



# Managing the “Fuzzy front end” of open digital service innovation in the public sector: A methodology

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## ABSTRACT

There are many obstacles to effective open innovation in the public sector context, especially at the “fuzzy front end” (FFE), where the need or opportunity is known but serious resources have not yet been committed to possible solutions. In this paper, we report on a theoretically inspired and practically tested methodology for FFE public sector digital innovation. The methodology was purpose-built for the context and has been progressively refined using reflection-on-practice, but broadly consists of a hybrid of private sector open innovation practices, and agile software development processes. We outline the background, context, principles, stages and artefacts. Then we evaluate the method in terms of barriers and opportunities to FFE public sector innovation. We note that establishing the necessary context: a nurturing environment; cross-agency commitments in cash and in kind; and boundary spanning appointments, is as important to success as is the detailed execution of the method.

## 1. Introduction

There is worldwide interest in public sector service innovation. This phenomenon is driven by factors that include: a changing population profile with different service needs; an increasing use of digital platforms; a decreasing appetite for large government; and a move towards contestable, community-based, or public–private hybrid models. Public agencies are aiming for a more collaborative and participative relationship with stakeholders (Denhardt & Denhardt, 2000; Paagman et al., 2015), and hope to harness digital technologies to achieve this (for example, Dunleavy, Margetts, Bastow, & Tinkler, 2006; OECD, 2016). Both public and private agencies are committing to open innovation processes – meaning that valuable ideas can come from inside or outside the organization (Chesbrough & Spohrer, 2006) – and may involve working co-operatively with partners in alliances, informal co-operations and joint-ventures (Gassmann & Enkel, 2004). A major aim of open innovation is to access valuable knowledge from a range of external resources (Esterhuizen, Schutte, & du Toit, 2012; Lee, Olson, & Trimi, 2012; Nambisan, 2008). There are important differences between public sector and private sector innovation. Public sector innovation is typically aimed at services rather than products; improved performance and public benefits rather than competitive advantage; and requires more interaction, negotiation and dispute resolution with stakeholders (Cunningham & Kempling, 2009; Lee et al., 2012). Other

issues include: the difficulty of innovating in silos due to the absence of an integrated approach across government, engaging users, forming appropriate partnerships (Bertot, Jaeger, & McClure, 2008), inflexible cultures, legal requirements, a need for inclusiveness and diversity, and lack of a policy framework (Uppström & Lönn, 2015).

In addition to these general issues, many large organizations, both public and private, struggle with what has been described as the “fuzzy front end (FFE)” of innovation (Smith & Reinertsen, 1992). This is the “fuzzy zone between the time when an opportunity [or need] is known and the time when serious effort is devoted to the development project” (Gassmann & Enkel, 2004, p. 4). Surfacing good ideas, and deciding which ideas to pursue, remains a challenge for many organizations.

Issues of innovation for citizen-centric government services have recently attracted a great deal of scholarly attention. Recent studies have primarily focused: 1) at a high level, on the logic and governance of citizen-centric public services; 2) at an intermediate level, on innovation life-cycles; 3) at a detailed level, on toolkits and deliverables; or 4) on specific innovation drivers such as big-data. At the high level focus, recent studies have concentrated on (among other things): the logic of public services (for example, Osborne et al., 2012); collaborative innovation at different levels of government (for example, Torfing, 2016); and managing the stakeholders in e-government (Rowley, 2011). At the intermediate level, studies on innovation life-cycles (for example, Gassmann & Enkel, 2004; Kyffin & Gardien, 2009), provide a

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high-level overview of the process and steps involved in carrying out innovation. Toolkits and deliverables for innovation are explored by, for example, Bucolo & Matthews (2011), as well as in many guidelines and white papers from industry sources.<sup>1</sup> There have also been studies on how to leverage specific innovation drivers such as “big and open linked data” (Janssen et al., 2017).

Our paper uses these studies as a point of departure in three ways. First, we offer an in-depth vertical case study, that shows how high-level principles and governance interact iteratively with the overall innovation life-cycle, the selection and development of specific FFE deliverables, and the integration of FFE deliverables into the later stages of the innovation life-cycle. Second, we examine some of the well-recognized barriers and constraints to effective innovation in government, and identify the opportunities that need to align in order to address these barriers. Third, we show how we draw on insights from existing methodologies to create a purpose-built method. Overall, we provide case-based insights into the effective vertical implementation of open innovation, and show how our approach addresses barriers and leverages opportunities. A general framework for the study is shown in Fig. 1.

The purpose of this paper is to present a methodology for carrying out open innovation for digital public services, concentrating on the FFE. Following the methodology we briefly describe the theoretical foundations of the method, then illustrate the stages and deliverables. We follow with a discussion and key contributions and a conclusion.

