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# The collaborative realization of public values and business goals: Governance and infrastructure of public–private information platforms

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ABSTRACT

The scale of society's evolving challenges gradually surpasses the capacity of the public sector to address them. Coping with these challenges requires budget-short governments to look for innovative ways to transform and improve their operations and service provisioning models. While in many cases transformation starts from the inside-out (based on policy goals) and focuses on reorganization through ICTs, we notice a different class of initiatives in which external ICT developments are capitalized by governments to transform from the outside-in. One category of ICT innovations that is especially promising for such a transformation is that of information platforms (henceforth platforms), which can be used to connect different stakeholders; public and private. Platforms are not new. Yet, there is not much research on using public–private platforms as part of a transformation effort, the (policy) instruments that are involved, nor about dealing with the cascading multi-level challenges that transformation through platforms offers. This paper addresses these knowledge gaps by drawing on empirical research embedded in two long-term endeavors: (1) standard business reporting between businesses and government agencies and (2) international trade information platforms. In both cases, platforms are being collaboratively developed and used by a collective of public and private organizations. These initiatives reveal that government agencies can steer and shape the development of public–private platforms in a way that enables businesses to pursue their own interest whilst transforming business–government interactions and more generally serving collective interests and public value. Our findings indicate that once a public–private governance structure is accepted by stakeholders and adapted to fit with the technical dimensions of the information infrastructure, even platforms that are driven by the private sector can start to evolve in a way that enables extensive transformation of the operations of government.



## 1. Introduction

Almost every organization is required to report to stakeholders or government agencies on their performance, enabling these actors to determine the level of compliance with social norms, policies, laws, regulations and provisions in contracts. Business-to-government (B2G) reporting can include areas such as finance, taxation, social security, environment, health, education and labor. Over the last decades, each of these areas has yielded a dedicated reporting chain or even multiple chains within these areas. Traditionally, the ways and formats for B2G information exchange is prescribed by government agencies, each of them with their own processes and interfaces. As a result, organizations now have to deal with various administrative and information reporting processes that can be very different, even though they often require the same or similar data elements. In the current networked environment, businesses increasingly expect that government agencies cooperate with each other, harmonize information requests and interact with businesses in a uniform way. This however demands extensive transformations, truly changing the way public agencies define, request, and process business information.

The transformation of government, in terms of changes in the organization, operations and governance of the public sector, has been an important topic in electronic government and public sector reform for a while (Borins, 2014; Janowski, 2015). The objectives of such change at least include making savings in public spending, improving public services (in quality and effectiveness), and making the operations of government more efficient (Pollitt & Bouckaert, 2004). Transformation of government goes beyond digitizing government and is about making the public sector as a whole more effective (Van Veenstra, Klievink, & Janssen, 2011). Van Veenstra (2012) distinguishes between transformation as a product (e.g. transformation in the organizational structure, processes and practice) and transformation as a process (e.g. a different way of looking at how governments create value). However, the underlying notion is still one of a government seeking to improve itself (i.e. reform rather than transform), whereas in the past decade, studies on innovation and on research-and-development in the private sector have undergone a paradigm shift, from closed to open innovation

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(Chesbrough, 2003). The idea of open innovation is that knowledge and technology from beyond the organizational boundaries offer the potential to do something with; to innovate from the outside-in (Inauen & Schenker-Wicki, 2011).

As budget-short government agencies are expected to transform, they should consider leveraging the innovations of others, and use and attempt to steer those innovations to fulfill the objectives of transformation, instead of focusing on improving internal processes and reducing costs, which in turn affect the environment in which government agencies operate — an inside-out approach (e.g. Irani, Elliman, & Jackson, 2007; Weerakkody & Dhillon, 2008). In other words: governments should also consider to transform from the outside-in, which constitutes a different class of transformation initiatives, in which external developments are capitalized by government agencies to transform their operations, in collaboration with others (Janssen & Estevez, 2013).

Innovation from the outside-in is based on the innovative capacity of society as a whole, in which government organizations can play a variety of roles (e.g. provide incentives, act as user, or as catalyst), instead of leading as initiator and organizer of the entire transformation. Citizens and businesses become partners, instead of primarily users. This is based on networked approaches to governance and innovation, instead of being based on hierarchical governance (e.g. De Bruijn, Ten Heuvelhof, & In't Veld, 2010). These kinds of innovations, especially when they occur through (collaborative) platforms, are often studied in the business-to-business domain (Gawer & Cusumano, 2013). However, how transformations can be achieved via collaborative (development of) platforms by networks of public and private organizations is rarely studied. This leaves a void on how government agencies can take advantage of *collaborative public–private information platforms* (which we will from now on refer to as *public–private platforms*) to use societal or business innovations as part of government transformation.

