



6.2 SUPPORT SERVICES FOR INNOVATIVE AND TECHNOLOGICAL SMES MANUAL

GUIDELINES FOR AN EFFECTIVE SUPPORT TO THE SMES
IN DEVELOPING OF NEW PRODUCTS & SERVICES
UNDER A DEMAND-DRIVEN APPROACH

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1 - INTRODUCTION

1.1 DOCUMENT PURPOSE

We want our cities to be efficiently managed and more liveable for communities, that's why public authorities and SMEs have to work together to come up with the best technological solutions. This manual is intended to ease the path for an effective cooperation, showing what has been achieved during the implementation of SME4SMARTCITIES project.

If you are an innovative and technological SME operating in the Mediterranean area you might find very useful information by keeping on reading this document. Learn how the co-creation experience among the Mediterranean SMEs involved brought high-tech products and solutions in response to challenging urban issues in Italy, Spain and Israel. Discover who are the urban actors for innovation in the territories involved and which deployment strategy might suit you best in order to effectively present and get financed for the development of your innovative solution.

If you are a public servant working for urban development, the following contents will present you food for thought in developing effective and fruitful cooperation strategies with Mediterranean SMEs through the Public Procurement process for innovative solutions.

Does your organization support SMEs business development? Learn how this broad business support network managed to put together different skills and fostered the co-creation of innovative solutions for urban challenges in the Mediterranean smart cities involved

1.2 SME4SMARTCITIES: A BRIEF OVERVIEW

SME4SMARTCITIES is an EU funded project, framed within the ENI CBC Med Programme aiming to strengthen the collaboration between Mediterranean SMEs and cities around the Smart City sector. Started in September 2019 and finished in September 2023, the project was led by CEEIM - Business Innovation Centre of Murcia (Spain) with the joint effort of its international partnership which included European Business and Innovation Centre (BIC EURONOVA) in Málaga (Spain), FILSE Financial Agency of Liguria Region (Italy), Tel Aviv University (Israel) and Municipality of Kfar Saba (Israel).

More specifically SME4SMARTCITIES aimed:

- To support the Mediterranean technological and innovative SMEs in the development of new products and services that answer in a more efficient, smart and sustainable way to the urban challenges faced by cities.
- To improve Mediterranean SMEs' competitiveness, their internationalization opportunities and their capability to create new knowledge resulting from cross-border cooperative processes.
- To help cities be the front-runners of innovation, in particular through the use of Public Procurement of Innovative solutions.

Beside the tools and resources publicly available within the [SME4SMARTCITIES web platform](#) (as a result of the activities conducted in the project), the partnership launched a call for proposals for sub-grants aiming to support SMEs in developing innovative and technological solutions to major urban challenges faced by Mediterranean cities participating in the project.



The application to this call for sub-grants consisted in a two-step process; a first (or concept note) step and a second (or full application) step. After pre-selecting 49 innovative SMEs in the first step, the beneficiaries were engaged in a dedicated training programme designed to support SMEs in the development of new Smart City products and services, improve their competitiveness & internationalization capacities, and enhance their skills to reach public procurement opportunities.

Given the COVID-19 pandemic situation, the programme was designed to be followed primarily online. The following activities and materials can be considered as part of the programme:

- Online course on Smart Cities with an e-learning methodology to be followed asynchronously and composed of 6 modules. Apart from the written content and supporting resources provided for more than 50 topics, the course offers interesting interviews with experts, other audiovisual material and self-assessment tests.
- E-coaching service provided through the project platform. Project partners made available to all pre-selected SMEs within the 1st step of the project call an e-Coaching & business e-assessment service. They have been given the possibility to book individual tutorial sessions with 8 experts, coming from partners' organizations, and covering a wide range of topics
- Webinars and workshops joining together SMEs, civil servants and Smart City experts: Exchange webinars mainly addressing civil servants and local authorities' representatives and aiming at awareness raising about the cities needs and about what smart cities solutions can provide them. Green & innovative procurement was also tackled; Exchange webinars enabling relevant stakeholders to explain to SMEs the cities' needs, the social and economical situation and other relevant information of the project territories; Workshops joining together SMEs, cities' representatives and experts, and addressing key topic of the SME4SMARTCITIES project.

In parallel with the completion of such training, the SMEs were involved in matching activities during and after four entrepreneurial missions in Italy, Spain and Israel, aiming to support the co-creation and co-innovation of innovative proposals for the 2nd full application step of the call. Fostering collaboration between SMEs & cities, as well as cross-border cooperation among SMEs, the applicants were in fact invited to join their skills and submit their innovative and technological solutions in reply to the Mediterranean urban challenges identified by the project for each region involved.

A total of 18 innovative co-created pilot solutions were presented and 7 of them were selected to be implemented with the financial support of a sub-grant ranging between 30 and 40 thousands euro.

In the following pages we will share with you as much as possible about their deployment in order to help you understand possible issues and opportunities in the cooperation with the cities and territories involved and more in general with innovative and technological SMEs.

1.3 METHODOLOGY AND PARTNERS CONTRIBUTIONS

In the occasion of the final congress hosted in Malaga by BIC EURONOVA on 20th and 21st June 2023, FILSE organized and coordinated a workshop to engage the attending SMEs and stakeholders and giving them the opportunity to think and highlight ups and downs in the project development of their pilots in order to offer tips and testimonies for this manual. The participants had the chance to meet together for the first

time after a long time since the co-creation meetings organized in the commercial missions (A.5.1.3) and they were very eager to talk about their experience.

To facilitate this process and help them in the task, FILSE proposed a variant of the MoSCoW method in order to understand how/if their project development approach changed. The MoSCoW method is used in many different contexts of product/business development in order to prioritize activities and features. The name of the technique is an acronym, where each consonant letter defines a priority category:

M – Must: the requirements that are critical and must be applied to a product as a matter of priority. Even if one of them is not taken into account, the release is considered to be unfulfilled.

S – Should: requirements important but not critical for the release. Such requirements are not very sensitive to time.

C – Could: desirable but not mandatory requirements for your release. These are usually low-cost improvements for the product.

W – Would: these are considered the least critical or may not correspond to the product strategy at all. They can be ignored and be revised for future releases.¹

The method consists in taking all the features / activities to be developed during the project and write them down on post-it stickers and put on the chart. Since the workshop aimed to gather testimonies and tips about the entire project development process, the MoSCoW method presented a contingency flaw: the chart reflects the priorities in a specific moment. The issue was overcome with a very simple role game, a fictional travel with a time machine that enabled the participants to focus on three specific time frames:

- **Past time** (2021) SMEs were applying to SME4SMARTCITIES call and thinking about their future project. Stakeholders had to focus on the features of the urban call as they prioritized them in the urban challenge description²;
- **Present time** (Malaga, 16th June 2022) SMEs and stakeholders were asked to describe the current status, considering how priorities / features changed in the co-creation phase and in the deployment of the pilots;
- **Future time** encountering a very similar call for ideas opportunity as in SME4SMARTCITIES, the participants were asked to define their priorities / awaited features taking into consideration their current experience in the field and the lessons learned from SME4SMARTCITIES.

Their positive attitude towards the workshop helped a lot to gather their opinions without having to further engage them with other tailored activities. In fact, the activity prepared for the second part of the workshop was replaced by a spontaneous roundtable session as the whole group took the chance to express their thoughts and to share useful insights for this manual that will be included in the conclusive chapter.

On the contrary, the attendance did not reflect the actual composition of the main actors involved in the pilot's implementation. Specifically a SME leading one of the pilots deployed in Spain and urban government

¹ <https://university.hygger.io/en/articles/1635172-moscow-prioritization-method>

² Supposedly an easy task as they had just to recall the awaited features put in the call, this exercise was adapted to the two participants who did not participate in this specific project phase. Both of them were invited to grab the chance to try and see how their priorities related to the tasks they managed in this project changed through the different time frames.

stakeholders from Israel were also not available. Hence the contents included in this document are the result of the joint effort of SME4SMARTCITIES partners that successfully managed to collect locally other useful insights for its completion. The whole activity and the drafting of this manual were coordinated by the Italian partner FILSE, as responsible for the 6.2 deliverable.

2 - ITALY

2.1 URBAN CHALLENGE AND SOLUTIONS

The urban challenge identified by FILSE with the cooperation of the Genoa Municipality, associated partner in the SME4SMARTCITIES project, addressed the general topic “Climate change adaptation and improvement in urban regeneration, connections and healthy of public spaces, cultural heritage fruition via smart facilities” but was actually further detailed as a two-parted call for solutions.

One of the two sub-challenges addressed the specific topic of the “Urban regeneration of public spaces in relation to Climate Change” which aimed to regenerate neighbourhood spaces spread across the Genoese territory. At the same time, it focused on stimulating attention and improving the offer of comfort areas with high air quality standards for their wider public use bringing the following benefits:

- Better liveability of city neighbourhoods
- Increase in availability of regenerated spaces that can be used in a multifunctional and equipped way, in accordance with spontaneous behavioural changes or required by the population, which can count on a renewed public heritage.
- Information service useful for citizens to stimulate a different fruition of the territory.

In order to achieve these objectives, the solution needed to provide a suitable toolkit for public spaces to become climate proof through smart technologies implementation: a smart grid of combined ICT grey measures (satellite data or IOT facilities) to identify criticalities on air quality plus climate related parameters in the identified spaces. Thanks to the use of smart applications such as those providing information for the design of spaces, the expected solution had to offer a positive perspective vision on territorial retaking both intercepting the stimuli matured with the critical issues related to the persistence of the pandemic emergency and including a research about the regeneration of the city’s interstitial space, often underused.

