Title : Can the Power of Platforms be Harnessed for Governance?[1]

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[1] Ansell thanks Alison Gash, Eva Sørensen, and Jacob Torfing for useful discussions about platforms. Miura received generous financial support for this project from JSPS KAKENHI (Grant Numbers JP15KK0082 and JP15K03315).

This article has been accepted for publication and undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process which may lead to differences between this version and the Version of Record. Please cite this article as doi: 10.1111/padm.12636

Can the Power of Platforms be Harnessed for Governance?[1]

As suggested by phrases like "platform economy," "platform society," or "platform capitalism," the idea that platforms represent a novel and transformative mode of innovation and production is now widely accepted in the business world.[2] Although not as eye-catching as their business counterparts, public institutions are also experimenting with platforms as a strategy of governance. Examples include self-styled platforms such as the United Nations' Global Platform for Disaster Risk Reduction, the European Union's Platform for Action on Diet, Physical Activity and Health, or Canada's Climate Change Adaptation Platform. Less overtly, institutions as diverse as the United Nations Global Compact, Scaling-Up Nutrition, the Network of European Foundations, and Amsterdam Smart City are also exploring platform strategies. Governance platforms are now being constructed by a wide array of actors at local, national, regional, and global scales and across issue areas like humanitarian aid, nutrition, environmental sustainability, economic development, and poverty alleviation.

This interest may partially trade on the hype around private-sector platforms, but also builds on and extends three widely recognized developments in the public administration and governance literature. First, governance is increasingly recognized as decentered or distributed, as an extensive literature on networks, contracting, public-private partnerships, co-production, and collaborative governance has established. Some of this work already anticipates the platform concept. Provan and Kenis (2008), for example, describe the importance of a central or lead organization for coordinating a network of service providers or stakeholders. The platform concept takes this idea one step further because platforms typically serve as the organizing nexus for multiple networks rather than for a single network.

Second, as governance becomes more decentered and distributed, leadership becomes more indirect, facilitative, and intermediating. This argument has been developed in discussions of the state's role as a "metagovernor" or "metaregulator" (Sørensen and Torfing 2009; Gilad 2010)

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[2] On these ideas, see Kenney and Zysman (2016), Van Dijck et al. (2018), and Srnicek (2017) and Langley and Leyshon (2017), respectively.

and in the literatures on "facilitative leadership" in collaborative governance (Ansell & Gash 2012), "orchestration" in international relations (Abbott et al. 2015) and "intermediation" in innovation studies (Howells 2006). The platform concept builds on these ideas, but goes a step further to focus on how platforms leverage institutional and technological resources to enable decentered and distributed action.

Third, there is growing appreciation that the public sector needs to actively manage planned and emergent change (Kuipers et al. 2014) and public sector innovation has become a prominent topic (Torfing 2019). Work on adaptive governance, democratic experimentalism and crisis management all stress the importance of continuous adaptation and improvement (Steelman 2016; Sabel and Zeitlin 2008; Moynihan 2009). Platforms provide a framework for strategically enabling decentered and distributed innovation and change.

The platform concept brings these three developments together to examine how strategic leadership and institutional and technological resources enable multiple distributed activities to innovate, adapt, and change. The central question addressed in this paper is: Can this potentially powerful organizing logic be harnessed for public purposes? Since governance platforms are still largely experimental, we cannot fully settle this question at present. However, we can begin to address the issue to help scholars and practitioners explore the potential of platforms. We start with a general statement about what governance platforms might offer to the public sector, before probing the concept more deeply. We then investigate the institutional mechanisms that purportedly make platforms powerful and propose a typology of governance platforms. Finally, we investigate the challenges and successes they have encountered.

Why Are Governance Platforms Potentially Important?

