# Enhancing public e-service development with citizens' self-organized collaboration

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**Abstract.** Governments are seeking to deliver public e-services in a more efficient and effective manner by encouraging citizens, entrepreneurs and the third sector to participate in the design process of public e-services. The traditional government-centric approach to define and develop public e-services is slowly transferring to a more open user-centric approach, where different actors in city a context are able to participate and collaborate in various public innovation processes and e-platforms. With a more open and collaborative approach governments are aiming to improve the quality and cost effectiveness and also increase the general usage of public e-services. Moreover, open data published by governments will increase transparency and at same time support citizens' and entrepreneurs' possibilities to discover and produce new and innovative public e-service solutions. This position paper presents the approach toward a more open model that involves different actors in civil society into innovating and producing new public e-services. Finally, the idea of a new open innovation model is presented where self-organised citizens and entrepreneurs are able to collaborate and innovate together.

## 1. Introduction

Governments are encountering socio-economic challenges concerning issues such as aging society, environment, health, safety, polarization and poverty. These fundamental challenges together with decreasing public finance means there is a need for the renewal of government administration by taking advantage of collaboration with an ever growing digital society. Fundamental problems (also called wicked problems) are difficult to solve without strong support from individuals and society as a whole [1]. Therefore, citizens and private business are encouraged to become co-producers and co-providers of public services, which would mean for the governments the possibility to get more with less investment of public resources [2]. Cities and regions are to transform collaborative centres of knowledge, innovation and entrepreneurship, which accelerate the growth of prosperity in that area and simultaneously provide solutions to fundamental socio-economic challenges [3].

In recent years a number of non-profit organisations have opened their innovation process by incorporating the idea of a collaborative paradigm [4]. Organisations have noticed the benefits for the public value that citizen networks and new types of online platforms create [2]. Nabisan (2008) defines network-based collaborative innovation as follows: *"as an externally focused approach to innovation and problem solving that relies on harnessing the resources and capabilities of external networks and communities to amplify or enhance innovation speed and innovation outcomes"* [5].

Moreover, citizens' involvement in the public service design process enables to increase service availability and improve service delivery, create more personalized services, increase the speed of delivery and improve the possibilities for citizens to reach services [6].

This position paper states that public e-services are needed to innovate more open model, which would give possibilities for citizens and other stakeholders to take part in a self-organised innovation process and become co-producers and co-providers of e-services. In addition, the open model would improve democratic thinking when a variety of citizen groups are able to join in the design process and influence the development of public e-services profoundly. Current participation solutions focus on the ideation phase when there is a need to pass from innovation to adoption by democratizing the creation process and fostering the public-private partnership that will jointly exploit the outcomes of the innovation process.

## 2. Toward a more open model to design and deliver public e-services

Digital society promotes governments' need to renew their public services and turn those into eGovernment services by taking advantage of the electronic implementation of administration tasks [7]. The eGovernment services enable to create more interaction between government and; (1) citizens, (2) businesses, and (3) other government agencies. Moreover, the Open Government (OG) approach extends the interaction to participation and collaboration between different actors. Currently, a number of governments are implementing the idea of Open Government [8], the three principles of which (table 1) are transparency, participation and collaboration [7].

Table 1. The three principles of Open Government [7]

| Transparency | Participation | Collaboration |
|---|---|---|
| Transparency allows citizens to see through official bodies and make democratic decisions. | Through participation citizens are involved to democratic process of forming the city planning and proposing the direction which public services development should take. | Collaboration with citizens enables the public administration to become more efficient by utilizing citizens knowledge and interest. |

Veljkovic et al. (2014) summarize actions that permeate the OG idea as follows: *"(1) opening public sector information data and enabling citizens and entrepreneurs to access government-held data in a uniform way (data transparency). (2) Opening government processes and operations to the public (government transparency). (3) Explaining decisions and actions to the citizens, acting on requirements expected for the task and accepting responsibility for failure (government accountability). (4) Engaging citizens in decision making (participation). (5) Enabling cooperation across different levels of government, between the government and private institutions and between the government and the citizens (collaboration). [8]"* For the public sector, the OG approach means a way to engage citizens through bottom-up approach where citizens are seen as co-creators of value rather than as passive consumers of goods and services. When citizens are given the environment and tools, they can participate and collaborate and become as much producers as consumers [9].

