



SPARCS

D5.17 Public Market Consultation Results

The deliverable D5.17 “Joint Tender published” was renamed as “Public Market Consultation Results”

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Disclaimer

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Topic: LC-SC3-SCC-1-2018-2019-2020: Smart Cities and Communities

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Deliverable administration

No & name	D5.17 Public Market Consultation(s) Results The deliverable D5.17 “Joint Tender published” was renamed as “Public Market Consultation Results”.			
Status	Released	Due	M48	Date 2023-09-30
Author(s)	BABLE GmbH			
Description of the related task and the deliverable. Extract from DoA	<p>Task 5.6 Enhancing Procurement of Innovation via Market Engagement (BABLE, VTT, ESP, LPZ, CMM, AdEPorto, RVK, KLD, KFS, LVIV, CVUT, CiviESCo (until M42)) [M1-M60]</p> <p><i>* The focus of this task has been shifted from the original task description of the grant agreement because it became clear at the beginning that this would be a more beneficial approach for the cities. The participating partners have been modified as well. The text presented here considers the approved deviations.</i></p> <p>SPARCS will develop a tool to support cities to engage with the smart city solutions market, enhancing the uptake of solutions and improving the procurement of innovation processes.</p> <p><u><i>Subtask 5.6.1 Assessment of Joint Cross Border Procurement feasibility and Innovation Procurement needs analysis (BABLE) [M1-M24]</i></u></p> <p>The aim of this task is to explore the potential for joint cross border procurement under the context of SPARCS and to understand the needs of cities around Innovation Procurement. As part of the research to identify the feasibility of joint procurement and how to support cities in procuring innovation, the following activities will be executed:</p> <ul style="list-style-type: none"> • Study of available literature on the matter and what drives joint procurement • Review of most important and emblematic case studies across Europe (HAPPI, Citrix software, EURIPHI) • Interviews with experts from academia and practitioners • Interviews with Fellow Cities and their Procurement Officers to understand their needs, common barriers, etc. <p>Based on the qualitative and quantitative assessment of the results, the project will assess how to support cities in their procurement of innovation in T5.4.</p> <p><u><i>Subtask 5.6.2 Develop market consultation tool (BABLE, ESP, LPZ, CMM, RVK, KLD, KFS, LVIV) [M24-M48]</i></u></p> <p>Based on the reference model and inputs from the cities, a sustainable business case to support Innovation Procurement and Market Consultation via BABLE will be developed. The feature will then be piloted on BABLE and a beta version will be released. This feature will consist of a) a process model targeted at supporting project managers to adapt their future tender requirements based on market feedback and communicating to the market urban demand; b) a digitally backed</p>			



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online process on the BABLE platform available to city managers and public procurers to issue own demands, connect with innovative suppliers and understand the market readiness to develop or implement certain solutions; c) an **exploitation plan** with a business model that will enable BABLE to provide the tool and associated services in the area of smart cities as a service to city managers and public procurers after M36 of SPARCS.

Subtask 5.6.3 Pilot market consultation with cities (BABLE, ESP, LPZ, CMM, RVK, KLD, KFS, LVIV, FHG) [M36-M60]



Cities will be able to test the tool in meaningful projects from T5.4 and 5.5. BABLE will work closely with the cities and their teams to define what are the needs and questions about the projects where input from the market is needed. The city will use the tool and make their consultation public. BABLE will support in organising a *Meet the Buyer Event* where the city will present its project and the requirements they have and will engage with relevant companies that are able to provide products and/or services to address their challenges. Partners from the consortium will be reached out to help communicate about the event and cater the right companies. The host city will update and enhance their procurement requirements based on the inputs from the market, preparing itself now for the procurement of the innovative solution.

Participants **BABLE, VTT, ESP, LPZ, FHG, CMM, RVK, KLD, KFS, LVIV**

Comments

V	Date	Authors	Description
0.1	04/09/2023	BABLE	Deliverable version 1
0.2	14/09/2023	FHG & SPI	Review of the deliverable
0.3	15/09/2023	BABLE	Deliverable version 2
0.4	27/09/2023	WP Leader	Deliverable checked by WP leader and released to the Coordinator and the Quality Manager for quality check and subsequent submission to the EC.
1	29/09/2023	VTT	Coordinator submits the deliverable to the EC

Dissemination level

PU	Public	X
CO	Confidential, only for members of the consortium (including the Commission Services)	