We identify four broad ways—connecting, scaling, intermediating, and mobilizing—that platforms might contribute to public administration and governance, with references to relevant research. First, by constructing interactive arenas for connecting various actors, platforms may allow the public sector to reach and engage citizens and stakeholders in powerful new ways. Crowdsourcing platforms may help to aggregate distributed citizen input (Brabham 2013; Bott and Young 2012; Aitamurto and Chen 2017; Liu 2017; Taeihagh 2017). Participation or deliberation platforms may foster citizen participation in policy deliberation (Desouza and Bhagwatwar 2014; Aitamurto and Landemore 2016; Aragón et al. 2017; Garard et al. 2018; Sørensen and Torfing 2018; De Blasio and Selva 2019; Nardi et al. 2019). Co-production

platforms may enable public authorities to engage citizens in improving the delivery of government services (Linders 2012; Falco and Kleinhans 2018a; Janowski et al. 2018) and multi-stakeholder platforms may allow diverse groups to engage in productive exchange (Steins and Edwards 1999; Selsky and Parker 2010; Adekunle and Fatunbi 2012).

Second, platforms may allow for scalable governance, especially the scaling up of public innovation and collaborative governance. Innovation platforms sponsored by the public sector may facilitate not only public and private innovation (Kilelu et al. 2013) but also open innovation (Hilgers and Ihl 2010; Almirall et al. 2014; Brunswicker and Johnson 2015; Tukiainen et al. 2015; Ojasalo and Kauppinen 2016; Raunio et al. 2016; Mergel 2018). Living labs and smart city platforms potentially magnify the impact of urban experimentation (Baccarne et al. 2014; Gascó 2017; Kronsell and Mukhtar-Landgren 2018; Nesti 2018; von Wirth et al. 2019) and collaborative platforms may encourage the scaling up of collaborative governance (Ansell and Gash 2017).

Third, by intermediating a range of parallel but interconnected activities, platforms may extend the scope of public problem-solving efforts. Work on community public health platforms (Sherry et al. 2017), collective impact (Kania and Kramer 2013), co-management of natural resources (Steins and Edwards 1999), and sustainability (Perry et al. 2018; Grove and Pickett 2019) have all come to recognize the value of assembling and aligning diverse but comprehensive efforts to address complex social problems. Platforms may provide an institutional framework for such efforts.

Fourth, platforms may be a "force multiplier" that aids the public sector to mobilize unused resources, facilitate the sharing or reuse of resources or bring public and private resources together in synergistic ways (Selsky and Parker 2010; Nambisan and Sawhney 2011; Millard 2018). Open data platforms may allow the widespread and creative use of government data (Janssen and Estevez 2013; Walravens et al. 2014; Toots et al. 2017; Mergel et al. 2018; De Blasio and Selva 2019). Platforms may also promote a sharing economy (Mair and Reischauer 2017; Martin et al. 2017; Ganapati and Reddick 2018; Hofmann et al. 2019).

Although these potential benefits are often made possible or enhanced by the internet and digital technologies, we stress that platforms embody a distinctive *organizing logic*.

The Organizing Logic of Platforms

Ciborra (1996) was the first scholar to call attention to platforms as a distinctive organizing logic. He described the company Olivetti as an organization that continuously reorganized its internal organizational structures in order to adapt to rapid technological and market change. Other scholars have described platforms as a set of more stable components that are reused or shared to dynamically generate varied products or projects (Baldwin and Woodard 2009) or as "meta-organizations" that "federate and coordinate constitutive agents" (Gawer 2014, 1245). Broadly speaking, a platform provides various kinds of resources for its affiliates or users to productively and flexibly organize.

Platforms can usefully be described in terms of their *architecture*, which refers to how they configure communication channels and interaction arenas and deploy resources, competences, tools, and structures. Four external and functional dimensions of platform architecture can be distinguished that correspond to the four potential contributions of platforms to public governance. A platform is: a *participation architecture* that extends participation opportunities to external actors (Baldwin and Clark 2006; West and O'Mahony 2008); a *scalable architecture* that drives and accommodates the expansion of user networks and activities (Tiwana 2014; Parker et al. 2016); an *intermediation architecture* that forms interactive arenas at the intersection of multiple scales and sectors and connects and matches diverse actors for deliberation and collaboration (Kilelu et al. 2013; Langley and Leyshon 2017); and a *mobilization architecture* that leverages and orchestrates distributed knowledge, expertise, skills, and resources (Hagel et al. 2010; Kilelu et al. 2013).

