Supporting Co-Creation processes through modelling: The development of a Digital Modelling tool for complex service innovation environments

Abstract

This contribution introduces novel modelling approaches to the co-creation of service innovation in social contexts. They respond to some of the practical challenges of working with multiple stakeholders in distributed environments. The aim of the tools is to enable, support and guide the complex discussions that are required to identify, and strengthen participation in the co-creation processes of service innovation in contexts of health, social care and welfare. Evidence suggests that the tools support stakeholders' reflection on the wide range of social, ethical, moral, organisational and technical challenges of sustainable and effective services and associated service environments.

Introduction

We have seen over a decade of near universal enthusiasm for service and social innovations in public services as a response to the challenges of society (Mulgan et al. 2007, Hartley 2007, European Commission, 2013). The promises of transformation have, perhaps unsurprisingly, shown that the innovation of services is much more difficult in practice (Moulaert et al 2013, Brandsen et al 2016). Even successful projects or demonstrators have often failed to be sustainable or to scale beyond the environment where they were initially designed and/or implemented (Brandsen et al 2016, Brandsen et al 2018, Meijer and Thaen, 2020). The efficiency and effectiveness of the ways in which the capacities, roles and relationships between a range of stakeholders including citizens, public managers, public sector and NGO staff are deployed and been supported by digital tools and technologies (such as Open Data) have also been questioned (Brandsen et al 2018, Jamieson et al 2019). This has led some to describe innovation in these areas as having the properties of a 'magic concept' (Bragaglia, 2020) and raise the spectre of the 'dark side' of such efforts with perverse effects endemic within the current orthodoxy (Meijer and Thaen, 2020).

In spite of these critiques, one of the approaches that has been applied with persistent, if qualified, success in the prosecution of service innovation is that of 'Living Labs'. This represents a form of engagement in which the processes of innovation and co-creation are organised, accessed and studied (Gasco-Hernandez 2017, Dekker 2018). This approach to emergent user-driven innovations is intended to empower the individual user, or the community as a whole, to represent their perspectives and worldviews (Bergvall-Kåreborn & Ståhlbröst, 2009; De Moor et al., 2010)). Living Labs encompass societal and technological dimensions in multi-agency partnership environments including businesses, citizens, governments, and academia (Bergvall-Kåreborn & Ståhlbröst, 2009). However, many of the tools that have been created and designed to capture insight and information regarding co-creation itself, have been generic (Abbate et al., 2019). In contrast, design thinking and participatory methods in particular, share

the perspective that not all innovations are the same (Bekker & Long, 2000). The response to this has been the provision of a range of tools and techniques to improve and consolidate practice. It is in this tradition we have developed a contribution to the field of co-creation and service and social innovation which seeks to encourage collaborative social learning. Drawing on the concepts of 'Living Lab' in public or government services (Gasco-Hernadez 2017), our approach in the first tool (see Martin et al 2019) provides capacity for stakeholders involved in social and service innovation to participate in a sensemaking process in order to reflect on models which represent the design of an intervention and wider service innovation environment.

The second tool evolved in response to emerging requirements identified as part of a Horizon 20/20 project across nine countries each delivering a service innovation pilot. CoSMoS (Co-Creation Service Modelling System) is an open-source digital platform comprised of a collection of complementary service co-creation models (Jamieson et al 2020). CoSMoS supporting contexts (both synchronous or asynchronous) where participant's responses can be elicited in response to specific models, which are recorded and then displayed via visualisation in real-time (a sort of online survey tool 'on steroids'). The use of the tool builds models as part of the development process of rendering a range of co-creation processes explicit including modelling stakeholder engagement with services and service environments. The real-time provision of interactive representations through modelling can take a number of forms – from online meetings using common tools such as Zoom to more traditional face to face deliberations. The overall aim is to promote active reflection with participants involved in the co-creation processes where evolving models act as 'mirrors' and 'windows' between stakeholders to promote more focused mutually informed debates. The digital representation of these models allows for the curation of evidence including websites, images and files, social media and open data sources, which can be used in wider discussions. CoSMoS has been designed so that stakeholders can be engaged interactively or offline, individually or within a workshop environment. The outputs can

then be shared and compared with a range of involved stakeholders acting to enhance discussions regarding the variety of aspects of service and social innovation.

From models of processes to supporting processes of modelling

The initial objective of our Living Lab work was to create a set of generic models which could be related and mapped onto each of participating service innovations which iteration through three waves. The Living Lab was to be used as a stimulus to discuss the processes and methods of co-creation and service innovation across the pilots contexts within the project. Pilots commenced in three "waves". This sequence was intended to ensure that later starting pilots would build on earlier ones, and enable the project to nurture, explore and analyse service innovations.