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About SPARCS

Sustainable energy Positive & zero cARbon Communities demonstrates and validates technically and socioeconomically viable and replicable, innovative solutions for rolling out smart, integrated positive energy systems for the transition to a citizen centred zero carbon & resource efficient economy. SPARCS facilitates the participation of buildings to the energy market enabling new services and a virtual power plant concept, creating VirtualPositiveEnergy communities as energy democratic playground (positive energy districts can exchange energy with energy entities located outside the district). Seven cities will demonstrate 100+ actions turning buildings, blocks, and districts into energy prosumers. Impacts span economic growth, improved quality of life, and environmental benefits towards the EC policy framework for climate and energy, the SET plan and UN Sustainable Development goals. SPARCS co-creation brings together citizens, companies, research organizations, city planning and decision making entities, transforming cities to carbon-free inclusive communities. Lighthouse cities Espoo (FI) and Leipzig (DE) implement large demonstrations. Fellow cities Reykjavik (IS), Maia (PT), Lviv (UA), Kifissia (EL) and Kladno (CZ) prepare replication with hands-on feasibility studies. SPARCS identifies bankable actions to accelerate market uptake, pioneers innovative, exploitable governance and business models boosting the transformation processes, joint procurement procedures and citizen engaging mechanisms in an overarching city planning instrument toward the bold City Vision 2050. SPARCS engages 30 partners from 8 EU Member States (FI, DE, PT, CY, EL, BE, CZ, IT) and 2 non-EU countries (UA, IS), representing key stakeholders within the value chain of urban challenges and smart, sustainable cities bringing together three distinct but also overlapping knowledge areas: (i) City Energy Systems, (ii) ICT and Interoperability, (iii) Business Innovation and Market Knowledge.

Partners



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1. EXECUTIVE SUMMARY

This deliverable summary presents a review and abstract of the work carried out so far under Task 5.6 on Enhancing Procurement of Innovation via Market Engagement¹ and the tool created to support market consultations. Municipalities wanting to procure Smart City innovations often face multiple challenges, such as not knowing about potential state-of-the-art solutions or reaching mainly local or large suppliers. Often, suitable innovative companies are not even aware that cities in other parts of Europe are looking for solutions similar to what they develop. Therefore, a [Market Consultation tool](#) was developed by [BABLE Smart Cities](#) under the [SPARCS project](#) to address these challenges. This tool allows cities to reach out to a growing European-wide network of innovative suppliers. Its benefits have been experienced first-hand by the [municipality of Maia, Portugal](#), one of the Fellow Cities in the SPARCS project.

1.1 Purpose and target group

This deliverable is targeted to other municipalities across Europe interested in procuring innovative technologies and who want to understand more about how market consultation can improve and speed their procurement processes by learning from a real case application.

1.2 Contributions of partners

All partner cities have been involved in several consultation activities that served to prepare the tool. The city of Maia and its local partners Porto Energy Agency (AdEPorto) and EDP's Group Research and Development Centre (NEW) tested the tool directly, providing meaningful feedback for its improvement.

1.3 Relations to other activities

This deliverable supports the market consultation stage of the project development process (T5.4) in the Fellow Cities (FCs). It will also be available to the Lighthouse Cities (LHCs) for their upscaling activities.

2. MAIA'S MARKET CONSULTATION

2.1 About market consultations and the SPARCS tool

Market consultations have a twofold purpose: to **inform of the tender preparation process** and to **inform suppliers of cities' procurement plans**. By engaging with the market, cities can assess the capabilities of economic operators to deliver the solution they are looking

¹ Originally in the [Grant Agreement as T5.6 Development and Piloting of Joint Procurement of Innovation](#)



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for and at the same time evaluate how feasible they actually are. Furthermore, inviting interested parties to be involved early on, improves their ability to respond with high-quality applications.

The [2014 Procurement Directive](#) from the European Commission highly encourages Member States to look beyond their own borders in procurement procedures and take advantage of the entire European market. The **BABLE Knowledge Platform and Community of Smart City professionals from across Europe** enables cities to reach suppliers in markets they traditionally may not interact with. This mechanism is particularly useful for pre-commercial procurement (PCP) and public procurement of innovation (PPI).

BABLE's [Market Consultation Tool](#) allows **city representatives to easily inform themselves on the state of the Smart City Innovation they are looking to procure** and automatically inform suppliers in that field about their plan. The [hundreds of Smart City companies](#) in the BABLE community ensure that the procurement will reach out to a cross-border market audience that shares the goal of accelerating the implementation of innovation in cities.

Furthermore, if you work for a city which is interested in a solution that another city is consulting the market for, you can follow their path and learn from their experience. The aim of this tool feature is to **foster knowledge exchange between cities**, promote standardisation, and pave the way for joint procurement by identifying interested parties earlier in the process.