Internally, platforms are organized as modular architectures and infrastructural resources. Platforms aim for easy reconfigurability, scalability, adaptation, or customization to meet the needs and objectives of their affiliates or users. This flexibility is often enhanced via *modularity*. A system is modular if its "elements, or 'modules,' . . . independently perform distinctive functions . . . and can evolve autonomously, without altering the overall structure of the system" (Pil and Cohen 2006, 997). A platform constitutes an enduring core that permits complementary parts to be easily added, combined, or modified (Baldwin and Woodard 2009). The ability to flexibly recombine modules—often with the aid of standardized interfaces—enhances the customization of products and encourages adaptive evolution of the system (Pil and Cohen 2006; Tiwana 2014).

Platform architectures are also designed to be at least partially owned, appropriated, or utilized by their affiliates or users. Platforms deploy what economists call *infrastructural resources*, which are "shared means to many ends" that can be used at the same time by many different parties for many different uses (Frischmann 2012, xii). A highway is a familiar infrastructure used by motorists for a wide range of purposes; many less familiar resources, such as forums, models, training modules and data, also meet this definition. By providing these infrastructural resources, platforms enable and empower their affiliates or users to create value (Parker et al. 2016, 46-47).

Drawing these ideas together, we can now more fully define the concept of governance platform:

A governance platform is an institution that strategically deploys its architecture to leverage, catalyze, and harness distributed social action for the purpose of achieving certain governance objectives.

Based on this definition, the concept of governance platform can be distinguished from three related concepts in the public administration and governance lexicons—network, meta-governance, and orchestration.

Beginning with the concept of network, consider the case of the Global Outbreak Alert and Response Network (GOARN), a consortium of public and private organizations that coordinates rapid response to infectious disease outbreaks (Ansell, Sondorp and Stevens 2012). Organized under the auspices of the World Health Organization, the group is a self-described "network" and fits the definition of a network as a group of "three or more legally autonomous organizations that work together to achieve not only their own goals but also a collective goal" (Provan and Kenis 2008, 231). However, GOARN also fits our description of a platform. When a significant disease outbreak occurs, GOARN rapidly assembles teams of experts to assist host country governments. Each team is itself a small network mobilized in a customized fashion to address a specific disease outbreak. GOARN is thus a mobilization architecture that leverages distributed knowledge and resources in an adaptive fashion.

Nor are the concepts "platform" and "meta-governance" mutually exclusive. As a concept, meta-governance refers to the "governance of governance," with a focus on processes of steering, control, and accountability. Meta-governors attempt to control semi-autonomous networks to enhance their effectiveness and democratic accountability (Kooiman and Jentoft

2009; Sørensen and Torfing 2009). By contrast, the platform concept emphasizes how its architecture is deployed to leverage, catalyze, and harness distributed social action—as opposed to steer, control or hold it accountable. Consider how the California Division of Water Resources (DWR) encourages stakeholders to develop regional water resource management networks (Conrad 2015). The DWR meta-governs these regional networks by establishing compliance standards. However, the DWR also supplies local networks with grants, technical assistance, and planning tools to help them effectively organize. In the first instance, DWR is acting as a meta-governor; in the second, as a platform.

Platforms can also be distinguished from orchestration, a concept now commonly used in the global governance literature. Abbott et al. (2015) characterize orchestration as indirect governance of targets through intermediaries. The concept of orchestration refers specifically to the relationship between orchestrators, intermediaries, and target actors. For example, international organizations orchestrate NGOs (intermediaries) to manage governments or corporations (target actors). Platforms may be orchestrators or intermediaries, but the key focus is on how they use architectural leverage to facilitate distributed action. The *Scaling Up Nutrition* (SUN) Movement orchestrates country-level nutrition efforts by mobilizing and empowering intermediaries to promote and implement improved national nutrition planning and action (targets). As a platform, it strategically leverages four "networks" (civil society, business, donor, and the UN) to provide a wide range of nutrition planning, action tools, and technical support to mobilize and align national stakeholders, be they intermediaries or governments.[3]

Having provided a basic overview of the distinctive organizing logic of platforms, we now delve deeper into their potential power. Although we draw on the business literature to do this, our goal is to isolate key criteria by which we might judge platforms operating either in the public sector or in the wider sphere of governance.