Phase 1: The first 'wave' pilots – Probation, Disabilities/Complex Needs and Childhood Obesity

In order to initiate the input for the generation of models, each pilot in the first wave was actively engaged in intensive facilitated face-to-face, discussions about their pilot context and innovation supported by desk research. This process identified and related the actors, processes and resources and key aspects of political, social and technical contexts. The emphasis here was on the roles, responsibilities and relationships within each pilot as well as on the intervention and service processes themselves. These were then refined and elaborated in 'Living lab' discussions within the pilots resulting in further elaborations. The first Living Lab tool was deployed as a means of recording, presenting, co-designing, and discussing models developed with, and by, each of the pilots from Hull (Probation), Jönköping (Planning for Disabilities/Complex Needs) and Reggio-Emilia (Childhood Obesity).

By juxtaposing and synchronising multiple visual displays, this process supported a projection-oriented approach to capturing and maintaining the different aspects of complex socio-technical systems and environments in which the co-creation process of the service innovation was being undertaken. A project workshop reflected an emerging clarity and appreciation of the pilots both from an internal perspective and also in terms

of the ability to communicate and explain their context and approach to each other and to external audiences. The Living Lab at this stage had significantly increased the capacity of the pilots to communicate to the wider project partnership by providing a common approach to visualisation and modelling as well as supporting internal communications and co-creation, within the pilots.

Phase 2: The Challenges of Creating Models
The original project plan was based on the assumption that, following completion of the Living Lab sessions with the first wave pilots, the following waves would be able, with support, to produce their own models. After significant effort the issues with this approach persisted despite the development of additional technical features to support the process; the local modelling was only moderately successful. Testing the generic models themselves in paper-based, face to face workshops demonstrated that the models themselves were accessible and useful to the pilots. The conclusion emerged that it was the approach to authoring and visual design in the first Living Lab digital platform that was challenging and required relatively expert local support.

Phase 3: COSMOS a new Approach to Modelling (and Sensemaking) Service Innovation
Recognising that the barrier-to-entry for the pilots to model using the initial Living lab toolset was prohibitive, an alternative approach was devised. Based on the experiences from the second phase we moved the emphasis from creating models to support pilot deliberations to modelling as a co-creation process in which template generic models were created to be populated and discussed by stakeholders in the pilots. The initial model for testing this was the Co-Creation of Service Model (as seen in Figure 1). The outcome of this process is a model of each pilot which is a specific instance representing local developments identifying the emphasis of development and delivery platform and the contribution of actors/organisations involved.
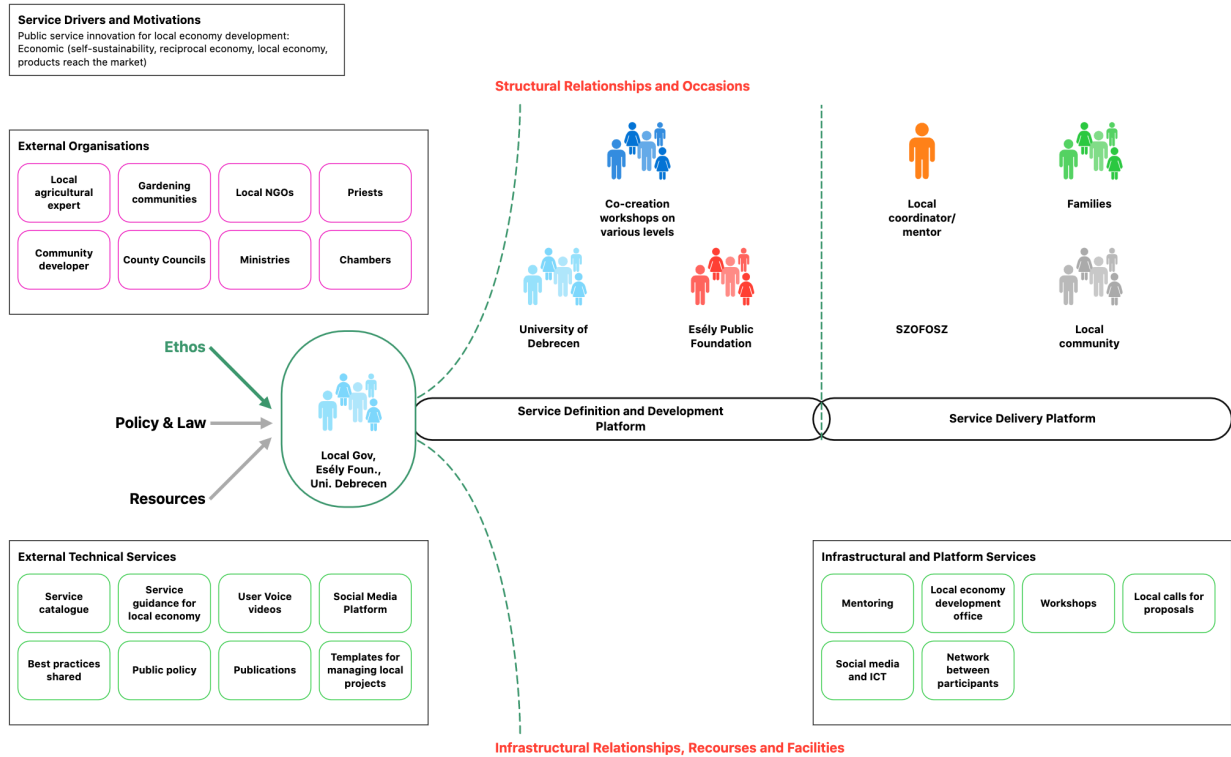
Figure 1 - An Example of the CoSMoS tool output to build a model using the Co-Creation of Service Model

