's products/services embedding digital technologies	Increase by 20% in a year	May/June 2019 2 years duration	Survey to companies
Activity 4.2.2.	Big Data and Small & Medium Smart Cities Congress	4.2.2.1 Number of attendees to the congress	Increase by 10%	April/May 2020 Continuous in time	Register of attendees
Activity 4.2.3	Big Data Alcoy Congress	4.2.3.1 Number of attendees to the congress	Increase by 10%	April 2019 Continuous in time	Register of attendees
Activity 4.3.1	Digital Transformation Office	4.3.1.1 Number of ICT startups created and maintained	Increase by 20% in a year	February 2020 3 years duration	Establishment and follow-up of start-ups
Activity 4.3.2	Digital Innovation Hub	4.3.2.1 Number of services provided annually	Increase by 20% in a year	September 2019 1-year duration	Analysis of services/activities
		4.3.2.2 Number of events/workshops organised annually	Increase by 15% in a year	September 2019 1-year duration	Analysis of events/workshops

Appendix III: Relevant Good practices

Community

- Àgora Emprendedores

Space for coworking around new business models at the level of entrepreneurs and intra-entrepreneurs and start-ups. It represents a first link towards the transition to a new local economy since Alcoy already has shared work spaces to develop and mature new businesses.

Digital competences of companies

- Focus Pyme y Emprendimiento

Event targeting entrepreneurs seeking to identify business opportunities and generate synergies among them, as well as showing the collaboration of organisations working in a daily basis on strengthening the business fabric and the entrepreneurial drive of the Valencian Community. It enjoys more than 200 attendees plus a company fair.

- CEEI Alcoy

CEEI Alcoy-Valencia is a private non-profit association created in 1988, which aims to promote the modernisation of the Valencian industrial fabric by lending its support to all those initiatives that involve innovation or business diversification. CEEI has a business club, offers financing services, organises workshops, courses and talks on cybersecurity, industry 4.0, e-commerce, etc. Together with the City Council, they organise the editions of the "Activa Àgora" program.

- Àgora Oberta

Àgora Oberta holds conferences for more than 300 attendees, exhibitions from creators national and internationally recognized, as well as presentations of companies, SMEs, products and new values in every area of knowledge and art. For example, Fundeum 4.0, cybersecurity talks, digital employment, business training, workshops for children, etc.

Digital skillset

- Àgora Lab

Space oriented to learning by doing and for generating a cultural change for the youngest citizens and for updating the culture among the more senior ones. Courses offered include: Robotics, Arduino, 3D printers, Videogame programming, Lego mindstorms, etc.

- Fundación Telefónica

Digital employment initiatives with the Telefónica corporation, such as cybersecurity courses within the “Digital Employment” program. “Digital Employment” is a training program on digital skills representing a great opportunity for established partnerships with companies and organisations needing to incorporate staff trained on technology, cybersecurity and web development.

- CEEI Alcoy

Governance and leadership

- Alcoidemà City Strategy
- Smart City Director Plan

Open Data

- Alcoy Open Data Portal
- I Big Data Alcoy Congress
- DCC Open Data Working Groups

Support Services

- Inmpuls
- Initiative for supporting entrepreneurs on business plan preparation.
- Àgora
- CEEI Alcoy

Appendix IV: Bibliography

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3. Covenant of Mayors for Climate & Energy.
4. ERDF Funds– 'Fondos FEDER' – 'DUSI Strategy' – 'Europe Strategy 2020'.
5. Initial Strategic Plan of Alcoy 2018-2025: PLAN OF ACTION.
6. Smart City Alcoy 2017-2020 Master Plan.
7. Strategic city plan 'Alcoidemà' 2017-2015.
8. Strategic planning of participatory democracy and participatory budgets.

Appendix V: Stakeholders consulted

Education
Several teachers of several departments of the UPV and EPSA (Polytechnic University of Valencia / Higher Polytechnic School of Alcoy)
Raúl Poler Escoto; Professor of the UPV/EPSA; Director of Centre for Research in Management and Production Engineering; Department of Business Organization
Raúl Rodríguez Rodríguez; Lecturer of the UPV; Centre for Research in Management and Production Engineering; Department of Business Organization
Adolfo Hilario Caballero; Lecturer of the UPV/EPSA; Department of Systems Engineering and Automation
David García Sanoguera; Lecturer of UPV/EPSA; Deputy director of the EPSA of Master's Degrees and Continuing Education; Department of Mechanical and Materials Engineering
Ana M. Garcia-Bernabeu; Lecturer of the UPV/EPSA; Department of Economics and Social Sciences
Manuel Llorca Alcón; Local Expert; Lecturer of UPV/EPSA; Deputy director of the EPSA of Infrastructures and Services; Dept. of Computer Systems and Computers
Jordi Linares Pellicer; Lecturer in UPV/EPSA; Dept. of Computer Systems and Computers
Francisco Manuel Díaz-Madroñero Boluda; Lecturer of the UPV/EPSA; Department of Business Organization
María Francisca Sempere Ripoll; Lecturer of the UPV/EPSA; Cluster Innovation Group; Department of Business Organization
Several teachers of several departments of the UA (Alicante University)
Faraón Llorens Largo; Professor of the UA; Department of Computer Science and Artificial Intelligence
María del Carmen Pastor Sempere; Lecturer of the UA; Director of Blockchain Lab inter-university BAES; Department of Commercial Law and Procedural Law
Company/Industry
Korott S.L.
Erum
adSalsa
Germaine de Capuccini
Unión alcoyana seguros
Viuda de Tadeo Juan
Acceseo
Diagram Software
Inprofit
Otus
Multiscan
Aceitunas Serpis
Pascual y Bernabeu SA; Aquaclean.
Brands Land
Public Administration:
Representatives of several departments of the Alcoy City Council, like, economic promotion, new technologies, innovation and engineering
Councilor of company, training and innovation, territory and smart city of the municipality of Alcoy
Technology/Innovation Centers:
Aitex textile research institute
CEEI

Industry Association:
Chamber of Commerce
FEDAC (Business Federation of the districts of Alcoià and Comptat).
Infrastructure / telecom / utility company
Aqualia
Vectalia Alcoy
Telefónica
Leadership Team
Lead Expert
Local Expert
City Project Manager
OpenData Manchester

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