A second sub-challenge addressed the specific topic of “Business Continuity in relation to Climate Change” in relation to a peculiar urban environment in the city of Genoa which is the UNESCO heritage site “Strade e Palazzi dei Rolli”. The pilot project had to be developed to be tested over 3 of the 42 most important buildings included in the site in order to monitor the critical infrastructures in relation to climate change and its effects verifying their temperature conditions, thus slowing down the natural degradation of structures and materials of construction. At the same time, the solution needed to offer an alternative use of visits through the virtualization of the buildings, as well as the creation of role-playing games for a new and unprecedented Genoa, resulting in the following benefits:

- Predictive maintenance elements on structures related to the expected climate change effects and the synergy with polluting elements
- Renewed and innovative use of city’s identity and cultural heritage

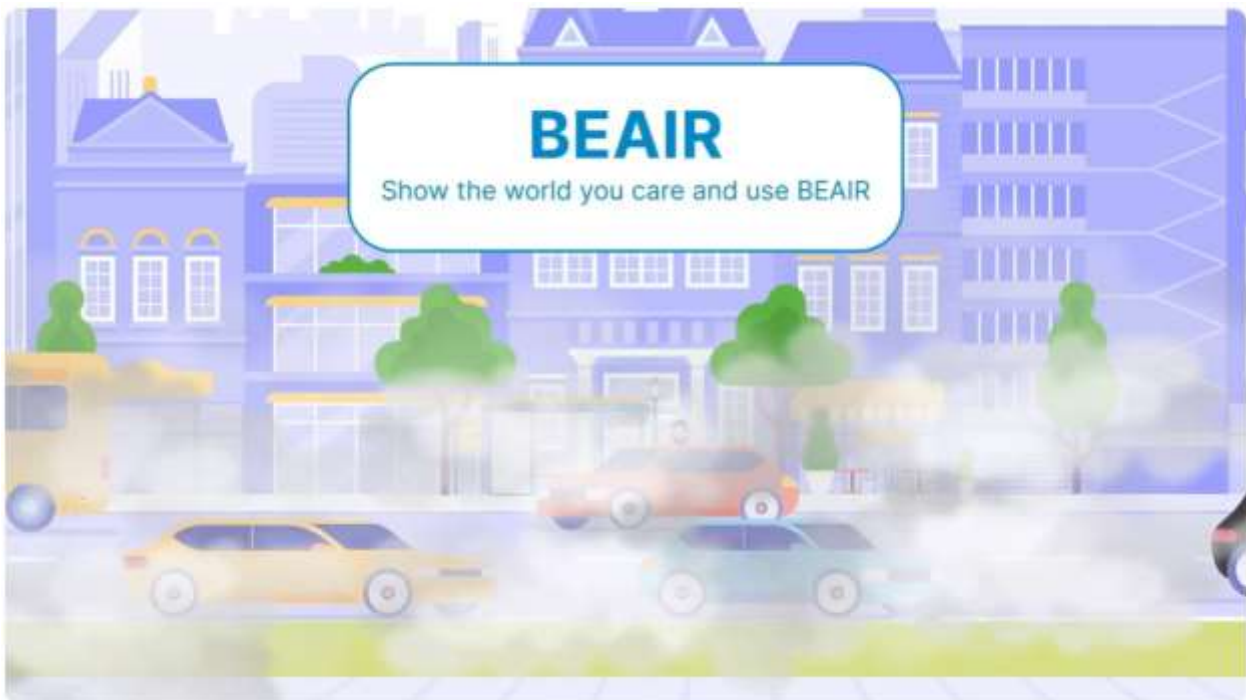
- Increase of visitors and distribution of cultural, museum and informative products

The innovative proposals needed to provide a mapping tool for the conservation status of buildings, an interoperable monitoring dashboard combined with proximity sensors for data collection and a mapping of intermediate points to become multimedia visit poles with the possibility of online access through multilingual and multigenerational Hi-Tech services.

Resulting from the co-creation activities, a total of five project proposals were presented for the call: BEAIR and IN-HERITAGE were selected as the best fitting innovative solutions for the two sub-challenges.

BEAIR

Smart traffic light crossings to alert cars about pedestrians in the crosswalk. State-of-the-art sensoristics featuring cameras that can monitor any pollutant gases even remotely in the air (and on the move) and send alerts via a smartphone app. The same app will also let the citizens organize their commuting in a sustainable way, sharing routes and cab fares, for example. This (and much more) is **BEAIR**, the project presented by Italian company **CALIFORNIA INNOVATION GROUP** together with the Israeli company **MAGNA BSP** and the Spanish company **ACTISA** to improve the offer of comfort areas with high air quality standards for their wider public use.



Click on the image to watch the video presentation

Solving the air pollution issue is primary but created a forum for care and focus on other urban contaminates. Traffic, pedestrian safety using smart crosswalk from California Innovation Group. Citizen safety -crime - rapid response using Magna software and technology camera (AI). General ability to navigate and understand a place where one lives using the application IRMAPP form Actisa.

All three partners in the BEAIR project have devices and systems incorporated to monitor air quality. California Innovation Group in the smart pole of the smart crosswalk has an air quality monitor that can

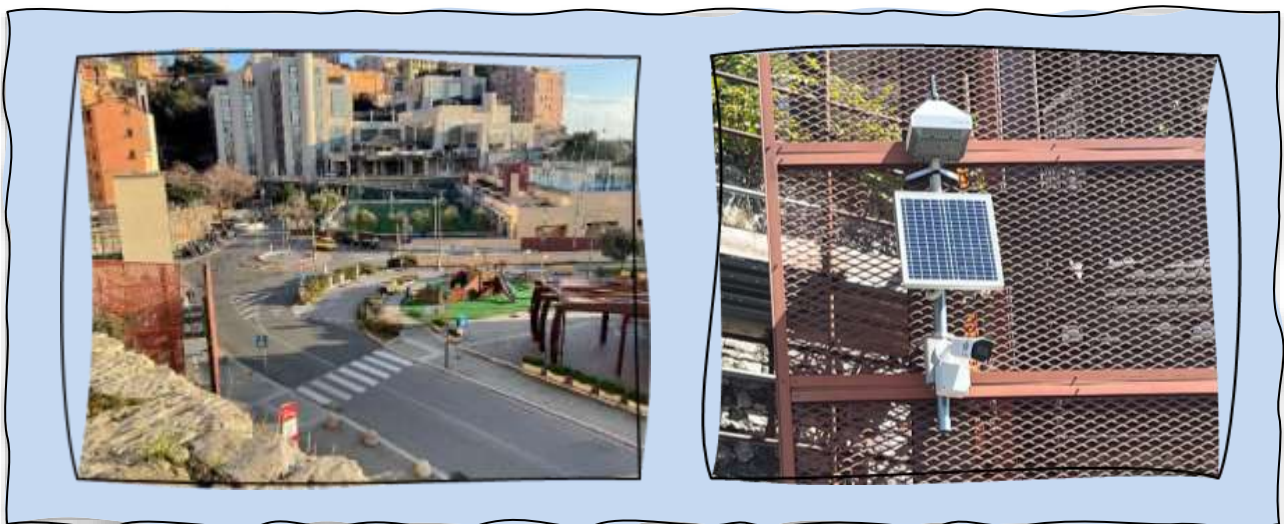


SME4SMARTCITIES

detect and report up to six kinds of toxic gases. It has a daily and long term ability to analyse and study air in the area around it. Magna has a smart camera with advanced technology and artificial intelligence (AI) that also measures air quality as well as detecting other elements such as sand and toxins (different from the one present in C.I.G. system). Actisa application (IRMAPP) has an air quality report and real time updating and informing of air pollution and quality.

The pilot was deployed in via della Marina, Genoa, close to Sant'Agostino subway station in August 2023, a street in Genova near the port, but also sharing a wall with the historic district of the town was selected. This street is busy but also focused on being a health hub, with an indoor gym, outdoor workout facilities, a subway stop, a small restaurant and a green park all connected to a parking facility and a busy highway right above.

The smart crosswalk is solar panelled so a sun exposed area was important. All features on this advanced crosswalk are controlled by minimal electricity and maximum solar force. The crosswalk itself is designed to be attractive but not invasive and based on sensors and IRWL lighting as well as studied and approved lighting that alerts drivers and pedestrians but does not overwhelm them. The IRWL are very effective to bring attention to the crosswalk but do not distract the driver. The smart crosswalk also has The Air Quality Monitor which is placed in such a way that it functions at its utmost capacity, collecting and storing data, disseminating information, sending alerts when necessary and also just extending basic much needed information in order for citizens to determine what they can or cannot do in terms of air quality connected activities.



The camera with the Advanced A.I. is also situated on the crosswalk. This location offers a good viewpoint access to a city camera that with the software of MAGNA can be utilised to understand the realities of the safety of the surrounding. In terms of traffic issues as well as overall security and safety for individuals like robbery and aggression, graffiti and general urban safety issues.

The last part of the project but not the least is the application which is connected to the other parts of the crosswalk and through a smart device dispels a host of valuable and pertinent information to people

wanting to know about anything important happening in Genova as well as alternative transportation offers, cab sharing, buses, and much much more³.

IN-HERITAGE

The second city sub-challenge was addressed by the innovative solution **IN-HERITAGE** tackling the need for monitoring and safeguarding the Genoese historical cultural architectural heritage composed of the Rolli Palaces UNESCO site. Thanks to the web platform created by Italian SMEs **Artys Srl** and **PM_TEN s.r.l.** together with the Spanish company **HOPU**, the solution makes it possible to check the condition of the buildings and intervene in advance on the effects of pollution and climatic changes.



