Engaging citizens in digital public service innovation ecosystems - insights from the Netherlands and Italy

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ABSTRACT

Public agencies struggle with engaging citizens in digital public service innovation. The notion that citizen engagement in public service innovation can lead to more citizen-friendly digital services is widely accepted. Moreover, citizen engagement has also become an indicator of legitimacy; public service innovation without citizen engagement is more likely to be scrutinized on public values like privacy, transparency, fairness, and citizen control. Yet it remains difficult to engage with citizens throughout the various stages of innovation. Often, the hard question of how to balance system performance and public values in innovation resurfaces, and we cannot leave it to software programmers to answer this question. This short paper reveals how the Netherlands and Italy are engaging citizens in public service innovation. We found that in both countries, the quadruple helix approach is gaining support and citizen engagement is increasingly becoming the norm rather than the exception. Both countries are gaining experience with new citizen engagement methods like user-driven prototyping and living labs. We found that these methods increase empathy, creativity and reflection on ethical dilemmas. Following such methods also signals to policymakers that a democratic process was followed, ultimately backing a specific innovation direction. Other countries looking to enhance citizen engagement in public services innovation can benefit from the insights presented in this paper.

CCS CONCEPTS

• **General and reference** → Document types; General conference proceedings.

KEYWORDS

digital public service innovation, user driven prototyping, quadruple helix, innovation ecosystems

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1 INTRODUCTION

Policymakers and citizens inspired by the advanced online services offered by Big Tech corporations hold high expectations for digital public services. Matched with the seamless user experience of purchasing products and services online (you get instant results and gratification), the user experience when requesting public services is still lagging in various countries [1]. Typical expectations include improved service responsiveness, ease of use, transparency, security, efficiency, legal certainty, personal data management, interoperability and privacy. Another challenging expectation is digital inclusion, referring to a framework for assessing and considering the readiness of communities to gain access to opportunities in a digital age. Often, these are broad policy expectations and it is not clear if, and how, digital technologies can help. Looking to realize such expectations, policymakers often call for closing the gap between the policy cycles and innovation cycles. Nevertheless, factors such as decentralized governance, autonomous agencies with siloed information systems and a risk-averse culture impede experimentation and transformation [2], [3]. Moreover, the reinforcement hypothesis suggests the idea of maintenance and service continuity over innovation, suggesting that the form that new public services takes, reflects pre-existing system characteristics [4]. Hence, many public agencies are often not able to deal with the ambidexterity of having to exploit current systems and explore innovations at the same time [5]. Combined, the above makes public service innovation quite challenging, resulting in the 'policy-makers innovation dilemma' [6]. Institutions alone cannot solve all of the country's problems, nor can expert professionals.

The idea that citizens can help public agencies innovate is not new. For instance, researchers such as Nobel prize-winner Elinor Ostrom have advocated a strategy of people who are seen, and who see themselves, as producers not just constituents and consumers, working with governing institutions [7]. Schütz, Heidingsfelder and Schraudner [8] emphasize the neglected dialogue with members of society about their relatively new role in innovation processes, not because citizens lack the ability, but because many public agencies have little experience working with citizens.

Acknowledging the potential of citizen engagement in innovation processes, researchers have proposed to use the quadruple