What Makes Platforms Powerful?

Powerful business platforms have triggered concern about their "digital dominance" (Moore and Tambini, eds. 2018; Gillespie 2010, 2018; Srnicek 2017; Van Dijck et al. 2018). Governance platforms have not fully established their efficacy, much less their dominance, but to the extent that they represent a potent force, they too may raise concerns. One

[3] https://scalingupnutrition.org/

concern might be about their democratic accountability and control, a general issue in the governance literature (Papadopoulos 2003; Sørensen and Torfing 2009). A second concern is who extracts the value from platforms and whose views, values, and interests do they advance (Pasquale 2015; Gillespie 2018; Moore and Tambini 2018)? A third concern is that digital platforms may violate privacy and create insidious modes of social control (Williams 2015; Arora 2019; Caprotti and Liu 2019).

We can briefly illustrate some of the concrete concerns that could arise around governance platforms by noting issues raised about the Intergovernmental Science–Policy Platform on Biodiversity and Ecosystem Services (IPBES). One concern is that experts from Western developed nations have been overrepresented on this platform (Timpte et al. 2018). Another is that the inclusion and role of different stakeholders are matters of on-going contestation (Esguerra et al. 2017). A third concern relates to whether the "epistemic authority" of the IPBES valorizes a neoliberal view of the environment that devalues local knowledge and practice (Turnhout et al. 2014, 594). In short, governance platforms may reflect, exacerbate, or even generate social and political inequities.

Although mindful of such concerns, our focus on platform power lies elsewhere. The power of business platforms over their users stems from their power to create and extract private value, often augmented by "the power of algorithmic authority" (Pasquale 2015, 16), but governance platforms do not build on market transactions or necessarily depend on big data analytics. Nor do they typically exercise coercive legal authority, relying instead on a "soft" mode of governance that enables and empowers. Without relying on market incentives, algorithms, or legal authority, what makes governance platforms powerful?

Our broad answer is that the power of platforms depends on their *generativity*, which is achieved by what platform scholars call their *architectural leverage* (Thomas et al. 2014). Generativity is the ability to spontaneously and continuously initiate and generate new and unanticipated outputs (Zittrain 2006; Magatti 2019). The generative power of the Internet and personal computers (PCs), for example, allows users to do many things easily (Zittrain 2006). The generativity of platform users and thus platforms may result in new services, programs, practices, relations, or even platforms, which further enriches and boosts their infrastructural resources. This development cycle may allow governance platforms to progressively "do more by leveraging more" (Millard 2018, s79). The more successfully they activate and sustain the cycle, the more powerful they become.

We posit that the generative power of governance platforms stems from three kinds of architectural leverage—interaction, production, and innovation[4]—and that skillfully and effectively exploiting them may enable platforms to grow and evolve through positive feedback mechanisms, such as network effects and scaling. Below, we elaborate each type of leverage and use the United Nations Global Compact (UNGC)—the world's largest voluntary initiative for advancing corporate sustainability—to exemplify them.

Interaction leverage refers to a platform's capacity to enable and facilitate interactions that range from exchanging information, knowledge, and other resources to conducting deliberations and negotiations (Thomas et al. 2014). Interactions can occur either between platform providers and their users or among the latter. Platforms are two- or multi-sided if "they enable direct interactions between two or more distinct sides" such as sellers, buyers, or advertisers (Hagiu and Wright 2015, 163) and create value through *matchmaking* (Evans and Schmalensee 2016).

Interaction leverage makes it much easier for different sides to find and interact with one another, thereby allowing them to reduce search and transaction costs (Tiwana 2014; Parker et al. 2016). Platforms may also fill infrastructure gaps by operating as intermediaries or brokers within and between vertical (across levels or scales) and horizontal (peer-to-peer) networks (Manzini 2005). The UNGC, for example, has paved the way for sustained and ever-growing interaction and collaboration between the UN and the private sector by launching forums for dialogue and learning and leveraging them to organize both vertical (between UN agencies and transnational or local firms) and horizontal (interfirm) networks.