## 2. Theoretical background

### 2.1. Innovation life-cycles and types

Although the actual process followed may be highly iterative, and organizations may enter the process at different stages and back-track to earlier points, engaging in innovation follows a broadly agreed life cycle (Gassmann & Enkel, 2004; Kyffin & Gardien, 2009), as depicted in Fig. 2. The life cycle allows ideas to become increasingly concrete and eventually move into testing and market evaluation. As illustrated, the stages up to the development of early models and prototypes are considered by Gassmann and Enkel (2004) to constitute the FFE where our study is concentrated.

Public sector innovation is a broad concept that can incorporate many types of service innovation: (brand new services or service improvements); service delivery innovation (new ways of delivering existing services); conceptual innovation (new ways of thinking that challenge assumptions underlying services); systematic innovation (new ways of interacting with other organizations or knowledge bases); governance innovation (new ways of engaging citizens and institutions); process innovation (new ways of producing and provisioning services); and communication innovation (new methods of promoting the organization and influencing the behavior of individuals) (De-Vries, Bekkers, & Tummers, 2016; Windrum, 2008). We aimed to support a range of innovation types in our method.

### 2.2. Barriers and opportunities

While digital innovation in government is not new, until recently, it faced many challenges. However, a convergence of opportunities arising from the vision and culture of public management, approaches to IT sourcing, and new IT architectures are addressing many of these barriers. A summary of the interrelated barriers and opportunities is shown in Fig. 3.

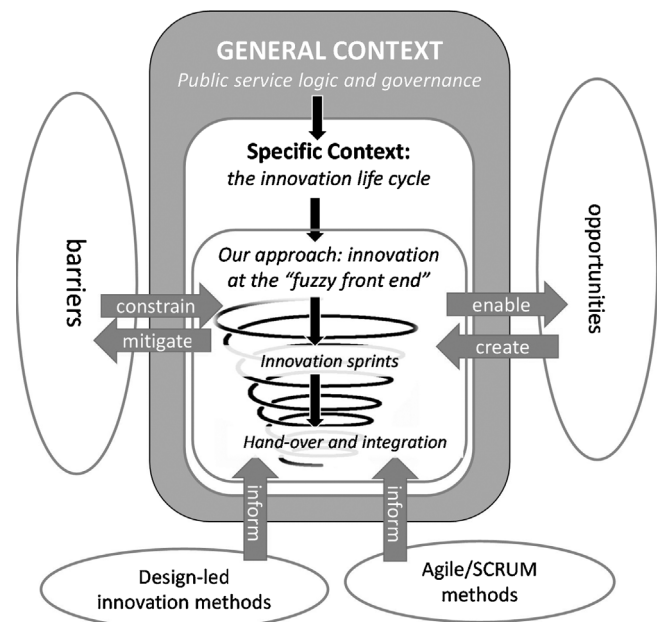


Fig. 1. High-level framework for the study.

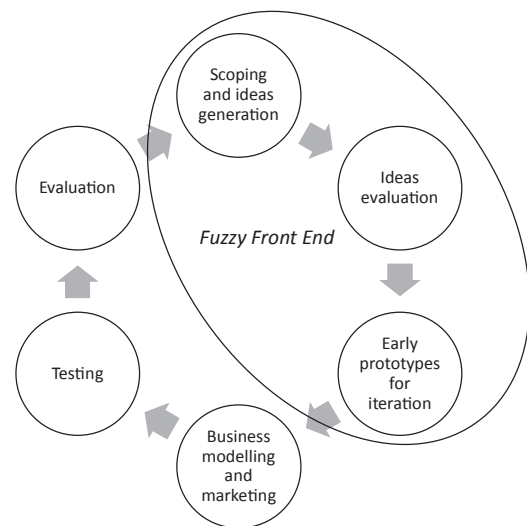


Fig. 2. The innovation life-cycle and the FFE.

#### 2.2.1. Barriers and opportunities in the vision and culture of public service delivery

A noticeable deepening disconnect between citizens and government in many parts of the world has been recognized as a global challenge: “there is a fundamental disconnect between citizens around the world and the elected officials that supposedly represent them” (World Economic Forum, 2014, p. 20), and this disconnect has been a barrier to discourse about public services. However, this has also created opportunities for new conceptualizations of the role of government, and a view that democracy needs to modernise itself and actively involve citizens in decision-making processes: “governments should position themselves as the bodies that articulate the issues faced by society, and then strive to create the right environment...to find the solutions” (World Economic Forum, 2014, p. 21). In the academic community, the so-called “New Public Service” vision advocates (among other things) that public agencies should engage in processes of collaboration and shared leadership with stakeholders (Denhardt & Denhardt, 2000). Technology has been seen as a major enabler of this change.

Although e-government initiatives have been pursued since the

<sup>1</sup> A compilation of white papers is available from <http://www.ninesigma.com/open-innovation-resources/white-papers-and-reports>.

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