The successful engagement of the consortium members with the initial model in CoSMOS led to a widening of the tool to include other models and key aspects of service innovation activity 'Change', 'User Insight' 'Social Media and Open Data' as well as a repository to store supporting images and documents (see Figure 2).
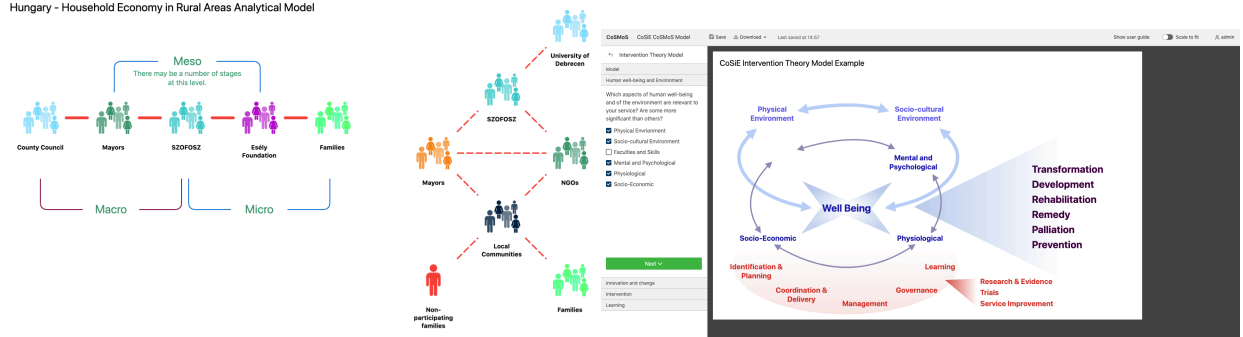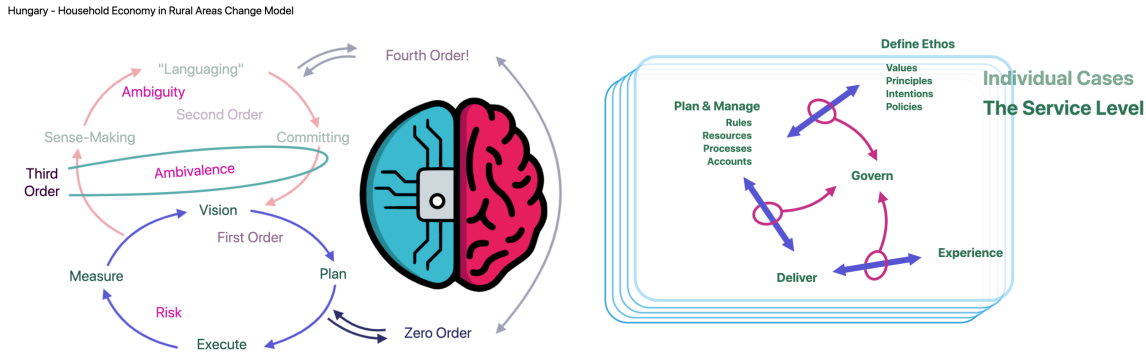
Figure 2 – The range of models produced by CoSMoS in relation to co-creation and service and social innovation.

The provision of the range of models in the form of an interactive digital tool offers the means to apply explicit modelling processes in co-creation activities across diverse spatial, governance, practice and technical domains.

Contribution to Practice

The modelling method of CoSMoS supports the concept and practice of co-creation and offers a significant potential for stakeholders, service designers and participants to jointly improve the output of their efforts and service provision in a range of settings by providing a structured approach to the co-creation process. It achieves this by responding to the opportunity that the online cost-efficiencies and availability of multimedia-rich interactions to provide a more sustainable means of creating value in new forms of producer-consumer collaboration (see Fuller et al 2017) and the call from Prahalad and Ramaswamy (2004) for new building blocks for co-creation.

CoSMOS has emerged from the challenges of working with a heterogenous set of service innovation pilot projects both in terms of their socio-political, linguistic, technical and service contexts. It is an attempt to derive models that are sympathetic to various stages of maturity and co-creation approaches of the pilots and to raise key external elements and factors which, are relevant in any service development lifecycle.

We acknowledge that this sort of deployment of a lab approach, which seeks to improve collaboration in new ways, is challenging particularly as such developments are often highly focussed, tightly resourced and pragmatic by their nature. However, we see emerging evidence that the CoSMOS approach scaffolds a wider range of conversational possibilities between stakeholders involved in the co-creative process in relation to complex public service areas.

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