DESIGNING A DIGITAL CITIZEN-CENTERED SERVICE THROUGH SOCIAL INNOVATION

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Abstract: In this article, we examine the methodology that should be applied to design a social innovation through a service based on a digital platform implementation to improve benefit statement digitalization. The method of stakeholders' inclusion, the triangulation methodology, and the citizen-centered service design are the main approaches discussed. The key outcome will be the discussion of a research agenda to design a citizen-centered service, deployed as a digital platform, through social innovation in a complex ecosystem.

Keywords: Service design; Digital platform; Social innovation; User-centered design; Methodology.

1   Introduction

Today, in so-called developed countries (Switzerland, Canada, and Germany, for instance), citizens cannot obtain automatic online data concerning their pensions and retirement capital. Few public administrations provide user-centered, updated digital benefit retirement or calculation systems allowing citizens to plan retirement financially.

The European Commission (2021) benchmarked digital government in 36 European countries and compared how administrations provide digital public services. The general eGovenment maturity score in Europe is 68%. In comparison, Switzerland's score is 52%, putting it in 30th place (European Commission et al., 2021). This is an awkward situation for a country that was ranked the most innovative country of the world in the Global Innovation Index 2021 (Soumitra et al., 2021), and digitalization of benefit statements is a critical issue that requires further research.

The research project presented in this article, "Digital Individual Benefit Statement (DIBS)," aims to develop a digital platform for Switzerland, comparable to an online banking system, allowing citizens to

1. automatically retrieve and collect data concerning their pensions and retirement capital from the state, occupational pension fund, and individual savings

2. and perform accurate retirement income simulations (Equey, 2021).

The development of a citizen-centered service deployed as a digital platform is much more than a technological challenge. The fact that Switzerland does not yet offer this service to its citizens is difficult to understand, especially with the current digitalization trend. To our knowledge, no scientific study has shown why the development of a service for retirement pension purpose is so difficult. Our hypothesis is that the complexity of the Swiss social security system and the diversity of the stakeholders (government, bank, pension funds, and other institutions) make this task extremely tedious. We therefore suggest that the methodology adopted must be carefully considered to ensure the project's success.

Therefore, in this article, we discuss the accurate methodology that should be applied to design a service based on a digital platform implementation and that will represent an important social innovation in a complex environment. We also discuss the method of stakeholders' inclusion in every step of the process and the triangulation methodology chosen. Social innovation, as a process of developing and deploying effective citizen-centered solutions to challenging systemic social issues, is central to our overall methodology. However, the fact that a social innovation is considered a driver for citizen-centred service design and policy implementation must also be questioned. The final aim is to discuss the methodology to gather our peers' ideas, opinions, and experiences.

The main outcome is a proposed research framework to design a citizen-centered service through social innovation in a complex ecosystem.

2   Literature review

Service design, as a practice and an area of research, has been occupying the discussions on innovation, technology, and organizational change. Services, as the sum of policies, processes, rules, and infrastructures needed to provide a useful service for citizens, are open-ended, heterogeneous, and based on relational exchanges. They rely on human interaction and include technical, organizational, and legal processes. They are made up of things— places and systems of communication and interaction—but also of human beings and their organization (Meroni and Sangiorgi, 2011). The fact that users are human beings with needs and interactions seems to be a challenge in designing a new service. An increasingly common feature of such services is the centrality of the user in co-creating service experiences (Edvardsson, 1997). The centrality of the user is reflected in how user-centered design (UCD) practices have become synonymous with service design. Social innovation practices have been demonstrating that co-created services now include more sustainable patterns of human interaction and more distributed forms of social organization (DESIS Network and Manzini, 2013).

Furthermore, when the stakeholders are numerous, as is the case in the social insurance system, agreement among all parties to develop a new service could be an issue to overcome. The social innovation triple- and quadruple-helix models serve as the main frameworks of organizing multi-stakeholder collaboration in service design. The triple helix includes academia, industry, and government as the main actors in social innovation (Etzkowitz and Leydesdorff, 2000), and the quadruple helix adds civil society as the

fourth actor (Carayannis and Campbell, 2017) . Carayannis and Campbell (2021) positioned the quadruple helix as directly dependent on knowledge democracy, as knowledge and innovation evolution depend on democracy, but Etzkowitz and Leydesdorff (2000) claimed that civil society is not an institutional sphere on the same level as a university, industry, or government. The triple helix includes civil society as a key enabling condition of triple helix interactions (Cai and Lattu, 2021).

The European Commission et al. (2021) also emphasized the importance of user inclusion. In a study of thirty-six (36) European countries, they assessed four (4) aspects to describe the government's maturity level of digitalization:

- user-centricity,
- transparency,
- key enablers,
- and cross-border mobility.

They highlighted very practical factors to evaluate an effective eGovernment online service. The following are in close relation to our project:

- online access,
- proactive service,
- user support (contact details or video, feedback, or complaint section),
- mobile friendly service,
- indication of how long the service will take,
- delivery timeline,
- confidentiality and security of personal data,
- citizens' consultation and participation in the service design,
- electronic identification solution,
- single sign-on,
- paperless and clear communication from the government,
- accessing services from abroad,
- and availability of eDocuments.

This list of effective practices must be considered when developing a digital service for citizens, but the importance of involving citizens in the service design seems to be a key success factor and is our main hypothesis.