Looking to advance knowledge on the understanding of how the public sector can transform the ways it interacts with businesses through public–private platforms, this paper investigates the challenges and instruments for platform-enabled transformation. The question at the center of this paper's investigation is: *what instruments can be used by governments for platform-enabled transformation and what are the challenges in applying them*? Answers to this are important as we see collaborative platforms (developed and used by public and private organizations) emerging in practice while we do not yet understand which factors impede of stimulate transformation. We draw on empirical research embedded in two of such recently developed platforms linking the public and private sector: (1) standard business reporting between businesses and government agencies and (2) information platforms for international trade. In both cases the information systems of business are taken as a starting point for transformations.

This paper proceeds as follows. Section 2 provides a more substantive treatment of collaborative platforms in general and argues why these represent an embryonic research area. Section 3 explains the research approach followed in order to answer the research question. Section 4 describes the background of the two cases. Making a cross-case comparison, Section 5 focuses on the challenges and instruments employed to stimulate transformation. Together with the findings and discussion of their implications, as described in Section 6, this answers the central research question. This paper ends with conclusions on collaborative public–private platforms, in Section 7.

## 2. Theoretical background

### 2.1. Overview: overarching themes on platforms

Platforms have become an important topic, studied from various perspectives. We provide a brief overview of the research on three recurring and overlapping perspectives: functional, structural and organizational. Dominant themes in literature include value creation, collaboration, business models and information infrastructure. The challenges described in literature span these perspectives and themes.

From a functional perspective there is much research on industry platforms (Gawer & Cusumano, 2013), where a platform acts as a foundation upon which others can develop complementary products, technologies or services (Gawer, 2009). Value creation is a dominant theme in this line of research. Platforms act as intermediaries between two or more groups of agents, for example in the form of Multi-Sided Platforms (MSPs) to organize economic transactions (Hagiu & Wright, 2011). Hagiu and Wright (2011) define an MSP as "an organization that creates value primarily by enabling direct interactions between two (or more) distinct types of affiliated customers." (p. 2). Platform creation draws on the notion of collaborative value creation instead of mere competition (Osterwalder & Pigneur, 2010).

From a structural perspective, platforms are often described as technical artifacts, for example the interfaces that actors develop to connect to a platform, which can outlive the platform (Tiwana, Konsynski, & Bush, 2010) and will thus affect the technical landscape regardless of the success of the business strategy of e.g. the platform leader. Eaton (2012) argues that digital platforms are a specific form of digital infrastructures, "configured as an industry platform and that makes available digitalized components […] which act as foundation upon which developers can build complementary services" (Eaton, 2012, pp. 14–15).

From an organizational perspective, studies on platforms often address questions like how to become a platform leader (Gawer, 2009), how to make money on offering something via a platform (Eaton, 2012), or on the role and level of control that developers have (Tiwana et al., 2010). The underlying assumption is that a platform can be beneficial both to every individual actor and to the collective. However, as Barringer and Harrison (2000) argue, networks of stakeholders are difficult to organize and manage, particularly as the number of actors involved increases. Still, questions concerning governance and control are often overlooked or only addressed from a narrow view on platforms (Tiwana et al., 2010). There are papers focusing on participative platforms developed by government agencies (e.g., De Reuver, Stein, & Hampe, 2013; Slaviero, Maciel, Alencar, Santana, & Souza, 2010; Welch, 2012). Still, most of this research focuses on either government-to-government or government-to-citizen interactions. The development of platforms in the public–private domain remains a relatively understudied domain. A major challenge for platforms as a socio-technical manifestation of a collaboration between parties from both the public and the private sector, is that the private sector business models should be aligned with the action and values that have to be created by government organizations (Janssen, Kuk, & Wagenaar, 2008).

Drawing on the conceptualization of a platform as a socio-technical concept (Baldwin & Woodard, 2009), we argue that both the *information technology* (*IT*) *infrastructure* (e.g. interfaces and services) and *governance mechanisms* (e.g. multiple user groups of the infrastructure, terms, conditions, decision-making structures, and stakeholder objectives) should – in interaction with each other – be addressed when studying public–private platforms as a means for transformation as both offer specific types of challenges and present different types of instruments. We discuss these two focus areas in turn as the background to and analytical lens for our study of the cases.

### 2.2. Focus area 1 — the platform's information infrastructure

Digital Information Infrastructures (II) are used to describe shared, heterogeneous systems that emerge and evolve through the interplay of technology, users, providers, and policy-makers (Janssen, Chun, & Gil-Garcia, 2009; Tilson, Lyytinen, & Sørensen, 2010). Digital infrastructures can be used by a wide variety of actors, with usage, roles and types of actors evolving over time (Janssen et al., 2009). They include technological and human components, networks, systems and processes that contribute to the functioning of a specific information system (Braa, Hanseth, Heywood, Mohammed, & Shaw, 2007). The information

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