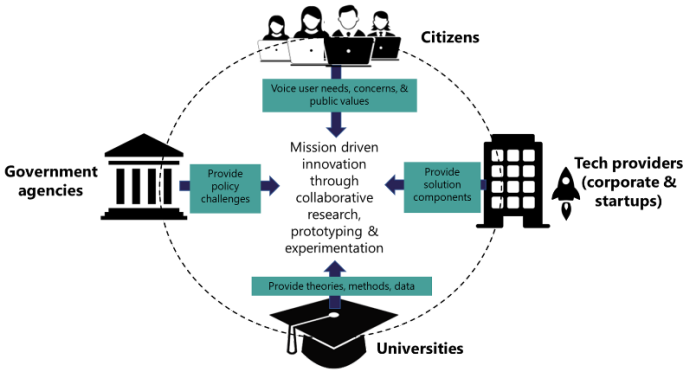

Figure 1: Digicampus implementation of quadruple helix innovation

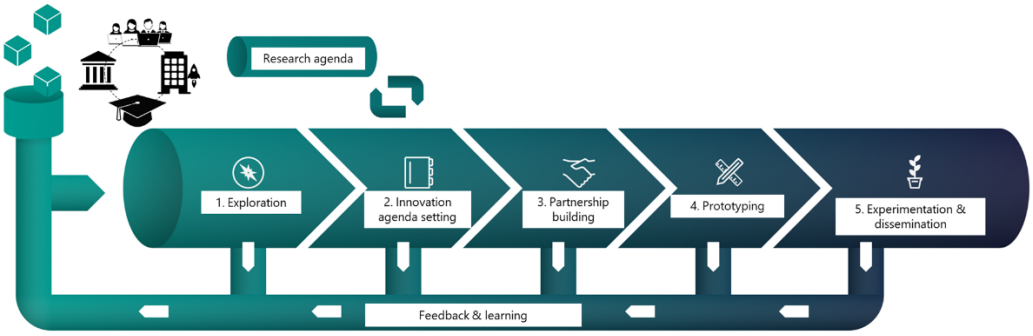

Figure 2: Digicampus innovation pipeline stages

helix innovation model [9]. The Quadruple Helix model is an extension of the Triple Helix model that links three helices – Academia, Government and Industry – for societal innovation and transformation. According to this approach, the additional fourth helix, the citizen, contributes not only as end-user, both also as the voice of public value conflicts [10],[11]. Nonetheless, when it comes to digital public service innovation, we know little about how we can actually implement the quadruple helix model in practice and facilitate citizen engagement. This work in progress paper briefly shares the first insights gained from a research collaboration between the Netherlands and Italy on how both countries implement the quadruple helix innovation model and how they cultivate citizen engagement in digital public service innovation. The objective of this paper is to share the citizen engagement methods used in both countries. The long-term objective is to provide more guidance by analyzing the strengths, weaknesses and best practices of the various citizen engagement methods employed in both countries.

2 DIGICAMPUS IN THE NETHERLANDS

Digicampus is a quadruple helix partnership for digital public service innovation in the Netherlands. It was launched in 2019 [1]. Digicampus uses a mission-driven innovation approach [12] focusing on (1) giving citizens more control of their data and digital identity, (2) making public services more proactive and inclusive and (3) transforming government agencies from data silos to data partners. Figure 1 visualizes the Digicampus implementation of quadruple helix innovation.

For each mission, Digicampus follows an innovation pipeline with six stages, ranging from problem exploration and innovation goal setting to prototyping, experimentation and knowledge dissemination (figure 2).

During each stage, Digicampus employs different methods for citizen engagement. This includes the well-known methods such as surveys and interviews and the less known methods such as design sprints. Citizens can monitor an innovation agenda online and apply for participation (for instance in a design sprint or workshop session). Table 1 provides an overview of citizen engagement methods employed at Digicampus.

One of the most appreciated methods by citizens in public service design at Digicampus is user-driven prototyping. In user-driven prototyping we let the target group (citizens as end-users) do the prototyping by following a set of guided instructions: sensitize, create design space, empathize, define, ideate, prototype and present. By letting the target group prototype, you get to know the target group better and you get ideas about possible solution directions. A key advantage of this approach is the high level of creativity captured through interaction with citizens. However, it is vital to be

[1] www.digicampus.tech

Table 1: : Overview of citizen engagement methods used at Digicampus

	Method	Example of usage
1	Design sprint	Four-day workshop on developing a consent management solution for the elderly.
2	User-driven prototyping	Series of online sessions in which citizens follow instructions to develop a prototype solution for making the process of data collection when buying a first home less stressful.
3	Flash-poling using social media	How do citizens feel about the use of voice assistants and chat robots in public services?
4	Controversies workshop (role-playing game with multiple stakeholder groups)	Explore public value dilemmas in the design of smart cities using Mural boards. The goals and preferences of the various stakeholder groups are captured in role-playing instructions.
5	Semi-structured surveys with citizens	Data collection on user needs and preferences in the case of using self-sovereign identities in the future.
6	Collaboration platform	An open digital collaboration platform and community using Alkemio on which public innovation challenges and results are posted and citizens can apply to join innovation activities.

clear about the expectations upfront since citizens cannot deliver a working solution after a couple of sessions.