3   Methodology

The DIBS project is a social innovation initiative led by the Haute école de gestion de Genève and co-financed by the Swiss Confederation (Innosuisse, a state-based innovation fund), private and public partners. The DIBS project's approach activates the quadruple helix of social innovation as its overall methodology. These four actors are clearly articulated in the project's design: academia (Haute école de gestion de Genève), industry (software editors), government (Federal Social Insurance Office, for instance) and civil society (firms' associations, banks, experts, user groups), who will be associated with the

DIBS project to work together on the development of the digital individual benefit statement service.

To deal with numerous and diverse stakeholders, the DIBS project comes with a governance method that includes partners in all project phases, decisions, and products. The DIBS research and design methodology is based on qualitative and quantitative methods. To design the new service, the use of various approaches is proposed, such as focus groups, interviews, and surveys. Patton (1999) recommended a triangulation approach, i.e., the use of various methods and points of view of various stakeholders to enhance results of qualitative studies and to avoid inaccurate generalization.

Depending on the project phase, we apply and combine various methodologies, being careful always to include the user and their needs in our study. The main project's steps are

1. identification of the stakeholders and mapping of the ecosystem;

2. definition of the service's scope, functionalities, and targeted user;

3. assessment of legal basis and service of early governance mechanism;

4. user's needs analysis;

5. drafting of use cases;

6. API (application programming interface) design;

7. proof of concept (tests and iterations included);

8. and prototype (tests and iterations included) and collective governance action plan.

Preece, Rogers, and Sharp (2002) also emphasized specifically the need to involve users in the design and development of a new product or service.

Abras, Maloney-Krichmar, and Preece (2004) discussed how users must be included in the designing of a product. First, they distinguished three levels of users depending on the level of the product's use (users, occasional users, and impacted by use) and highlighted that all three kinds of users must be involved in the service design. Then, they discussed how to engage users in the design phases. The most mentioned methodologies are

1. testing (user's evaluation) at various stages of development (including afterward),

2. questionnaires (surveys),

3. interviews,

4. and focus groups.

Farrell (2017) listed methods to be used depending on the stage of the design cycle. Again, the above methodologies were quoted as the most often used. However, other frequently applied methods were field studies, requirements and constraints, persona building, task analysis, user stories, card sorting, search-log analysis, usability bug review, feedback reviews, and FAQ review.

Following Abras, Maloney-Krichmar, and Preece (2004) and Farrell (2017), we proposed various methodologies for the DIBS project, depending on the phase of the project, and were particularly careful always to include the various stakeholders and users. The table below presents the most pertinent methods selected.

Table 1 Research methodology suggested in each project phase

	Specialized documentation analysis	*Literature review*	*Interviews*	*Focus group*	*Survey*	*Other*
Identification of the stakeholders and mapping of the ecosystem	X		X			
Definition of the service's scope, functionalities, and targeted user	X	X	X	X	X	
Assessment of legal basis and service governance	X		X	X		X
User's needs analysis	X	X		X	X	
Drafting of use cases	X	X	X	X		
API (application programming interface) design	X	X		X		X
Proof of concept (tests and iterations included)	X	X		X		X
Prototype (tests and iterations included)	X	X		X		X

Source: Table created by the authors.

Our goal is to present the DIBS service approach as a meaningful mechanism for designing and implementing citizen-centered services. In our case, this effort is based on a social innovation approach and is meant to introduce new ways to provide user-centered service and policy design. The table above demonstrates that mixed stakeholders—project partners, coordination committee, external experts, and targeted user populations—reviewed and validated all project results, including user needs, user and system interfaces, and initial products.

4   Discussion

There is much room for improvement on policy makers' efforts to use alternative "tools of government," particularly from a policy making and design perspective. DIBS is situated at this exact point: creating a meaningful mechanism for designing and implementing citizen-centered service based on a social innovation approach and introducing new public-policy design methods. The DIBS mechanism is co-designed and deployed within a Swiss stakeholders' ecosystem and will provide meaningful contributions to an applied social innovation context.

More specifically, DIBS will seek to highlight how public and private entities engage in multi-stakeholder service, policy design, and governance decisions. As aforementioned, the quadruple helix of social innovation is our guiding model, particularly Mode 3 of knowledge production (Carayannis and Campbell, 2021). Our multi-stakeholder governance approach already in place should allow us to demonstrate

- the process of collective decision making and, most important,

- how initial innovation stemming from academic, business, or state or civil society becomes common knowledge for all project participants.

This process includes concrete service design steps that lead to a) service based on a digital platform implementation, as mentioned above, and b) governance decisions on the future of the service regarding what type of entity should take over the current structure and with what objectives.

Finally, our overall social innovation approach has a direct impact on the technological decisions in implementing this service. Information infrastructures, such as shared evolving; open; standardized; and heterogeneous installed base of systems, data, process, and technologies (Hanseth. 2010), are considered a new stage of information and communication technology (ICT) innovations, including the technological components and the social aspects (Tilson, Lyytinen, and Sorensen, 2010). DIBS will shed some light on the intertwining technological characteristics, capabilities, interactions, and negotiations between actors involved in their development, leading to co-designing a new information infrastructure (Constantinides, 2012). It is important to emphasize that to develop a collaborative innovation approach, certain stakeholders must give up some control over their data and systems to realize mutual benefits, supported by governance mechanisms making this possible.

Acknowledgements

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Areas for feedback & development

1. Which methodology is the most accurate to design a complex digital citizen-centered service through social innovation?

2. Do you have any tips on how we can strengthen our literature review?

3. What organizational form should we choose to maintain and manage a digital platform designed to provide a citizen-oriented service so that it strengthens the collaboration between the private and public sectors?