Click on the image to watch the video presentation

The detailed information made available allows a better management of the building deterioration risk and an accurate planning of remediation interventions while supporting a shared knowledge on the role of environmental conditions on the heritage. The co-creation story, evolution and results of IN-HERITAGE were enthusiastically presented during the spring edition of [Rolli Days 2023](#) at Palazzo Tursi. The focus was on the surveys conducted at Palazzo Reale and Palazzo Spinola di Pellicceria, which are part of a broader project overseen by the museum institutions that aims to create a management, conservation, and maintenance system for these structures, representing a fundamental step towards the long-term preservation of these important historical buildings.

IN-HERITAGE demonstrated a new model for historical buildings preservation from climate change effects and environmental agents that can be easily replicated by combining an ICT knowledge sharing strategy, to effectively understand and communicate the impacts of environmental best practices undertaken by the authorities with non-invasive, replicable and sustainable technologies, live low-power IoT sensors, low-cost

³ BEAIR Subgrant Narrative report (30 June 2023)

UAV/UAS monitoring tools and publicly available EU Copernicus Remote Sensing products. The platform can also be used to measure the impacts of environmental initiatives undertaken by the local authority, such as regulation of fossil fuel mobility or energy transition policies, not only limited to the positive impacts on historical building safeguards.



The established relationship with the Genoa Municipality allowed IN-HERITAGE to be presented within Genoa UNESCO Piloting Committee, an important initiative to follow-up the project towards recapitalization and replication of the project results. Thanks to the action and the collaboration with the City as a potential customer it was possible for the IN-HERITAGE team to apply to the ESA INCUBED Cultural and Natural Heritage thematic call, another follow-up opportunity for the development of the solution that was piloted in Genoa. In addition, the team is working on presenting an application for the next round of RDF call for innovative SMEs. Artys is also participating in matchmaking activities in the framework of the European Collaborative Cloud for Cultural Heritage that promotes the digitization of historical buildings and knowledge sharing at EU level.⁴

2.2 ACTORS INVOLVED

FILSE - www.filse.it

FI.L.S.E., as in-house structure, is the technical body that supports and assists the Liguria Region Government in planning and implementing policies and interventions to support the economic and social development of Liguria Region. The range of action of FILSE refers in particular to technical and operational support, environmental regeneration policies and support for economic development, the management and programming of public financial instruments for Ligurian SMEs and public entities, the definition of an institutional, regulatory and management architecture for the new innovation and research strategy and the constant development of projects and services aimed at supporting every sector of the Ligurian economy.

FILSE has more than 20 years of incubation best practice experience, with its regional incubators (Genoa and Savona) and offices in Imperia and in La Spezia, settled in the local Chambers of Commerce. It is

⁴ IN-HERITAGE Subgrant Narrative report (30 June 2023)



member of EBN – European Business Innovation Centers Association, the leading pan European incubator and innovator network. FILSE supports development of domestic companies and internationalization, promoting competitiveness, economic and business development policies and processes, creation, innovation and growth of SME. It operates to assist and enrich territorial vocations, working in synergy with the local Institutions. Furthermore, FILSE is engaged in several European projects as a partner / lead partner to support business creation, and other local/national projects.

As the Italian partner involved in SME4SMARTCITIES project development, FILSE had a pivotal role in the engagement of the SMEs in the call for innovative solutions and during the Mediterranean commercial missions, providing also support in the communication activities and budget reporting for the ENI CBC MED Programme.

GENOA MUNICIPALITY - smart.comune.genova.it

The Municipality of Genoa is the local public authority for a city of 592.507 inhabitants. The Culture Department of the Municipality of Genoa is the mover of a composite cultural system which pursues a new idea of culture, science and research. The preservation of the artistic and cultural heritage, the enhancement of its value, the awareness of its relation with the re-qualification of the territory, and finally the implementation of the Museum and Library Municipal Services, are the elements of the City Territorial Marketing Strategy.

The action of the administration focuses on:

- fostering the Creative and Cultural Industries (henceforth CCI) gathering in clusters
- organising meetings between CCI and mature sectors
- organising training on managerial, legal, financial topics and capacity of fundraising and access to market strategies
- initiating measures to promote CCI as drive to urban regeneration
- promoting the networking of professionals
- making available the results of studies to the SMEs
- supporting the internationalisation of companies by involving them in EU projects and in territorial marketing actions.

The municipality of Genoa was involved as an associated partner in the framework of SME4SMARTCITIES and supported FILSE in the definition of the urban challenge (and sub-challenges) for urban innovative solutions.

Job Centre - www.job-centre-srl.it

Job Centre is a single-member company owned by the Municipality of Genoa, subject to its direction and control. Its statutory mission is to support the Municipality of Genoa through actions in the field of social research, project development, service provision, consultancy, technical assistance, and the transfer of methodologies in the areas of information, career guidance, human resource management, employment, local development, and support for entrepreneurship.

At the moment Job Centre manages Genova Blue District, an aggregator of territorial subjects working on Blue economy with the aim to gather public administration, research centres, start ups and innovators, big companies, associations and citizens to develop new projects on innovation and sustainability. It manages



the circular economy desk with the aim to develop a city circular economy strategy; Job Centre manages Nova portal, a showcase for local start-ups where highlight their products and services and to create networking with the local ecosystem and it is involved in the process of urban regeneration of the historical centre through supporting the *Bonus affitti* desk and the EU project Hub-In

Moreover the company:

- Conducts social studies, feasibility studies, and market research.
- Prepares, presents, and manages projects funded with national and European resources.
- Develops and manages local development plans and complex territorial projects.
- Designs and/or provides individual orientation services, job placement support, and outplacement.
- Plans and implements the transfer of methodologies through information sessions, operator training, and technical assistance.

The Job Centre also supports the design, monitoring, and reporting of European projects carried out by the Municipality of Genoa, as well as the issuance and management of calls for support to businesses. In the framework of SME4SMARTCITIES project, Job Centre staff supported the SMEs as a technology developer in the development of the co-creation activities and in the deployment of the selected innovative solutions pilots.

California Innovation Group (Italy) - cig-it.com

California Innovation Group is focused on improving pedestrian safety as well as air quality and the overall well being of all citizens tackling environmental issues in direct connection to all aspects of smart cities. Identifying and applying innovative technologies that are used in Smart Cities to fix urban challenges associated with environmental pollutants and overall health and well-being of the citizen.

Artys (Italy)- www.artys.it

Formerly a spin-off of University of Genoa (Italy) and now a branch of the innovative SME Darts Engineering, Artys deals with advanced environmental monitoring systems development, production and marketing. Their solutions are relevant for hydrogeological risk management, urban mobility management, citizen and institutions safety and business safeguard.

MAGNA BSP (Israel) www.magnabsp.com

Leading innovator in the field of Homeland Security surveillance solutions, and today occupies a respected place at the forefront of the industry. Over the years Magna BSP developed more than ten adaptable and customizable passive electro-optic radar security systems that now protect some of the world's most sensitive governmental and industrial facilities, including international borders, nuclear reactors, gas and oil facilities (both on land and at sea), seaports, airports and more.

ACTISA (Spain) - www.actisa.net

ACTISA S.L. provides an advanced profile of technical in civil works, architecture and transport, carrying out a wide range of projects from initial conception and feasibility studies to construction projects for new infrastructures. ACTISA carries out technical assistance to public bodies and private companies that involve the application of new technologies or techniques, allowing the generation of new lines of research, innovation and development. The company has its own innovative technological products resulting from its research and innovation activity. ACTISA also specialise in electromobility, having carried out a wide



range of projects in this field, covering the study and design of charging stations and their subsequent installation.

PM_TEN s.r.l. (Italy) - www.pm10-ambiente.it

PM_TEN offers a connection between the world of academic research and the business market, from one side proposing applications of results of research, in particular the activity developed in the Environmental Physics Laboratory; and from the other side, being itself a driving force for new progresses of the methods developed in the academic context.

HOPU (Spain) - <https://hopu.eu/es/> [Libelium <https://www.libelium.com/>]

HOPU focuses on the research and development of networking protocols, security and Internet of Things solutions. HOPU specializes in scalable and advanced monitoring with different sensor combinations in our Smart Spot product line. In addition, HOPU offers the customization, design and development of ad-hoc applications for Smart Cities (urban innovation), Smart Destinations (tourism impact, crowd monitoring and citizen participation) and Environmental Monitoring (Air Quality, Noise, Temperature, Humidity, etc.), weather stations and optimization of irrigation water for gardens. Therefore, HOPU promotes the Internet of Things as the reference technology for creating smart environments.

2.3 WHAT YOU NEED TO KNOW

The cooperation between SMEs and the Municipality of Genoa is mainly regulated by the following tools of urban governance:

GENOA BUSINESS UNIT

The Genoa Business Unit works to regenerate the city's industrial heritage, rich in traditions and crafts. The focus of the Genoa Business Unit is to strengthen the local ecosystem, by fostering the match between supply and demand of entrepreneurs, professionals, and industrial heritage, to enhance the territory. A service for the city to investigate growth needs and to increase business. A focal point to match companies, investors, and people, regenerating Genoa by its locations, skills, and ideas.

Website: <https://smart.comune.genova.it/sezione/genoa-business-unit>

Mail: genoabusinessunit@comune.genova.it

Phone: +39 010 5577424 — +39 010 5572690

GENOA LIGHTHOUSE STRATEGY

Genoa Lighthouse Strategy is a programmatic initiative, with a shared and inclusive vision, intended to recognise priorities and tools in order to prevent risks, mitigate impacts and strengthen the city's urban, economic and social fabric.

