

SmartCities-as-a-Service

DETAILS

SECTOR | Smart cities, Smart communities

STAGE | Operations and Maintenance

TECHNOLOGIES | 5G, Blockchain, Artificial Intelligence, Machine Learning, SmartCities-as-a-Service (SCcaas) and Platform-as-a-Service (PaaS)

SUMMARY

The Smart Ivrea Project (SIP) envisages the design and implementation of a sustainable, inclusive and technologically advanced city where public services, energy and economic efficiency and social inclusion are the center.

The model is developed according to the following pillars: (1) integrate, design and optimize the provision of existing public services by using enabling technologies (Blockchain, AI); (2) replacing the traditional vertical chain model (applied to key sector as smart energy, smart mobility, etc.) in favor of a more efficient scalable and interoperable architecture based on microservices, by redesigning processes to facilitate the implementation of services and innovative systems and making existing resources and infrastructures interoperable; (3) fostering an inclusive governance by introducing behavioral economics principles (e.g. rewarding systems for virtuous citizens behaviors and sentiment analysis), eVoting and crowdfunding platforms, to promote citizens participation to social, cultural and political life of their territories.

The management of SIP is made through a national digital platform using latest technologies such as Blockchain, Artificial Intelligence and IoT and making full use of 5G connectivity. Innovative solutions and related activities lie in the development of a *SmartCities-as-a-Service* (SCcaas) and *Platform-as-a-Service* (PaaS) model to optimize the provision of existing public services. The SCaas-PaaS aims at delivering or enabling core municipal services through digital platforms that are data-driven thus connecting infrastructure, civil servants and citizens to improve its management.

SIP aims at being classified as the most advanced among national best practice of an efficient, inclusive and technologically driven national ecosystem that could be taken as an example to be replicated at an international level. The innovativeness of the proposed solution lies in its ability to match innovation with society by using the most innovative technologies and at the same time testing the first social model of inclusive governance, thus paving the way to a “smart community”.

In January 2020 SIP received public funding from the Italian Ministry of Economic Development following a public invitation to tender. Starting from the first quarter of 2020 the use case testing and implementation has started in a pilot city for a total of 24 months.

This use case is a contribution from the Government of Italy, with some adaptations from the Global Infrastructure Hub.

VALUE CREATED

Improving efficiency and reducing costs:

- Public authorities can optimize and maximize the provision of existing public services and goods
- Cost reduction resulting from a more efficient management of the city by using smart solutions

Enhancing economic, social and environmental value:

- Replacement of traditional vertical chain models in favor of more efficient, scalable and interoperable architecture based on microservices
- Encourage a more inclusive and interconnected society, resulting in a more active participation to social, cultural and political life
- Pursuing at the same time the development and implementation of innovative hi-tech solutions cities together and social inclusion
- Creation of replicable solutions that are applicable at a larger scale

POLICY TOOLS AND LEVERS

Legislation and regulation:

The implementation of digital integrated systems requires the collaboration of both central and local public authorities. Particularly, municipal authorities should be willing to take an active role in providing permissions, establishing or leasing access to sites, antennas, sensors, equipment, transmission/fiber etc.

Pooling and partnership:

Since collaboration, coordination and pooling of skills among many different actors (public sector, private sector - Telcos and innovative SMEs - and utilities managers) is essential to ensure an enabling environment for SIP, well-structured partnerships might be required.

Future-enabled workforce:

Recruiting and training workers to have the skills to effectively manage and monitor advanced infrastructures and related technologies (e.g. PaaS, SaaS, Blockchain, microservices architectures etc.).

IMPLEMENTATION

Cost	The SIP use case is still at an early stage and needs to complete its testing phase (24 months starting from first quarter of 2020) in order to evaluate full scalability and replicability at a larger scale and related specific costs.
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RISKS AND MITIGATIONS

Technological Maturity: the whole model makes use of many different advanced technologies and some of them might still require adaptation and optimization.

Cybersecurity: the PaaS and SaaS models are mainly based on Cloud infrastructures and this might imply security challenges due to the shared nature of Cloud itself. As a consequence, data protection and security threats should be addressed to reduce vulnerabilities.

User acceptance/integration: communication with citizens about the service and its role for the community might be needed, as an effective way of capturing user expectations and encouraging high participation rates.

Digital divide: considering the importance of digital skills among population for the success of SIP, the existence of gaps between demographics and regions that have access to modern information and communications technology and those that don't or have restricted access, might hamper a widespread and uniform inclusion process.

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Workforce transition: the replacement of traditional vertical chain model (applied to key sector as smart energy, smart mobility, etc.) in favor of microservices architecture and the using of advanced systems (as PaaS and SaaS) might require additional resources and training for the workforce to learn how to effectively manage and monitor those infrastructures and related technologies.

EXAMPLE

[Smart Ivrea Project](#) – Agency for Digital Italy (AgID)

The project was developed by the Agency for Digital Italy in collaboration with Politecnico of Turin, the Italian telco TIM, Olivetti and Trust Technologies. The use case has received public funding from the Ministry of Economic Development following a public invitation to tender. It is currently being firstly implemented and tested in the urban and suburban areas of the pilot city of Ivrea (Municipality of Torino, Piemonte).