2.2 Maia's experience

The municipality of Maia, one of the most industrialised municipalities in Portugal and an important transportation hub, intends to implement a **Building-Integrated PV (BIPV) demo-site** in Maia City Hall, Paços do Concelho. This is planned within the scope of the SPARCS project and is coordinated with AdEPorto and EDP NEW.

Building-integrated photovoltaics are a dual-purpose construction material that uses the photovoltaic effect to produce clean electricity and simultaneously act as the exterior climate screen of a structure. The purpose of the demonstrator is to study the viability of BIPV technology in existing buildings, creating the possibility to replicate the solution on a large scale. Thus, the aim of this project is to install PV film on the current windows, without compromising the existing architecture.

The team received input from very specialised and innovative companies on what the state-of-the-art of the solution is. This experience has provided many valuable insights as presented below.

2.2.1 Maia's consultation

Goal of the project

The Maia Municipality, within the scope of the SPARCS project, intends to implement a Building-Integrated PV (BIPV) demo-site at the Maia City Hall, Paços do Concelho. The purpose of the demonstrator is to study the viability of BIPV technology in existing buildings, creating the possibility to replicate the solution on a large scale. Thus, the objective of this



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project is to install PV film in existing windows, without having to replace any elements in its facade structure.

System specifications

The installed BIPV on the façade of the Pacos do Concelho building could have the following specifications:

- Transparent and flexible PV cells
- “Peel and stick” application mode
- CdTe (Cadmium Telluride) thin-film solar cells
- Photovoltaic Glass from Amorphous Silicon
- Double-skin PV panels

Mandatory Requirements

Several factors need to be taken into consideration regarding the technology for the demonstrator, as, for example:

- Type of window – The building incorporates a total of 36 fixed windows on the south facade, with single glazing and a metal frame. All other facades are almost entirely shaded by the adjacent buildings. Therefore, the study for the demonstrator must be carried out considering only the windows on the South façade of the building. The fixed windows (blue) have 2.00 m of length per 1.70 m of height and the rotary windows (yellow) have 0.60 m per 2.15 m. The number of windows will be determined by the investment cost.
- Architectural constraints – Maia city hall is an emblematic building from the 1980s, where the architectural component needs to be taken into account. Thus, any solution adopted must assure the harmony of the elements. Among others, the frame and the glazing colour are key components to minimise the visual impact of the demonstrator. As a demonstrator of a new technology solution and part of the city’s cultural heritage, this historic building cannot have a technology that would significantly alter its exterior aspect, especially by affecting its architectural and aesthetic value.
- Assembly equipment - To transport the energy, each solar cell requires cable work from the production point to the delivery point. Therefore, when considering the entire installation and the dimension of the space, the proposed solution must consider the integration of all components into the building.
- Mechanical Resistance and Stability: The BIPV must comply with local regulations on load and impact resistance for building facades. Similarly, to perform their protective function, photovoltaic sheets must remain well adhered, crack free, and must not erode, despite long-term exposure to harsh environmental stressors such as ultraviolet (UV) radiation, temperature (extreme and cyclic), and moisture.
- Impact on natural lighting – The main typology present in Paços do Concelho is office rooms, where light is essential to carry out the work. As traditional solar cells are blue or grey, there’s a substantial reduction of the window’s transparency, preventing visible light to pass through. The solution implemented must overcome this barrier, ensuring similar conditions of natural lighting. If artificial lighting is required to maintain the normal work conditions the demonstrator might have a negative impact, making the



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BIPV solution unattractive for this case. The light transmission of the PV panels must be analysed.

- Maintenance – It is essential to carry out regular inspections to ensure maximum production over the years. Periodic control makes it possible to detect any failure of the equipment, material fatigue, as well as other situations that can reduce the system performance. In this way, the systems must be covered by a maintenance plan. Furthermore, reports must be elaborated describing the conditions of the production unit before the intervention, the actions performed and, in cases where it was not possible to immediately restore its normal operation, the proposed subsequent appropriate actions.
- Monitoring and measurement - Per installation, a production meter, equipped with a GSM modem, must be installed. The analysers must be able to store values for a minimum of one day, in case of communication failures.
- Digitalisation - It is essential to create a communication gateway, so that all collected data can be presented in a visual way.
- System installation – The contractor will undertake the installation, configuration, and commissioning of all the equipment and software of the project.
- Compliance with standards - Environment, Health and Safety compliant with RoHS, OHSAS 18001:2007, or REACH SVHC-201.

Originally published [here](#).