The Genoa Resilient project, named Lighthouse, represents an initiative with a strongly shared and inclusive vision – aiming to identify those priorities and tools to prevent risks, mitigate impacts and strengthen the urban economic and social fabric of the City, – and moves from a process based on the local, but also national and international, networking on these issues, which the City of Genoa has been carrying out for some years. As described in the box, the Local Strategy has been divided into three major Assets: Innovative Infrastructures, Urban Regeneration and Communities/Enterprises.

Both for the definition of the Strategy and the City's Action Plan, the actors involved for each asset (GREY, GREEN, SOFT) were: • the political subjects • the Institution's managers • associations, consortia and trade



orders delegates, representing the different sectors • metropolitan and regional public institutions • representatives from the business and industry world • representatives from the research

That's why [a close reading of this strategic agenda](#) would be a good starting point prior to submitting or starting any cooperation B2G proposal with the municipality of Genoa.

GENOA SMART CITY ASSOCIATION

Thanks to an inclusive process of network between companies and under the guidance of the Municipality of Genoa, the association supports the city of Genoa in the process of transformation towards a Smart City, through a single planning table that involves all stakeholders, creating links between development strategies and business opportunities, projects and funding, also through dialogue and comparison with other Italian and foreign cities.

Website: <https://www.genovasmartcity.it/en>

Brochure: https://www.genovasmartcity.it/files/ugd/a64b3b_9c6cf5f1b01a49e4a3a0cdf136ae401d.pdf

Mail: genovasmartcity@comune.genova.it

Phone: +39 0105575268

2.4 TESTIMONIES

GENOA MUNICIPALITY

“The Municipality of Genoa participated in SME4SMARTCITIES by initially responding to the invitation to identify two urban challenges. The SMEs that took part in the project proposed very interesting and innovative solutions, seizing the several issues enclosed within the urban challenges presented. The project provided an opportunity to engage with other partners who developed solutions for different although commonly found urban issues, thanks also to meetings between startups, SMEs, and cities organized at different times and in various locations. This can be considered one of the strengths of SME4SMARTCITIES, as it is a project aimed at exchanging best practices and innovative solutions for common problems. Through these meetings there were discussions about other potential projects and evaluations regarding future trials of solutions/products developed within SME4SMARTCITIES are still ongoing. The project has thus allowed for the strengthening of existing relationships, such as that between FI.L.S.E. S.p.A. and the Municipality of Genoa, and for the creation of new contacts that could lead to future collaborations.” Silvia Campailla, Officer at Economic Development Area – Genoa Municipality

JOB CENTRE

“Job Centre took part in SME4SMARTCITIES project with the role of Technological developer. This task has been addressed in a dual approach: from one side Job Centre helped the candidates to match each other to propose the best solution to respond to the city challenges, from the other it adopted a problem-solving strategy to adapt the solutions proposed by the select start-ups to the bureaucratic restrictions and administrative procedures of the Genoa Municipality. Indeed even if public administrations adopt strategic plans that foresee innovative processes, these processes result hard to implement due to the long decision-making processes and muddled procedures.

The challenges proposed by the Municipality of Genoa themselves presented elements of complexity both from the technological point of view and from the implementation side because the establishment of the solutions foresaw the interaction of different sectors. At the moment there are no standards for innovation processes. Open systems could be the best solution to being accepted from the public administration and to

being integrated with other solutions. They could be the paradigm to respond to the new challenges launched by the themes connected to the smart cities such as climate changes, pollution, or mobility issues.

The Nova Platform and the Smart City association are some solutions offered by the Municipality of Genoa to put in contact start-ups and public administration in a way to integrate competences and creativity. Solutions like these could be one of the tools to respond to the challenges of the cities of today.” Claudio Oliva, Director – Job Centre

IN-HERITAGE

“The innovative solution we developed was initially offered as a private pilot testing to private owners of the historical buildings in Genoa city centre with no success. Thanks to the involvement of the Genoa municipality the pilot was tested on public owned buildings. The support of the municipality was effective, allowing the pilot and the company to be known also by the private owners. We got small but effective results in a very specific field with a lot of work, that’s why in the future we would focus the attention on high priority features rather than on other minor improvements” Emilio Calvauna, Risk Assessment Specialist - Artys

BEAIR

“The municipality of Genoa provided constant feedback, solving any issues, engaging different departments for improvement, as we were working on historical sites. The project gives a fantastic opportunity for cooperation with different partners and other SMEs, participation in different calls for proposals, possibility to know how to do better proposals. The project made possible to have direct feedback on how to improve the product and collect data about possible issues. The budget available was not the main asset of this experience. There has to be a projection, an investment on the opportunity to show what you can do and how far it can go. It’s a way for the public stakeholders involved to test before buying and it has revealed as a great opportunity to sell the concept.” Jose Miguel Garcia-Hollman, CEO – California Innovation Group

3 - SPAIN

3.1 URBAN CHALLENGE AND SOLUTIONS

The urban challenges identified by the Spanish partners CEEIM and BIC EURONOVA with the cooperation of Málaga and municipalities of the Region of Murcia called for innovative solutions related to urban mobility topics and were actually managed separately.

The Murcia Urban Challenge called for “Smart use and monitoring of parking spaces for people with reduced mobility” to be implemented for testing in Murcia, Cartagena, Molina de Segura, Yecla. The development and installation of sensors for a specific number of parking spaces, and the development and implementation of the necessary hardware and software, had to result in the following benefits:

- Helping people with reduced mobility know remotely the location of dedicated parking spaces, among those monitored with the sensors, and check if they are free or occupied.
- Allowing the city servants, and/or subcontracted company for the service management, to monitor the situation of the parking spaces for people with reduced mobility, facilitating the decision-making process for a correct and efficient provision of the service.



To achieve these goals, the solution had to include the development of a mobile app downloadable free of charge allowing people granted with a reduced mobility parking card to register, for example by entering their own QR available in their respective cards. Once registered, users would be able to see a map of all the monitored parking spaces reserved for this group of citizens. In addition, the app had to show the situation of all these parking spaces (free or occupied) and, by geolocation and the closest one to the user's location.

The Malaga Urban Challenge called for "Easy and safe usage of electric vehicles" for the city of Malaga to facilitate the sharing use of electric vehicles (EV). On the one hand, the innovative solution had to provide the sharing vehicle with a "universal" portable charging adapter, which can be plugged into any domestic electrical slot for slow charging of the vehicle, or in other different charging stations. That is, those users who take the car home and live in an area where there are no chargers or they are different, can recharge it at home or nearby.

On the other hand, considering the COVID protocol's experience, the solution had to provide some technology to sterilise and disinfect the interior of the car after use, quickly, economically, and efficiently. Complementing the figure, the solution had to be incorporated into existing APPs for the management of shared vehicles, precise information on the vehicle's disinfection status or on whether or not it has a universal recharging kit.

Resulting from the co-creation activities, a total of three project proposals were presented for the call: PARK4DIS and QUICK were selected as the best fitting innovative solutions. The following descriptions of the innovative solutions showcase their main features and up to date information from their implementation final reports.

PARK4DIS

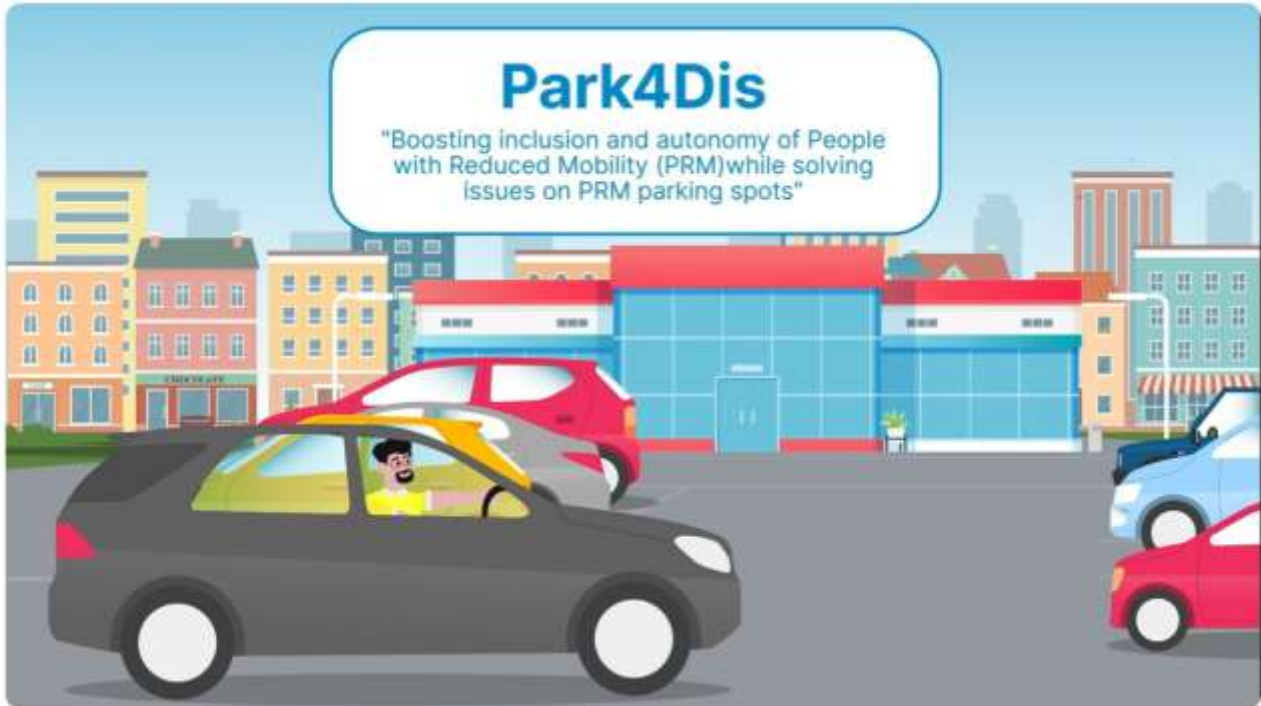
In Spain, a total of more than 1 million drivers with reduced mobility and holders of the European disability parking card are estimated and in Europe more than 15,000,000. For them, knowing if they will be able to park near their destination is the difference between having total autonomy or staying at home. The main objective of Park4Dis® is to improve their autonomy and inclusion, regarding their journeys by car.