Interaction leverage gets more powerful when it ignites *network effects*. As a global survey of business platforms puts it, "A fundamental feature of platforms is the presence of network effects: . . . As more users engage with the platform, the platform becomes more attractive to potential new users" (Evans and Gawer 2016, 9). Network effects can be direct (same-side) or indirect (cross-side) (Evans et al. 2006; Gawer 2014). Beginning as an initiative of around 50 companies in 2000, the UNGC has grown into a multi-stakeholder network of more than 13,000 signatories, including over 10,000 companies from over 160 countries.[5] UNGC's value for companies increases as more companies join (direct network effects) and as more stakeholders

[4] Thomas et al. (2014) identify three kinds of architectural leverage—transaction, production, and innovation. For the purposes of analysing governance, we rename the first one "interaction" leverage.
[5] https://www.unglobalcompact.org/

(UN agencies, governments, NGOs, institutional investors, higher education institutions, etc.) collaborate with them (indirect network effects).

Production leverage denotes a platform's capacity to prompt the production of varied products. In an engineering context, this idea typically concerns creating a family of products (such as cars) upon a common "technological platform" (Gawer 2014; Thomas at al. 2014). In the governance context, the products are often services, programs, or negotiated agreements, with the platform offering resources to produce them. Production leverage often takes advantage of modularity and *economies of scope* that make it easier to build on, share, and reuse tools and components (Gawer 2014). For governance platforms, standards, forums, networks, and models can all be resources or templates for achieving production leverage.

Through modularity and economies of scope, production leverage can help platforms diversify and scale production in dynamic ways, thereby assisting scalable governance. For example, the UNGC has expanded its geographical reach by establishing Local Networks in 67 countries (United Nations Global Compact 2019, 15). It then utilizes these networks to scale its Ten Principles (on human rights, labor, environment, and anti-corruption) and the UN's Sustainable Development Goals (SDGs) down to the national and local level. Meanwhile, the UNGC has broadened its portfolio of initiatives over time, launching issue-specific platforms such as Women's Empowerment Principles, Caring for Climate, and Business for Peace, as well as actor-specific platforms such as Principles for Responsible Investment, Principles for Responsible Management Education, and Sustainable Stock Exchanges, thereby achieving horizontal (cross-jurisdictional) scaling. The UNGC provides an institutional infrastructure for multiple platforms to evolve and for the corresponding networks to grow.

Innovation leverage refers to a platform's capacity to generate new ideas, products, and services (Nambisan and Sawhney 2011; Thomas et al. 2014). Building on research on open innovation in management studies (Chesbrough and Bogers 2014), we posit three types of platform-based innovation:

> *Open innovation* involves finding innovative solutions to organizational or social problems through "broadcast search crowdsourcing" (Brabham 2013) that invites a distributed community (crowd) to contribute ideas to a core problem-solving challenge.

Open data innovation, by contrast, opens up data and knowledge kept inside organizations (such as governments and international organizations) to outsiders (e.g., citizens) and allows them to utilize the data as inputs for generating and implementing new solutions.

Collaborative innovation occurs when platform providers and users deliberate and come up with new solutions to be implemented either individually or collaboratively. Whereas both open innovation and open data innovation are based on unilateral (or bilateral) informational flows (outside-in or inside-out), collaborative innovation entails multilateral and networked informational flows.

Innovation leverage creates "*economies of innovation and complementarity*" (Thomas et al. 2014; Gawer 2014). Through the sharing of infrastructure resources, platform users are empowered to engage in distributed experimentation, which can generate innovative ideas, products, and practices. For example, a city might provide mobile app templates to citizens to encourage them to develop useful apps to utilize government data (Veeckman and van der Graaf 2015). Platforms can also encourage and orchestrate distributed experimentation and innovation by their diverse users. The UNGC, for instance, provides many practical tools and resources—themselves products of collaborative innovation—to complement and implement its Ten Principles and the Sustainable Development Goals (SDGs). These resources help the users to experiment with how the Principles and the SDGs can be applied to specific contexts.

