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***Abstract*— Co-production of public services in smart cities can be supported and enabled by digital technologies, but some challenges related to the introduction of innovative technologies must be addressed. The European project *NLAB4CIT - Network of Laboratories for Civic Technologies Co-Production* aims to validate and spread existing digital solutions for the engagement of citizens in the co-creation of public services at the local level. The project leverages civic approaches to digital technologies, context-based experimentations, and interdisciplinary methods. Expected results are Network of Local Laboratories on civic technology, and an online repository of civic digital technologies, coproduction methodologies, and concrete examples of their implementation in European cities. Local authorities, civil society organizations and research institutions, that are interested in civic technologies for digital co-production, are invited to join the Network.**

Keywords*— *Urban public services, Digital co-production, Civic technologies, networking.

I. INTRODUCTION

Whereas co-production of services in the past were constrained by the limited ability of government to effectively coordinate citizen actions, and by the difficulty of ordinary citizens to self-organize, digital technologies promise to reimage the evolution of the government-citizen relationship around the concept of collaboration. Conversely, in smart cities, Public Administrations need to address the challenge of digital transformation by ensuring that digitally enabled public services meet the expectations of citizens, and that civil servants have the skills needed.

The European research project *Network of Laboratories for Civic Technologies Co-Production: Digital Services for the Public Administrations of the future (NLAB4CIT)* [1] addresses this challenge. The purpose of the project is to facilitate citizens access, interaction and active contribution to local public services through co-creation processes between the citizens and the public administration, supported by digital technologies, so that services meet the real need of the population.

In this contribution, we present the project and its approach to civic technologies and to services co-production in smart cities. We also advance opportunities for networking and collaboration, stemming from the main results of the project: a Network of Local Laboratories, and an online open repository of civic technologies, co-production methodologies, and effective examples of their applications in European cities.

II. THE NLAB4CIT PROJECT

A. The project.

The NLAB4CIT project has received a grant from the EC call for a Preparatory Action *Smart local administration using IoT, AI, VR and Machine Learning tools to get closer and more present to the citizen* - CNECT/2020/3855995). The project started in November 2021 and will run until October 2023. It is carried out by a Consortium of 7 partners from Italy, Greece, Belgium. It includes 3 Research institutions (University of Turin as coordinator, Howest University of Applied Science, Open Lab Athens), 3 Local Authorities (Municipalities of Collegno, Roeselare, Kessariani), 1 Network of Local Authorities (Association of Flemish Cities and Municipalities).

The overall goal is to validate and spread existing digital solutions for the engagement of citizens in the co-creation of public services at the local level. The experimentation is characterized by the civic orientation of the digital tools, by the context-dependent nature of the digitally enabled services, and by an interdisciplinary approach to research, as presented in the next three paragraphs.

B. Civic technologies for digital coproduction of services

The project intentionally combines the concept of digitally enabled co-production [2] and of digital civic technologies [3]. Co-production processes concern services of public interest, rather than market-oriented co-creation of digital products. Services can either be provided by the public administrations, or by the civil society. Civic digital technologies are expected to facilitate citizens' participation in collective forms, and to involve affordable, trustworthy opensource. Intentional actions are taken throughout the whole cycle of design, development, and use of the digital tools, in order to embed public values (e.g. openness, inclusion, accessibility, technological sovereignty) in their features.

C. Context-dependent applications: the Local Labs

Civic technologies are also expected to adapt to the specific socio-economic needs of different local contexts. In order to adapt and validate existing civic technologies, the strategy adopted is based on the activation of Local Labs. The NLAB4CIT Labs are inspired by the Living Labs approach, [4] and are defined as *local* since they pay a specific attention to their geographical, social and political situatedness [5].

The Kessariani Local Lab (GR) is developing a community infrastructure for the volunteer service of Forest Fire Protection, with open source softwares and DIY hardwares for communications, meteo forecasting, teams coordination [5]. Moreover, the social civic network FirstLife [6] is used for participatory mapping of the local history of Resistance. The Roeselare Local Lab (BE) leverage the Roblox VR for engaging young people (10-15 years old) in the co-design of a public Park. The Collegno Local Lab (IT) is testing the blockchain based wallet app CommonsHood [7], integrated with FirstLife civic social network, for implementing a system of tokenized incentives for both social and economic activities of young people in the City.

D. *Intedisciplinary research*

The NLAB4CIT project adopts an interdisciplinary research approach across Computer Science, Urban Geography, Design. The dialogue between developers and social scientists allows to study the potentialities, the risks, the enabling and sustainability factors of digital technologies to the innovation of public services. The collaboration with the local stakeholders according to the Living Lab approach grounds the research in the actual socio-economic and political contexts. Co-design and participatory design methodologies [5] support a context-dependent customization and improvement of the digital tools.

III. Results and Future Networking

A. *The NLAB4CIT Network*

The main result of the project will be a Network of Local Laboratories on Civic Technologies, of which the three active Local Labs represent the starting nodes. The Network's main goals and functions are: exchanging good practices among innovative cities and research institutions; identifying common strategies for the adoption of digital solutions by the local administrators; easy access to use cases, co-production methodologies and digital technologies; further networking and dissemination. Communication and networking activities are being implemented in order to reach European public and private actors that are interested in joining the Network.

B. *The NLAB4CIT Digital Infrastructure*

The Network *is* supported by a digital infrastructure made of the following components, accessible from the final version of the NLAB4CIT website. An open Repository makes validated civic technologies, and co-design and co-creation methodologies, available to the wider public. An interactive Map gathers tangible use cases of digital solutions for service co-creation all around Europe, and links them with the related technologies and methodologies in the Repository. The Map *is* hosted by a dedicated instance of the civic Social Network FirstLife, and represents the main access point to the NLAB4CIT technical, methodological and partnership resources.

IV. Conclusions

The NLAB4CIT project provides an insight on concrete and ongoing experimentations of civic applications of innovative technologies, and makes technologies and methodologies openly available. This is of relevance for diverse actors: urban local authorities, organizations that act as digital social innovators in smart cities, researchers. Indeed, there is a great debate on the potentials and shortcoming of digital civic technologies for enabling effective coproduction of urban services [2][8]. However, especially in the domain of civic technologies, more concrete and validated evidence are needed for grounding technical and political choices on the adoption of technologies. Local Authorities, Research Institutions, Civil Society Organizations, and businesses dealing with civic technologies are invited to join the Network. Future members of the networks are also invited to contribute to populating the Map and the Repository, so that good practices are made available and transferable, thus increasing their outreach.

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