Park4Dis® is a transversal and interurban solution that shows the reserved spots and other parking spaces allowed for people with an EU disability parking card in any territory, facilitating their autonomy and inclusion. It adds on a single platform, in a simple and accessible way, the relevant information that a person with reduced mobility or disability needs to be able to park near their destination in more than 250 cities (10 countries).

Park4Dis® provides the user, completely free of charge, with a web/app (Park4Dis® People) that allows them to:

- locate parking spots and be guided to their destination,
- access the regulations on other permitted parking spots, report incidents,

- add People with Reduced Mobility (PRM) parking spots as a volunteer and reserve spots (where allowed).



Click on the image to watch the video presentation

In addition, it provides a complete management system (Park4Dis® Admin) to public entities to be able to comply with state and regional laws and improve the experience of PRM users, collaborating in the paradigm shift from Smart City to Smart Human City, which is being promoted by Fundación ONCE, which formally supports this social project.

Finally, it provides access to a library (Park4Dis® API) with information so that other applications can include Park4Dis® information into their systems and provide it to their users (location of PRM parking spots, free/occupied, other parking spots allowed, parking spots usage statistics, etc..).

Within the SME4SMARTCITIES project, pilots were successfully implemented by the selected companies (Soluciones de Movilidad Especiales SL [SOLMES], HOP UBIQUITOUS SL [HOPU] and AIM S.R.L. [AIM]) in the four above-mentioned cities (Murcia, Cartagena, Yecla and Molina de Segura), completing all the stages foreseen for the solution development and testing: Data gathering; Data normalisation ; Park4Dis® set up; installation of the sensors in the 5 PRM spots per city; SW development; delivery of the bluetooth devices to the users or intermediary entities; Promotion of the solution through "Awareness Day" events, social media, mail, press releases; Data collection through the Park4Dis Platform.





Lead applicant of the solution (SOLMES) extracted the following conclusions in the final report prepared after the pilot implementation regarding their experience within the project: Park4Dis is very easy to escalate, due the flexibility and easy to use of the architecture and the adopted process; Park4Dis App is growing very quickly and, thanks to this project, it was possible to develop a solution adapted to the needs of the challenge proposed in the Murcia Region, adding 4 more cities. Scalability is

guaranteed; HW used for the pilot project was the right one, both for sensor type and bluetooth to avoid misuses and EU card fraud; Training to technicians is very important for giving them autonomy in the use of the administration platform; NGO participation is strongly recommended, for GDPR compliance and for their local knowledge of problem/needs and direct contact with users; Awareness days are very important too, because users are trained in the use of the App and because in this way they understand the power of Park4Dis. Among other features, using the Park4Dis App, the users can drive and find parking in all the Park4Dis cities, in this pilot among the 4 participating cities; Police must be involved from the beginning. In this pilot, Yecla police department's participation has been very much appreciated.



QUICK

The Smart City solution, called "QUICK" (Quality Universal Intermodal Charging Kit) has been developed to become a link between many urban means of transport (bus, taxis, railway...), focusing on the electric scooters sector, in order for the cities to implement new commuting possibilities with a more sustainable societal and environmental impact.

There were several stages of development and implementation of the solution. For the participation in this 7-month SME4SMARTCITIES challenge, the consortium centred its attention in the first stage: the design, piloting and validation of the first operational parking and charging station for e-scooters. During this first

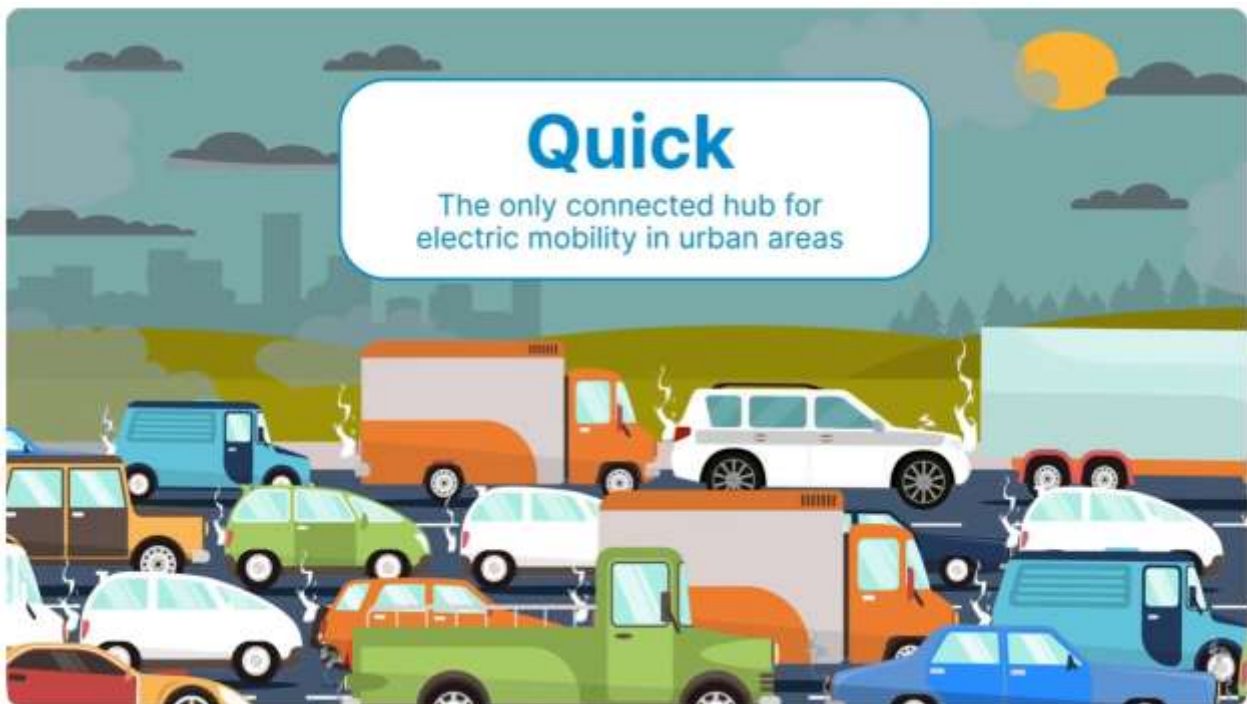


SME4SMARTCITIES

stage, the results and validation of this solution in Malaga were analysed and extrapolated to the city of Genoa (Italy), which suffers from some of the same issues Malaga does. After the system validation, the consortium kept on working the next stages in the creation of an array of QUICK stations for the municipality of Malaga, to spread the benefits of the technology throughout the city, as well as adding new functionalities, for example, the cancelation of tickets between intermodal means of transport compatible with QUICK (this way, a commuter jumping out of a bus can pick an e-scooter parked in a QUICK station and continue its journey without paying again, just by introducing its bus ticket number into the application).

The QUICK solution is formed by a basic metallic structure containing 8 parking and charging spots for e-scooters. Each parking spot includes:

- a smart lock
- a power cable for the charging
- a disinfection unit for the handlebar of the PMV.



Click on the image to watch the video presentation

This structural module is fixed to the ground and connected to the grid. On top of it, there is an additional structure to protect the vehicles and the users from rain and other weather conditions. This upper structure contains:

- the protective roof
- the solar panels to reduce energy consumption from the grid
- advertising/informative panels.

QUICK is equipped with all the elements needed to seize solar energy (batteries, inverters, etc.). The pilot project included 8 e-scooters customised with the Malaga City Hall corporative image and a digital tool in the form of a platform with responsive design, so it can be easily used in smartphones. (In later stages, a specific mobile app will be developed). Within this digital platform, for city managers and commuters (each of these profiles, with specific access to features), the users can check the performance of a QUICK station, the number of free parking spots, the number of e-scooters used along the day, the energy consumption, the solar contribution and much more.



The project prepared an action plan with five activities. These activities were structured into two phases:

Phase 1: This phase involved the complete design of the smart station and disinfection system. It included Activity 1 (Industrial design of the station), Activity 2 (Development of a mobile application for end users and an administrator's platform), and Activity 3 (Development of electronics and other control functionalities).

- Activity 1 (Industrial design of the station): during this phase, a thorough design process addressed various components, including electric chargers, structural framing, electronic lock integration, disinfection UV lamps, photovoltaic module integration, and structural calculations. Efforts also focused on finding suitable suppliers for lockers and the station's metal structure.
- Activity 2 (Development of a mobile application for end users and an administrator's platform): Mock-ups and wireframes were created in the initial phase to outline the application's structure. Subsequently, the mobile application was developed, along with a web platform for administrators. Challenges included sourcing compatible scooters and integrating payment methods.
- Activity 3 (Development of electronics and other control functionalities): this phase involved analyzing electronic control and the functionalities, such as the implementation of a communication gateway and remote control. Validation was crucial to ensure smooth interaction between the application, web platform, and electronic components.

Phase 2: This phase focused on the installation of the smart station and dissemination activities in Spain and Italy.

- Activity 4 (Prototype. Manufacturing and installation): the project began with a preliminary prototype to validate the design and supplier capabilities. Subsequently, production and assembly took place, and the installation faced delays due to unforeseen challenges, including foundation-based installation and administrative hurdles.
- Activity 5 (Dissemination activities): this phase included a comprehensive marketing campaign in Italy and Spain, featuring advertisements, collaborations with local authorities, public presentations, billboard campaigns, and presentations to relevant organizations.