To summarize, interaction, production and innovation leverage constitute generative mechanisms for platforms and their evolution. We emphasize that each type of leverage is only a *potential*, actualized to different degrees by individual platforms. Based on this discussion of architectural leverage, the next section proposes a simple typology of governance platforms.

A Typology of Governance Platforms

We suggest that all governance platforms utilize interaction leverage, but they differ in terms of whether they employ production and innovation leverage. As shown in Figure 1, these two dimensions allow us to create a typology of governance platforms: *interaction platforms* utilize only interaction leverage; *production platforms* apply both interaction and production leverage;

open innovation platforms exploit both interaction and innovation leverage; and *co-creation platforms* take advantage of all three.

<Figure 1 about Here>

Interaction platforms

As their name suggests, interaction platforms largely aim to encourage interaction either between the public sector and stakeholders or citizens, or among the latter. We divide interaction platforms into two ideal types: participation platforms and matchmaking platforms. *Participation platforms*, also called deliberation platforms, create forums—either online or in person, or both—where the platform providers and users exchange and share ideas and experiences, engage in dialogue, and learn from one another. *Matchmaking platforms* create (quasi-)marketplaces that enable specific, bilateral transactions of ideas, goods, or resources. In both cases, the platforms perform an intermediary or brokering role.

Participation platforms have been developed to generate citizen discussion about specific problems and policies, particularly at the local level (Hilgers and Ihl 2010; Desouza and Bhagwatmar 2014; Aragón et al. 2017; De Blasio and Selva 2019). With the help of information and communication technologies, local authorities have created online platforms to experiment with "crowdsourced deliberation" and "crowdsourced policymaking," intended to enhance the input, throughput, and output legitimacy of such processes (Aitamurto and Landemore 2016; Aitamurto and Chen 2017).

Matchmaking platforms exploit and mobilize unused or untapped resources by enabling and facilitating multi-sided interaction and matching. Sharing or matching platforms are often understood in terms of what has been called the "peer to peer" (P2P) or "sharing economy" (Mair and Reischauer 2017; Ganapati and Reddick 2018; Hofmann et al. 2019). Although private companies like Uber and Airbnb have created the best-known private sharing-economy platforms, there is some experimentation with non-profit and public forms of sharing/matching platforms. Freegle, for example, is a local democratically-governed peer-to-peer platform in the United Kingdom for sharing consumer goods, with an ethic of reuse and waste reduction (Martin et al. 2017).

Production platforms

Production platforms utilize production leverage to facilitate distributed production. One type of production platform is the *knowledge management platform*, which helps users co-produce local or global knowledge by pooling and disclosing data and information (Lazaric et al. 2008). For example, the Dutch Spatial Adaptation Knowledge Portal facilitates knowledge production and sharing about climate change adaptation by providing a wide range of support tools, including mapping, cost-benefit analysis, measurement and monitoring, and impact analysis (European Environment Agency 2015, 32).

Co-production platforms are another type of production platform. In the traditional public service model, the state unilaterally provides services to citizens. However, the potential value of state-citizen co-production of public services has increasingly been recognized (Bovaird 2007; Linders 2012). Platforms can provide the production leverage that enables this distributed co-production. Such leverage commonly takes the form of digitization that facilitates communication and information-processing (Anttiroiko et al. 2014; Ranerup et al. 2016; Falco and Kleinhans 2018a). However, non-digital production infrastructure such as "service blueprints" can also be used to promote co-production (Radnor et al. 2014).

Open innovation platforms

Open innovation platforms take several forms (Brunswicker and Johnson 2015; Ojasalo and Kauppinen 2016), including crowdsourcing platforms that induce open innovation by posing challenges whose solutions are submitted by crowds. A number of cities and regions now use crowdsourcing to mobilize civic innovation (Roth et al. 2013). Cities have also taken the lead in experimenting with various forms of open innovation platforms that fall under the moniker "City-as-a-platform" (Almirall et al. 2014; Tukiainen et al. 2015; Anttiroiko 2016; Bollier 2016; Ojasalo and Kauppinen 2016; Ojasalo and Tähtinen 2016). One such strategy is the *smart city*, which stresses the digitalization of the city (Anttiroiko 2016). Examples include Amsterdam Smart City (Raven et al. 2019) and the Pecan Street Smart Grid project in Austin, Texas (McLean et al. 2016). Cities have also led the way in creating experimentation platforms such as *living labs* (Tukiainen et al. 2015; Gascó 2017; Kronsell and Mukhtar-Landgren 2018; Raven et al. 2019). Examples include the Ghent Living Lab (Baccarne et al. 2014), Rotterdam's BlueCity Lab, and the Malmö Innovation Platform (von Wirth et al. 2019).