2.2.2 Feedback of Maia’s team regarding the use of the market consultation as a tool for innovative project

Carolina Gonçalves, Project Manager at EDP’s Group Research and Development Centre (NEW), local and technical partner for Maia Municipality, provided feedback in December 2022.

What were the advantages of using the tool?

We started the Market Consultation phase by identifying possible technology providers and individually contacting them. This approach not only took a long time, as it didn’t bring the expected results, as most companies weren’t providing the exact solution we were looking for. Using the tool, the process became easier since the solution was previously described, and only the organisations who were interested would register to participate in the event. We then did only one event with all the interested parties which saved us a lot of time as well. Additionally, BABLE has a large community, so they were able to go further and identify different companies from the ones we originally targeted.

What did you learn from it?

When doing a consultation to the market, especially when looking for a specific technology, it will generate better results to let the interested parties come to you, instead of the other way around.



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Would you consider using it again?

Definitely yes! Using this tool can be a real time saver, and a key element to the success of the projects.

2.2.3 Results of the consultation

After an intensive and extensive period of market consultation, Maia was unable to find a PV film technology which was mature enough to be installed in a real test environment. In fact, after several meetings, it was concluded that the best market-ready solution required replacing existing windows. Such a solution would require structural changes in the building, not offering Maia a total guarantee for maintaining the aesthetical conformity with the pre-existing façade. Furthermore, with the additional costs needed for the intervention, the solution also presents a level of performance that is well below what could be expected, resulting in a prohibitive payback period (+100 years).

In other words, Maia's requirements for the solution, the available budget and timeline for implementation did not meet the available solutions and the ones being developed by the market. The market consultation confirmed this and gave the municipality a better understanding of the current market conditions, before going into the procurement process and spending unnecessary resources on it.

2.2.4 Some impressions from the market consultation online activity



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BIPV Demonstrator Paços do Concelho (Maia City Hall)

Possibility of scale to the whole building and replicability to different municipal buildings

Budget 30 – 50k
36 Fixed windows South facade Area per window: 3,4 m2 Total area of windows: 122,4 m2
68 Rotary windows South facade Area per window: 1,29 m2 Total area of windows: 87,7 m2

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Carolina Gonçalves (extern) | RM | Rodrigo M...

Virtual Positive Energy District (PED)

Virtual Positive Energy District (PED)

TedMaia - Industrial Site Sobreiro - Social Housing Neighborhood Municipal Buildings (Schools, Sport Facilities, Administrative, etc)

City Digital Transformation (CDT)

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PI Energy's advantages over c-Si

~ 300 to 600 μm thick Traditional solar cell (c-Si) *About 50x thinner* pi energy ~ 3 μm thick

Carolina Gonçalves (extern) | Limited Distribution | 5 | FG | Fernando ...



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2.3 Next steps

The market consultation tool could boost innovative procurement and make the process less cumbersome for cities. Under SPARCS, possibilities for another pilot with the cities of Reykjavik and Kladno are being explored. Beyond SPARCS, the use of the market consultation tool is highly recommended based on the following:

- When cities want to start a procurement process to implement their smart city initiatives, often the best way to optimise this process is with a Preliminary Market Consultation, which is a way to interact with the market in the early stages of procurement.
- An initial way to begin this preliminary market consultation should be based on an evaluation of a number of factors including the complexity of the solution to be procured, your own team's knowledge level thereof, the market complexity and maturity, the goals of the procurement procedure such as policy or innovation objectives, and the expected value of the contract.
- Through the Market Consultation tool, cities can initiate this preliminary process where relevant and innovative Smart City companies in BABLE's community and beyond will be informed about their intention of procurement. It is recommended to provide as much information as possible because in this way the tool can help to match suppliers that meet these requirements.
- This tool does not replace any official tendering process but rather exists as a complement that can increase the number of suppliers that respond on the cities' tendering portal.
- A representative of the BABLE team will be in charge of guiding the city during this process that starts with the registration of the city on the BABLE platform, following by the creation of the Market Consultation Invitation that consists in three steps: (1) See overview of providers according to the Solution area, (2) Create Market Consultation post on BABLE, filling out the necessary fields about the solution you require, and (3) Receive feedback from providers, sending the link to your public consultation or request for more information to all these providers, as well as promote it on the BABLE platform publicly to other providers. This process should take around 3 weeks.
- In order to maximise success in the consultation invitation, cities should take into consideration: (1) Clarity, ask clear and concise questions, (2) Call for action, define clearly your method(s) of engagement, (3) Language, specify the language(s) of the consultation, (4) Context, provide any supporting materials, and (5) Expertise, invite suppliers to involve relevant staff.