Within the SME4SMARTCITIES Project, the expected results were achieved at 100%, and various products with different degrees of technical validation were generated. The pilot successfully designed, installed, and validated the smart hub for sustainable mobility and air quality improvements in the city.

The Malaga Pilot also involved dissemination activities such as marketing campaigns, public presentations, and collaborations with local authorities. The project demonstrated its commitment to functionality and aesthetics by redesigning the modules and station for better urban integration.

As a final result, the consortium planned to continue working on the creation of an array of smart stations for the municipality of Malaga and expand the technology to other cities in Spain and internationally.

Overall, the pilot implementation was successful in achieving its objectives and generating valuable knowledge and products for future deployments.





3.2 ACTORS INVOLVED

CEEIM - <https://www.ceeim.es/en/>

CEEIM, Lead Beneficiary of the SME4SMARTCITIES project, is a non-profit Foundation that aims at creating and implementing innovative methodologies in the field of entrepreneurship and business creation, specifically meeting technology-based start-ups' needs. CEEIM, as certified EU Business Innovation Center, supports innovative businesses in accessing appropriate technology knowledge, market information, management assistance and access to capital, by providing office space, shared services, and business, technical and funding mentoring. The following experience can be highlighted:

Management of a business incubator with 23 modules to host innovative start-up companies and a co-working area; Impact on more than 200 entrepreneurs per year, offering them support, mentoring and added value services such technology transfer, looking for international partners, private investors networks, other finance and subsidies search, etc.; Design and development of workshops for innovative entrepreneurs and companies, and training programmes on the different stages and needs of an entrepreneur; Organization of specific activities on innovation and business creativity, as well as awareness projects encouraging entrepreneurship, mainly at an early age; Facilitation of the regional Business Angel Network and information and support in attracting public funding; Vast experience in the participation of European initiatives.

CEEIM counts also with a consolidated network of stakeholders within the regional innovation ecosystem, composed of councils, universities, schools, chambers of commerce, development agencies, technology and scientific parks, employment agencies, clusters and associations. CEEIM has positive and active influence in action plans and policies developments and is part of relevant networks at different level: Regional Incubators Network, Digital Innovation Hub AGORA, National BICs network ANCES, Contact Point from the Economy Ministry and European ones like the European Business Network.

BIC EURONOVA – www.bic.es

BIC EURONOVA, the European Business and Innovation Centre (BIC) in Málaga, is a limited company created mainly with public funds. It was founded in 1991 under the model and sponsorship of the European Commission in order to support the creation of innovative SMEs, to encourage the implementation of new innovative activities in existing SMEs and to provide advice to public administrations on business innovation diffusion matters.

The lines of action of BIC Euronova include: infrastructure management to host innovative companies in the incubator and business centre area, enhancing business innovation services to SMEs and dissemination of entrepreneurship culture as a strategic factor for the growth of SMEs in Andalusia, support and mentoring of the technological based innovative companies incubated; to maintain private revenues representing over 80 % of total revenues, development of projects in collaboration with other institutions that generate knowledge to contribute to the consolidation and modernization of enterprises, internationalization of innovative SMEs through the use of the European network of BICs, EBN, and Soft Landing programme.



BIC Euronova has more than 30 years of experience in the management of a certified incubator Business Innovation Centre. The region's leading incubator has contributed to the creation of 500 technology companies and has generated more than 5,000 jobs in the Málaga Tech Park (PTA) in Málaga. Its contribution to the technopolis is crucial since 25 percent of current companies have been created in this innovation space.

As the rest of partners involved in SME4SMARTCITIES project development, BIC Euronova has supported the engagement of the SMEs in the call for innovative solutions and during the Mediterranean commercial missions, as well as the pilot implementation and all the rest of activities where SMEs have participated.

MALAGA MUNICIPALITY www.malaga.eu

In December 2014, the Innovation Strategy for Malaga Smart was published by the Malaga City Council, where the foundations were laid to consolidate the steps towards a sustainable city of reference. Since 2007, Málaga is the first Spanish municipality to have a Department of Innovation and New Technologies, which promoted a series of actions that were consolidated in the following legislatures until 2015; actions that earned the city the second distinction as City of Science and Innovation.

Since 2015, there has been a wide deployment of initiatives, linking the different areas of the City Council in projects related to innovation and new technologies, increasingly increasing their participation and involvement in the process and resulting in the new TECHNOLOGICAL INNOVATION STRATEGIC PLAN 2018-2022 within the Málaga Smart program.

During the last decades, Málaga and its City Council have evolved to make the city the leader of economic and technological growth in the Andalusian Autonomous Community. It is one of the cities with the highest population growth rate in Spain and where synergies come together such as the great quality of the climate, its wide cultural offer, its involvement in the development of the UN Sustainable Development Goals (SDGs), as well as such as its configuration in "SMART CITY".

There is a huge attraction on the part of professionals and companies related to innovation, science and technology, to settle in our city; highlighting the involvement of the Andalusian Technology Park, a global reference, with more than 100 international agreements signed focused on attracting innovative companies, participation in programs at the European level and cooperation with organizations in Africa, America and Asia.

For years now, Malaga has been fulfilling its intention to become an authentic SMART CITY, whose course has been marked by sustainability and the promotion of numerous innovative projects; standing out nationally and internationally for its energy efficiency actions, promotion and attraction of R&D&I, as well as the acceleration of companies, which has led to a notable improvement in the management of the city and the reduction of costs. of public services, as well as the well-being of its citizens; thus aiming to be a European reference both for the transformation of innovative ideas and for the development and hosting of technological companies. It is about consolidating a city model where the inclusion of Information and Communication Technologies is not taken as the only objective, but is itself technically, economically and environmentally sustainable, driven by effective management of municipal resources.



The municipality of Málaga was involved as an associated partner in the framework of SME4SMARTCITIES and supported BIC EURONOVA in the definition of the urban challenge for urban innovative solutions.

REGION OF MURCIA

The Region of Murcia is an autonomous community of Spain, located in the south-east of the Iberian peninsula which has a total population of 1 531 878 inhabitants. Four of its most important municipalities participate in the SME4SMARTCITIES project: Murcia, Cartagena, Molina de Segura and Yecla.

Regarding other relevant Smart City initiatives in the Region, is noteworthy that the municipalities with fewer inhabitants (less than 5,000 inhabitants) in the region are bringing up pioneering innovation, the Smart 5K project (<https://www.smart5k.es/>), which consists of leveraging the most advanced technologies in the field of the intelligent territories in the smallest municipalities of this autonomous community so that their inhabitants daily lives can be improved. This will be achieved through the implementation of intelligent solutions such as the implementation of wireless broadband networks, a virtual library with an audiovisual catalogue, real time information on traffic or parking, smart irrigation systems, etc. Innovations that will serve to be able to make decisions by analyzing the information that they generate and thus be able to subsequently deploy the most successful solutions in the rest of the regional territory. In this way, the use of open data is also promoted which can be accessed from the 5K project portal.

This 5K project is part of the “Smart Region” project aimed at digitising different services and converting them into smart services in all and each of the 45 municipalities that form part of this autonomous community. The municipalities of the '5K' project will actually serve as a test bed or pilot area to test the smart city experiences launched and, subsequently, analyzed. Finally, those that are a success story will be exported to the rest of the municipalities in the Region of Murcia, applying a bottom-up model and in collaboration with the town councils and neighbours.

SOLMES <https://solmes.net/>

SOLMES aims to contribute to the creation of the cities of the future: sustainable, accessible and inclusive. With this objective, its solution contributes to inclusive smartcities, promoting the autonomy of people with reduced mobility through a transversal and interurban platform for the management and access to the location of reserved spaces or other permitted parking spaces and municipal ordinances in a unified, summarized and accessible manner.

HOPU <https://hopu.eu/es/> [Libelium <https://www.libelium.com/>]

HOPU focuses on the research and development of networking protocols, security and Internet of Things solutions. HOPU specializes in scalable and advanced monitoring with different sensor combinations in a Smart Spot product line. In addition, HOPU offers the customization, design and development of ad-hoc applications for Smart Cities (urban innovation), Smart Destinations (tourism impact, crowd monitoring and citizen participation) and Environmental Monitoring (Air Quality, Noise, Temperature, Humidity, etc.), weather stations and optimization of irrigation water for gardens. Therefore, HOPU promotes the Internet of Things as the reference technology for creating smart environments.

AIM <https://www.aimconsulting.it/>

Software development, digital platforms, communication and technologies for businesses. Since 2000, as an ICT technological partner, AIM has provided software development, IT consultancy and system



integration software services, design and creation of digital platforms. AIM designs and implements turnkey application solutions aimed at optimizing and making their customers' business processes more efficient.

OWNERS PARTNERS

Owners Partners is a consulting firm specialised in the technological and commercial development of innovative business models. Owners Partners started in 2019 as a side company from Metrica6 ,(<https://metrica6.xyz/>) an R&D company in Malaga with whom Owners Partners has developed some tech projects in these years. Owners Partners develops and helps to develop technological solutions and its business models for different types of companies and administrations.

California Innovation Group - cig-it.com

California Innovation Group is focused on improving pedestrian safety as well as air quality and the overall wellbeing of all citizens tackling environmental issues in direct connection to all aspects of smart cities.