Open data platforms are another popular open innovation strategy. They utilize government data as an infrastructural resource for decentralized innovation in the hope that citizens and stakeholders will utilize the data to address public problems (Kassen 2013; Desouza and Bhagwatwar 2014; Walravens et al. 2014). Open data platforms often work by creating hackathons or "fab labs" to encourage experimentation and mobile app development (Veeckman and van der Graaf 2015; Mergel et al. 2018).

Co-creation platforms

Co-creation platforms harness interaction, production and innovation leverage (Torfing et al. 2019). The precise ambitions of these platforms vary considerably—from the desire to solve a local wicked problem to the goal of bringing about a global transition to sustainability. While all platform types may promote collaboration, co-creation platforms tend to promote deep collaboration in order to facilitate both production and innovation, as the case of the UNGC attests.

A good example of a co-creation platform is an "agricultural innovation platform," which aids small farmers in developing countries gain greater market access and improve their livelihoods. As a concept, agricultural innovation platforms represent movement away from a "linear" research-farmer technology transfer model to a more "non-linear" systems-oriented model that emphasizes the importance of finding multilateral synergies among platform stakeholders across supply chains (Adekunle and Fatunbi 2012; Cullen et al. 2014).

Challenges and Opportunities for Harnessing the Power of Platforms

Platforms have proven to be a powerful and dynamic business approach, but it is not self-evident that they can be used in the context of governance where financial incentives are less powerful. In this section, we examine some of the experiences—positive and negative—of governance platforms, focusing on the challenges and opportunities they encounter. We discuss each type of platform described in the previous section in turn.

Interaction platforms

A positive example of an interaction platform is Better Reykjavik, a municipal participation platform that allows citizens of the Icelandic capital to propose, discuss, and prioritize municipal policy. As described by Lackaff (2015), the platform's success depended on citizen access to political power. The financial crisis in Iceland created distrust in government. A new party entered the municipal council looking for ways to engage with citizens and restore trust in government while citizens were searching for new ways to participate in politics. Ultimately, Better Reykjavik proved successful because city councilors were willing to seriously consider ideas generated by the platform. The sense that influence was real fed back to reinforce the desire to participate.

Participation or deliberation platforms, however, confront many of the same challenges faced by traditional modes of public participation (Hartz-Karp and Sullivan 2014; Falco and Kleinhans 2018b). Not all opportunities for deliberation produce constructive public engagement and may potentially empower "mischief and abuse" (Lackaff 2015, 142; see also Aragón et al. 2017). Platforms that encourage discourse moderation, provide information, and clearly define topics (Esau et al. 2017) and that recruit reasonably diverse and open-minded participants will improve deliberation (Garard et al. 2018).

Production platforms

Production platforms also show promise. Ushahidi mobilizes real-time input from dispersed users to spatially map collectively relevant data (Reilly and Smith 2013). After a major earthquake hit Haiti in 2010, Ushahidi was set up within two hours. Two weeks later, the map had received 2500 incident reports via text messaging and email, providing a map that helped humanitarian groups mobilize and target relief. While Ushahidi is generally regarded a success, some concerns have also been noted. Gao et al. (2011) observe that the maps do not provide a mechanism for *coordinating* the distribution of relief. Nor is it easy for users of crowdsourced data to know how complete the data are. Finally, alongside their benefits, publicly-available Ushahidi maps may potentially pose personal security risks.