3 ARTI IN ITALY

Similar to Digicampus, ARTI represents a quadruple helix innovation partnership in Italy. The acronym ARTI stands for Apulia Region Agency for Technology and Innovation [2]. ARTI plays an important ambidextrous role in maximizing the effort to exploiting and exploring at the same time. ARTI was launched in 2004. The key focus was to support the regional government in designing and managing economic development, innovation, education, training and job policies. ARTI's vision is to become the regional government agency of the frontier, targeting the themes, sectors and technologies of modernity. ARTI, like Digicampus, develops and shares knowledge, acting as a knowledge hub: a place that enables sharing, collaboration, learning and transformation. To achieve this, ARTI follows two guidelines:

•Connectivity: ARTI creates and supports relationships with regional, national and international institutions and persons.

•Knowledge domain: ARTI creates, develops and disseminates knowledge, acting as a knowledge hub: a place that enables sharing, collaboration, learning and creativity.

ARTI performs a wide ride of innovation and capacity building activities with citizens that can be grouped in two categories:

- **Exploring:** discovery and exploration of socio-economic and technological contexts, which lead to the development of strategic visions for areas of industrial policy and regional development:
- Developing technological and domain visions;
- Building skills;
- Developing innovative visions for society;
- Developing innovative services (inbound/outbound).
- **Exploiting:** planning and implementing interventions and initiatives on:
- Socio-economic analysis and research;
- Support to the realization of Apulia smart specialization strategy;
- Valorization of research results and promotion of innovative businesses;
- Monitoring and assessing regional policies;
- National and EU-funded projects;
- Communication and dissemination of innovation culture.

One of the most appreciated methods by citizens in public service design at ARTI is the 'Digitalisation & Living labs'. Living Lab, defined as open and user-centered ecosystems, based on a systematic approach to co-creation, foster collaboration as platforms where multiple stakeholders can engage in interaction, dialogue, and development activities [13]. A recent example of using the living lab approach at ARTI is about co-creating and deploying public services during COVID-19. This is a methodology frequently cited in many Smart Specialization Strategies and Digital Agendas of the Mediterranean regions as a method for activating the Quadruple Helix model for local and regional development through innovation. Over time, we found that this is a powerful citizen engagement method, allowing us to develop and implement collective goals and promote new opportunities. The living labs also help to improve the feeling of belonging in a community. The living lab approach motivates the groups to work on societal goals for sustainability and choose solutions, supporting for change and increasing the citizens' appreciation of the area where they live in. Furthermore, living labs communicate to everyone that citizens have a voice in public service innovation. Thus, they are instrumental for organizing and finding opportunities for citizens to develop the city together with municipal policy-makers and other stakeholders. Moreover, living labs allow policy-makers to respond to their expressed needs. Living labs can be used to boost the transition towards sustainable development at the local level, within the context of a Quadruple Helix model. However, it is important to note that this method is very resource-intensive and requires long-term time commitment of representatives from the various stakeholder groups.

4 CONCLUSION

This short work-in-progress paper demonstrates that government agencies can successfully employ several methods for public service innovation. The drivers needed for this are a sense of urgency and willingness to open up innovation activities for the entire society

[2]https://www.arti.puglia.it/arti-apulia-region-agency-for-technology-and-innovation

(represented by the quadruple helix approach). This can be sensitive since some public agencies do not want to be open about their innovation struggles and lack of innovation capabilities. Because innovation efforts often fail, it is also important to acknowledge the value of learning from failures. On the other hand, it is essential to develop and refine a set of new and more inclusive methods to make citizen participation in public service innovation easy and effective. Most of the available service design techniques in literature (e.g. design sprints) are based on targeting and segmentation of user groups, concepts that public agencies often cannot use, given the principles of universal service delivery. Therefore, we also need innovations on the method level, as means to drive innovation on the digital services level. The experience in the Netherlands and Italy thus far is that new citizen engagement methods such as user-driven prototyping and living labs – that have a strong emphasis on prototyping – show a lot of potential for making the four helixes turn and engage with citizens on a deeper level.

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