3.3 WHAT YOU NEED TO KNOW

Other relevant stakeholders in the concerned Spanish regions have also played important roles in the pilots. Among them, we could mention the following:

INSTITUTE OF SOCIAL ACTION OF MURCIA (IMAS) <https://imasonline.blog/>

The activity of the Murcian Institute of Social Action (IMAS) is aimed at ensuring an adequate and sufficient level of quality in the provision of social services in the Region of Murcia. Within the framework of the SME4SMARTCITIES project, IMAS gave rise to the challenge launched in the Region of Murcia (smart parking for people with reduced mobility) in connection with one of its initiative "TERE": Computer application for the management and control of the Parking Card Registry.

SMART CITY CLUSTER <https://smartcitycluster.org/>

Smart City Cluster is an alliance of more than 200 companies and institutions that improve the quality of life of citizens. It works in the development of smart cities, understood as efficient, sustainable and comfortable, and is located in Málaga.

It connects the city (challenges) with the business and knowledge fabric (solutions) using a cooperation model between our partner entities: private companies, universities, technology parks and sector organizations. It covers the entire value chain of the city of the future, from its most technological to the most social aspect.

The Cluster functions as a meeting point between cities, citizens and companies, connecting needs and opportunities with the industry, providing knowledge, collaboration and help in the search for solutions and financing.

3.4 TESTIMONIES

PARK4DIS

"The initial scope was centred on how they could improve the quality of inclusion of people. Are these spots located in the same way? How is the blue EU card for people with reduced mobility actually being used? It is just a piece of paper and for the police it is not possible to detect fraud use. It is to consider that technology evolves along a project lifetime. At present, they know much more about the technology (e.g. voice



command) than at the beginning of the project and it's to be taken into account that some changes in the law can occur as well.

The expectation at the beginning of project development was a clear involvement from the municipalities, having a representative as a permanent contact person for constant communication flow, sharing the new coming opportunities. Policy representatives' involvement is considered essential as it makes a great difference if the involvement is not optimum. Although making participation as an obligation might be hard to implement, other factors must be taken into account such as public orientations and priorities, and also budget. Policy-makers are interested in political aspects, which has to be taken into consideration if the project aligns with the current policies." Carlo Castellano, CEO – SOLMES

QUICK

"The European project has been a huge success and a huge impact for us, because we have been developing several technologies for the smart cities context. Some of them are related to the resources for consumption of water and how to implement the efficiency in consuming water, efficiency, how to monitor water consumption, how to detect leaks, how to improve the quality of water. And the other technologies that have been developed for smart and sustainable mobility.

So, thanks to this European project we have been able to further develop these solutions and to make some pilots in different European and Med countries. So, thanks for the whole organization, for making this project possible and for having us make this evolution of these technologies and how to make them impactful for so many citizens around the Mediterranean." Eduardo Dueñas, CEO - Metrica 6 and Owners Partners

MALAGA MUNICIPALITY

"Malaga City Council has been participating for some time in actions aimed at improving efficiency in the use of energy, reducing CO2 emissions in cities, introducing renewable energies and improving the mobility options of citizens, so that these are as beneficial as possible for the environment. For this reason, the Area of Innovation and Urban Digitalization joined from the first moment to the participation in the European project SME4SMARTCITIES.

The QUICK solution will be installed on the premises of the Tabacalera public building with the consequent citizen visibility. The project is subsidised 100% for an amount of 40,000 Euros and of which the entity BIC EURONOVA S.A. (headquarters in Malaga) is a beneficiary. We hope that this initiative will improve the quality of life of the citizens of Malaga, that it will help the SMEs to become visible in the market for the development and deployment of innovative Smart solutions and that the commitment of Malaga City Council with this type of initiative will be evident." Víctor Manuel Solla Bárcena – General Manager, Area of Innovation and Urban Digitalization – Malaga City Council

CITIES FORUM

"For CITIES FORUM, having provided our technical support in the role of 'Product Development Coach' has been a very enriching experience as it has allowed us to work closely with SMEs. On one hand, to help them design solutions that meet the expectations of the cities that posed the urban challenges, and on the other, to build collaborative relationships with these SMEs that go beyond the scope of this project, taking advantage of the synergies we have identified with them. Participating in and supporting the SMEs in the missions also allowed us to get closer to the organizing cities, to understand firsthand their needs for strategic advice in the Smart City domain, and to sow future business opportunities with them" Jaime Ruiz, Cofounder – Cities Forum

4 - ISRAEL

4.1 URBAN CHALLENGE AND SOLUTIONS

The urban challenge identified by the Israeli partners, Tel Aviv University and Kfar Saba Municipality, with the cooperation of the municipalities of Tel Aviv, Herzliya and Eilat called for innovative solutions to the increasing excess heat captured within cities - The "Heat island" issue.

As the weather warms, areas within the city become even hotter. Since the Mediterranean region is already more sensitive to the rising temperatures than other regions in the world, with an expected 4 Celsius high rise in the 21th century, the issue becomes even more severe in Mediterranean cities

The Heat island is determined by a number of urban characteristics, all of them are potentially changeable:

- **Buildings and roads** – The urban morphology, the materials used for building, the use of plants and the use of colours, streets and parking areas, aspects of insulation and natural ventilation – all contribute to the heating and cooling abilities of buildings.
- **Energy Usage** – especially for heating and cooling effects of the public sphere – air conditioners emit heat out of the buildings for instance.
- **Transport** – cars and trucks produce heat and pollution, consequently increasing the UHI effect.
- **Natural infrastructure** – plants and trees in urban areas can cool the city and reduce the UHI effect. Green walls, Green roofs and other biophilic design methods can both reduce heat, lower air pollution and increase biodiversity, having an ecosystem benefit for the urban populations.

The challenge sought solutions and interventions to mitigate the impact of any or all the above components, and consequently reduce the Urban Heat Island effect and alleviate the impact of climate change on urban populations, especially the more vulnerable and needy. The solutions were expected to bring together solutions for monitoring and measurements, direct and indirect heat reduction, natural urban environment nurturing that helps to reduce heat and restore the natural system, and other methods that can work together in synergy in the urban ecosystem.

Resulting from the co-creation activities, a total of eight project proposals were presented for the call and two of them were selected as the best fitting innovative solutions: URBAN OASIS and COOL KS; Although in the end only the grant agreement on URBAN OASIS solution was signed. The following description of the URBAN OASIS innovative solution showcases its main features and up to date information from the implementation final report.

URBAN OASIS

The basic idea of the URBAN OASIS project is to provide shading and cooling for the area with the BIPV pergola built with solar photovoltaic panels in order to produce electricity for light and for the functioning of an innovative water system. The objective of the solution is not only to improve the microclimate conditions, but to reduce the energy consumption by exploiting Solar Systems and an innovative pump that may contribute to increase overall system efficiency.

The solar photovoltaic panels produce the required electricity for the water system, allowing for independent installation in any open space in the city, without any need to connect to the electricity grid. The main objective of the UNO project was to build an Urban Oasis, in which the technology developed by BIPV Israel, the solar pergola, could be combined with the technology developed by SIT technologies (Italy),

which is based on the operation of rotating disks, in order to spray water mist to reduce discomfort due to excessive heat. The sum of these two innovations led to the definition of different system models.



Click on the image to watch the video presentation

The first option was to combine the pergola with a fountain, driven by the innovative pump and powered by electricity produced by solar panels. The photovoltaic pergolas are an alternative form to replace the materials which traditionally are only used in the construction to generate shade.

The electric energy generated by BIPV panels is exploited to power the bladeless machine fed by water (Tesla type turboexpander) which operate in pumping mode; actually, such “Tesla turbine” is a reversible machine which can work both as a turbine and as a pump: its main advantages are that it can work with dirty flows and that is a robust and economic machine with respect to conventional turbomachinery. Indeed, it is a very flexible fluid machine as it does not rely on bladed rotors and this allows a wider range of working conditions as well as the chance of working with biphasic flows without the danger of blades erosions. Therefore, with respect to cavitation, the Tesla pump is less affected by the risk of mechanical failures and it can better withstand off-design conditions for a longer time both in terms of mass flow rate and pressure ratio without significant issues. By relying on such a system made up of photovoltaic panels and water Tesla fluid machine, the main outcome is the realization of an innovative energy system fed by renewable energy only, which can mitigate the heat island effect by means of innovative Tesla type, thus relying only on emerging technologies. In this way, a Tesla prototypes on the field have been achieved, together with an unconventional usage of photovoltaic panels, which are typically employed for domestic energy production or to sell energy to the electric grid.

Moreover, Tesla type bladeless turboexpanders were originally exploited for energy harvesting applications, in such a way that they could replace valves or diaphragms in any kind of systems working with fluids subjected to pressure drops (e.g. water distribution networks). Therefore, starting from this first



SME4SMARTCITIES

field of application and the implementation of this pilot system, the fruitful collaboration between the two companies, BIPV and SIT technologies, may lead in the future to the development of a collaboration for the realisation of joint products, e.g. for cooling panels and reducing their maintenance costs.

BIPV and SIT Technologies collaborated to fully understand the potential of solar pergolas equipped with a Tesla pump, so a careful mechanical evaluation of the system was studied. Each system component was designed and then developed to characterise the operational design point and operating conditions.

Numerous meetings took place during the first months of the project, in which BIPV and SIT exchanged information and were in contact to organise the system and optimise the pump for the specific application. The municipality of Kfar Saba and the university took part in the meetings, to define all the user requirements for the system and to define potential locations for the system.

Not only the mechanical evaluation of the system was carried out, but also the selection of the appropriate sensors (based also on the requirements of the required control strategy), the choice of the generator and all other components necessary for the success of the project. Finally, a solar pergola and pump were produced. The production phase was followed by the on-site installation phase.