The OG approach takes advantage of Open Data that refers to information that has been made available to be used and republished for free by anyone, without restriction of any intellectual property rights. The European Union [9] has indicated that open data, published by the government, promote discovering novel service solutions. Moreover, open data works as an enabler for citizens and private business to participate in the co-creation process and potentially deliver novel public e-services.

## 2.1 Various types of participation and collaboration with citizens and other stakeholders

The form of participation and collaboration between citizens, private business and the public sector varies widely. Nambisan (2008) defines two approaches [5], namely government-led and community-led , based on the collaborative arrangement in networked governance. Saad-Sulonen (2014) divides citizens' participation in the design of digital technology into four categories (Table 2) [11] as follows: (1) Administration-centric approach that does not involve citizens in the design process. (2) The next level of participation consists typically of e-participation tools that enable citizens to give feedback and recommendations related to urban environment and find solutions to these problems. (3) In the third level participants collaborate with each other in setups that have been organised by the public sector. (4) In the fourth level participants design during use. The next level, beyond the category, would be an innovation process where participants can self-organise their goals and activities, which affords them greater possibilities to initiate e-services from their perspective. Government can still facilitate the self-organised design process by offering public innovation processes and e-platforms.

Table 2. The types of participation in the design of digital technology and their characteristics by Saad-Sulonen [11]

|  | Non-participation | Staged participation: testing and feedback | Staged participation: collaboration | Participation as design-in-use |
|---|---|---|---|---|
| **Characteristics** |  |  |  |  |
| **Relationship: participation/design/use** | No participation, design ≠ use | Participation informs design | Participation informs design, use and contexts of use | Participation = design during use, in the context of use |
| **Roles** | Expert activity only | Experts (designers) invite users to test, give feedback, give ideas for product development | Experts and users collaborate at the specifications level | Users design (program, develop, choose, configure, connect) / Experts meta-design |
| **Theoretical or practical reference** | Mainstream view of technology design | Usability, UCD | Scandinavian PD | EUD, current digital practices |

## 2.2 Elements to citizens participation to open self-organized collaboration

As described earlier, a number of governments are approaching a more open model to innovate public services by incorporating the idea of collaborative paradigm. Usually citizens are invited to a design process to give feedback and recommendations to planned solutions or they are invited to an innovation process organised by the public sector. More profound participation that gives citizens a possibility to self-organise their goals and activities is less used and it is a much newer approach. Moreover, Open Data would support citizens' possibilities to take part if to self-organised innovation process and become co-producers and co-providers of e-services. However, there is a need to develop new approaches and practises on how citizens can take the leap and pass from innovation to adoption. This chapter gives some initial ideas.

First, governments need a framework for the innovation process that supports users' self-organized activities and the use of open data and citizens need a low threshold process and platform to participate, collaborate, design and eventually deliver new e-services. Living Lab and the Open Innovation process are approaches that could offer a framework for the innovation process. Table 3 describes differences between Living Lab and the Open Innovation process. While Living Lab concentrates on the consumer, the Open Innovation process focuses on a business model. Living Lab is a human-centric approach that involves users in their own environment in co-creating, testing, and