After that, the experimental campaign was carried out to demonstrate the actual power and efficiency obtainable. Experimental tests were carried out during which the benefits on the surrounding area were verified. The air temperature measured under the pergola in the hot month of September 2023 was even lower than the temperature measured under the shed of nearby trees.

4.2 ACTORS INVOLVED

TEL AVIV UNIVERSITY <https://english.tau.ac.il/>

Tel Aviv University (TAU) is the largest, most comprehensive and most dynamic research and teaching institution in Israel, offering the country's most diversified range of study and research fields. Located at the heart of Israel's economic, technological and cultural center, TAU is proud of its liberal and pluralistic spirit. The vision of the University is to become a world-leading research university and the top one in Israel. TAU's mission is similar to that of other leading universities: To promote research of the highest level and to equip tens of thousands of students annually with academic knowledge and critical thinking skills. The



University also aims to influence society in Israel and globally in spheres including industry, culture and education.

From these goals, the University has formulated six strategic priorities that it seeks to advance: breakthrough research, innovative learning, international collaboration, multidisciplinary research & teaching, ties with industry and society, and equality & diversity.

At Tel Aviv university, the project was led by the urban Innovation and Sustainability Laboratory, at the Porter School of the Environment and Earth Studies. The lab is located at the Porter building at the university, a unique LEED Platinum building designed to be a learning lab for green building and urban sustainability. <https://en-environment.tau.ac.il/EcoBuilding>

CITY OF KFAR SABA – www.kfar-saba.muni.il

Kfar Saba is a city in the Central District of Israel. It was declared a city in 1962. Its area is about 14 square kilometers, it has about 111,000 residents, about 40,000 households. Kfar Saba is an administrative, commercial center of educational institutions and medical services for the southern Sharon region, and it has a large industrial center. In organizing the 15th forum. Kfar Saba is considered to be one of the green, sustainable and innovative cities in Israel and this is one of the reasons it was chosen to lead the SME4AMARTCITIES project

BIPV Israel - <http://www.bipvisrael.co.il>

BIPV Israel, the driving force behind URBAN OASIS, specializes in the design and implementation of building-integrated photovoltaic (BIPV) systems. As a leading player in the field, BIPV Israel is an ideal partner for cities that strive to reduce their carbon footprint and foster sustainable communities. BIPV systems offer a smart and innovative approach to building design, which allows buildings to produce renewable energy, reduce energy consumption and contribute to the creation of more sustainable and flexible urban environments.

SIT TECHNOLOGIES <http://www.sit-tesla-technologies.com/>

SIT technologies Srl is a recognized spin-off company of the University of Genoa, Italy, born within the Department of Mechanical Engineering (DIME). SIT technologies was born on the impulse to transfer promising concepts to the industrial level, always maintaining the innovative spirit that characterizes the academia activity.

4.3 TESTIMONIES

URBAN OASIS

“BIPV Israel in collaboration with SIT, Tel Aviv University and the Municipality of Kfar Saba, embarked on a groundbreaking project funded by the European Union. The main goal was to address the pressing issue of the urban heat island effect in urban environments. This initiative led to the development of URBAN OASIS, a pioneering solution that combines green energy production, providing shade and a water misting system.

URBAN OASIS, a solar pergola decorated with an integrated water misting system, offers a versatile approach to reduce the urban heat island effect. This innovative system not only produces clean energy but also provides much needed shade and a cooling effect through its water misting feature. Its versatility allows



application in different urban settings, and offers a holistic solution to the fight against rising temperatures in cities.

The collaboration with Tel Aviv University and the Kfar Saba Municipality was decisive in making the project a success. For BIPV Israel, a young and dynamic company, cooperation with a municipality proved to be an advantage. The municipality benefits from exceptional service provided by a passionate company committed to achieving success and customized solutions. This collaboration also allows the municipality to make customized improvements that fit seamlessly with their needs. For BIPV Israel, working with a leading municipality and with the support of Tel Aviv University resulted in extraordinary achievements and increased exposure of BIPV Israel and promoted its growth in the Israeli market.

A noteworthy aspect of this project is the international collaboration that brought together companies from Israel, Spain and Italy. It introduced the global community of businesses dedicated to positive environmental impact. Furthermore, this project has fostered valuable relationships between these diverse companies, creating many business and environmental opportunities that will benefit all stakeholders.” David Torgeman, CEO – BIPV

CITY OF KFAR SABA

“The urban challenge that Kfar Saba chose is the "urban heat island" which is a complex problem in view of the climate crisis and global warming. The challenge called for the development and implementation of a solution that would help with the urban "heat island" while ensuring maximum innovation and efficiency. Kfar Saba chose a solar pergola with water mists in development of BIPV Israel and in cooperation with the Italian company SIT. This is a unique solution for Kfar Saba and the first in the world within the pilot financing of the SME4SMARTCITIES project. The name of the solution: Urban Oasis that is designed to reduce the urban heat island effect using a solar pergola that is self-sustaining and provides electricity to create water mists.

The cooperation with the start-ups was wonderful and we are excited that the solution will be implemented in Kfar Saba, with the hope of deploying more pergolas throughout the city. We are sure that, as in many other issues that Kfar Saba leads, here too other cities will implement the solution in their field” Lihi Koren, Project Manager ,Sustainability and Mobility Department - Kfar Saba Municipality.

4.4 PUBLICATIONS

SME4SMARTCITIES solution is helping citizens get cooler during torrid days -

<https://www.enicbcmed.eu/sme4smartcities-solution-helping-citizens-get-cooler-during-torrid-days>

SME4SMARTCITIES installed a solar pergola in Israel - <https://www.enicbcmed.eu/sme4smartcities-installed-solar-pergola-israel>

SME4SMARTCITIES in Israel inaugurates the Urban Oasis cool solar pergola -

<https://www.enicbcmed.eu/sme4smartcities-israel-inaugurates-urban-oasis-cool-solar-pergola>

5 - CONCLUSION

At this point you should have understood most of the peculiarities from each territory in this specific cooperation environment between innovative and technological SMEs and public authorities.



On the occasion of the aforementioned workshop in Malaga, a few more inputs emerged during the vibrant roundtable session that might help you complete the overall vision of the SME4SMARTCITIES experience and, more in general, about demand driven approach with public authorities in the development of innovative urban solutions.

We collected the highlights here below organizing the contents according to two SME4SMARTCITIES project phases: first and second call for proposals.

First call for proposals

- It could be important to start the collaboration between SMEs and the cities even before the product development in order to apply the adjustments to the needed requirements before presenting a solution proposal;
- Exchange sessions between SMEs and municipalities could have been organised earlier in the project lifetime to understand better the requirements and the will/need of the municipalities, to focus more on the solution and its feasibility. It is important to keep focused on what the municipalities really need and want;
- SMEs suggest that a representative of municipalities should be clear in the call, making compulsory to ensure the engagement of public representatives in the project development;
- Pilot development would have benefit of a longer time between the entrepreneurial missions and the call for proposals deadline in order to allow further exchanges between the SMEs on the scope of their collaboration resulting in stronger proposals;
- Within the call, an additional content would be worth adding, which is the risk assessment analysis. Project should identify the potential risks they might address for each type of action. A reflexion on the impact of the risks and their impact on the project need to be addressed from the proposal stage;
- A way to help maintain the overall involvement in this demand driven approach might be to map the actors involved in the governance of urban policies, since they are so many and many are their responsibilities. This would help SMEs to understand whom to talk to overcoming possible obstacles during the development and deployment of their innovative solutions for the city;
- A good communication expert within the municipalities would be very useful for enhancing the outcomes of the collaboration in order to share what is going on and to make sure the citizens are aware of the changes that they will experience;
- The MUST features of the solution proposal in the first call should be considered as a presentation of the participant SMES and give a good idea of their specificities, in order to finalize the proposal and connections between the SMEs during and after the missions.
- The success of the cooperative approach in the engagement of the Mediterranean SMEs is gathered by the outcome of the co-creation activities. Taking into consideration the small window of time available for the SMEs in order to develop together an innovative solution, we can count 18 pilots codeveloped by consortia composed by two or three companies out of 49 participating SMEs: a very promising signal.

Second call for proposals

- Legal and financial aspects can be challenging for the SMEs, and contractual issues can take a lot out of the innovation;



- Increase the interaction with the municipalities and see how to get the involvement from the policy representatives from the early beginning of the project? If representatives are not linked to the project initially, they might not feel obliged to provide the SMEs with the required support. With this constant support, the performance can reach better results;
- Budget is challenging especially with the co-application process and the shared budget. Even if the companies might not gain profit within the project, it is a great opportunity to work directly with the cities, to get known and to start an effective and longer collaboration (e.g. IN-HERITAGE and Genoa Municipality);
- The participation in the project generated positive outcomes for SMEs, with a major visibility especially at EU level (e.g. selection of BEAIR to join The Arch Project) and new opportunities to keep up co-developing innovative solutions with international partners;
- The importance of the active role of the support organizations involved in the project both as partners or technology developers has been more noticeable in the final part of the project implementation. An effective cooperation with the SMEs which, in the end, resulted in the seven deployed solutions is, not exclusively, the outcome of a fruitful support in coordinating meetings with the involved local authorities in order to gather the permits;
- The proactive involvement of local authorities in the product/service development can really make a difference. As mentioned, SMEs efficacy in the development and deployment of a product/service relies very much on the accessibility of urban regulations and authorization

This said, SME4SMARTCITIES represents a first calibrated attempt in fostering the public authorities to solve urban issues through the use of Public Procurement of Innovative solutions while creating an effective cooperative network of Mediterranean SMEs in the Smart City sector. The results of this experience not only will benefit SMEs and public authorities but will also be capitalized in possible future project proposal in the framework of Interreg NEXT MED or other EU financed programme calls for projects.