Table 3. Differences between Living Lab and Open Innovation [13]

| Living Lab | Open Innovation |
|---|---|
| Business to consumer with a clear focus on user involvement (Ståhllbröst & Bergvall-Kåreborn, 2008; Svensson et al.,2010) | Business to business (Chesbrough, 2006) |
| Focus on the product/service (Erikson et al.,2006) | Focus on the business model (Chesbrough & Appleyard, 2007) |
| External input in the whole innovation process (Svensson & Ihlström Erikson, 2009a; Ståhlbröst, 2008) | External input focus on ideas and technology (Smith, 2004) |

evaluating IT related services and products [12]. Moreover, the Living Lab approach involves users in a long-term and more permanent innovation ecosystem that supports researchers to focus the development of one or several service/s or product/s at the in same time in the users' own context [14]. However, users are seen in the Living Lab approach more as testers for new solutions, whom researchers can interview and observe, and not as people that define the starting point and innovate from their perspective. In turn, the Open Innovation process [15], presented by Chesbrough (2003), has provided a framework for the private sector to involve their customers in the service and product innovation process. The Open Innovation process has been recently adopted into public sector. Chesbrough (2003) defines two elements [15] that have promoted the Open Innovation process among companies: (1) Companies find it difficult to control knowledge workers' ideas and expertise, and (2) the fledgling companies have more possibilities to finance the ideas that have spilled outside of the corporate research labs. Finally, Living Lab can be considered as a co-creational ecosystem that facilitates stakeholder engagement while the Open Innovation process works as a framework where citizens, private business and government can use the external ideas to develop their services in a collaborative Public-Private Partnership setting. Living Lab and the Open Innovation process includes a transition from producer innovation to open single user innovation and open collaborative innovation.

Second, it is needed to incorporate practices, methods and tools into the innovation process so that citizens and private business can actually participate and collaborate with each other. Participatory Design (PD) and Service Design are suitable approaches to engage citizens and private business in a co-creational innovation process. PD provides a set of practices to involve end-users in the innovation and design process of digital services. Moreover, Muller & Druin (2002) describe PD [16] as follows: "PD is a set of theories, practices, and studies related to end-users as full participants in activities leading to software and hardware computer products and computer-based activities". In addition, PD is motivated by the idea of democratic thinking that combines diverse knowledge from different users groups in order to create better services and products [16]. The idea of democratic thinking is well suited with the idea of the Open Government approach. On the other hand, Service Design methods and tools promote the co-creational approach and therefore they are appropriate vehicles to engage citizens, businesses and government agencies in the innovation process. Moreover, the methods and tools enable users to participate in innovative collaboration through four phases. The Double Diamond Model presented by the Design Council [17] is a simple way of mapping the service design process, describing the divergent and convergent stages of the service design process [18]. The model has been divided into four distinct phases, Discover, Define, Develop and Deliver, similarly as in the service design process [19] defined by Stickdorn & Schneider (2011).

To conclude, a new more open model for innovating e-services could include four elements: The Open Innovation process works as a framework that promotes the concept of sharing ideas while Living Lab involves participants to long-term and more permanent innovation ecosystem.

Participatory design and Service Design work as practices that help participants to share their knowledge, needs and wishes and participate as experts/prosumers in an innovation process.

## 3. Discussion and Conclusion

Governments have noticed the positive advantages that can be achieved by involving citizens and other stakeholders in the innovation process to develop future e-services. This promotes the idea that public e-services are needed to innovate a more open model, which would give possibilities for citizens and other stakeholders to take part into self-organised innovation process and become co-producers and co-providers of e-services. The Open Government approach and its consequence Open Data are enhancing citizens' possibilities to create their own applications and become providers of public e-services. In addition, the open model would improve democratic thinking when a variety of citizen groups are able to join in the design process and influence the development of public e-services profoundly from the beginning to the very end.

This position paper presents the idea of a new open innovation model where self-organised citizens and entrepreneurs are able to collaborate and innovate together. First, governments need a framework for the innovation process that supports users' self-organized activities and the use of Open Data, and citizens a low threshold process and platform to participate, collaborate, design and eventually deliver new e-services. The Open Innovation process works as a framework that promotes the concept of sharing ideas while Living Lab involves participants to long-term and more permanent innovation ecosystem. Second, it is needed to incorporate practices, methods and tools into an innovation process so that citizens and private business can actually participate and collaborate with each other. Participatory design and Service Design works as practices that helps participants to share their knowledge, needs and wishes and participate as experts/prosumers in an innovation process.

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