The European Platform for Action on Diet, Physical Activity and Health is also a promising production platform. In part a multi-stakeholder discussion forum, the Platform encourages its members to make commitments to action. A five-year evaluation of the Platform found that it had produced commitments for nearly 300 actions (European Commission 2010). Although it

has not necessarily produced novel commitments, it has led participants to reframe or scale up their commitments. The Platform has also prioritized monitoring and successfully encouraged the formation of national platforms.

Open innovation platforms

A good example of an open innovation platform is Challenge.gov, a crowd-solving platform developed by the U.S. government for public agency problem-solving. This platform allows agencies to reach out beyond their typical group of contractors to a wider audience of potential problem solvers. Agencies initially had to be cajoled to submit requests to the platform and then had to overcome legal and institutional hurdles before posting problem-solving contests (Mergel 2018). However, agencies became more receptive as they learned how vanguard agencies had productively mobilized wider problem-solving communities. Comparative research on urban living labs in Boston, Amsterdam, and Turin finds similar start-up challenges (Nesti 2018).

These examples suggest that the "chicken-or-egg problem" of attracting a critical mass of users (Tiwana 2014; Evans and Schmalensee 2016; Parker et al. 2016) also applies to governance platforms, including participation and open innovation platforms (Desouza and Bhagwatwar 2014), production platforms (Bott & Young 2012), and co-creation platforms (Cullen et al. 2014). In a study of open innovation platforms in Tampere, Finland, Raunio et al. (2016) found that getting the incentive structure of platforms right is essential in order to encourage the positive feedbacks that build participation.

Open data platforms also reveal potential. For example, over 500 apps have been developed to use open data provided by the London public transport agency, Transport for London. Many of these apps demonstrate high return on investment (Walravens et al. 2014). However, a cross-national European survey of open data projects concluded that "open data-driven co-creation is not (yet) the revolution we hoped it would be" (Toots et al. 2017, 9). A major barrier to open data innovation is that the value of the data is not yet widely appreciated.

Co-creation platforms

A positive example of a co-creation platform is Vibrant Communities (VC), which has been described as "a network of urban collaboratives committed to substantially reducing poverty through multisectoral and comprehensive local action" (Gamble 2010, vii). This Canadian

initiative utilizes all three forms of leverage—interaction, production, and innovation—to aid in the development and implementation of innovative anti-poverty interventions. In its first two phases, the platform supported 13 local anti-poverty campaigns, providing them with coaching, training, expertise, financial support, and evaluation assistance. Gamble (2010) reports that the 164 initiatives developed by these campaigns affected over 170,000 Canadian households.

Agricultural innovation platforms are perhaps the most extensively researched co-creation platforms. These platforms show a great deal of promise, though questions have been raised about whether they can realize their full potential (Schut et al. 2016, 2018). They have enjoyed success in introducing agricultural innovations and removing barriers to market access (Kilelu et al. 2013; Hounkonnou et al. 2018), yet may encounter structural barriers (Lamers et al. 2017), debilitating power dynamics (Cullen et al. 2014; Schut et al. 2016), or scaling challenges (Schut et al., 2018). Some platforms become innovative and collaborative, while others slide back into a more traditional technology-transfer role (Schut et al., 2016). Success factors include the effective organization of stakeholder participation (Lamers et al. 2017) and platform maturity (Pamuk et al. 2014).

Conclusion

As governance becomes more decentered and distributed, as public leadership becomes more indirect, facilitative, and intermediating, and as innovation, adaptation, and change become core tasks of public management, it is important to explore new organizing logics responsive to such conditions. By strategically deploying its "architecture" to leverage, catalyze, and harness distributed social action, governance platforms offer such an organizing logic. They promise to connect government to distributed communities of citizens and stakeholders, to scale up efforts at public innovation and collaborative governance, to expand the scope of problem-solving efforts, and to provide greater leverage over public and private resources.

Can governance platforms realize this potential? Our survey of current research and practice suggests that efforts to develop governance platforms are widespread but still in their infancy. A number of platforms have already demonstrated important successes, including interaction platforms like Better Reykjavik, production platforms like Ushahidi, open innovation platforms like Challenge.gov, and co-creation platforms like Vibrant Communities. Based on these

successes, our answer to the question of whether the power of platforms can be harnessed for governance is a "provisional yes."

However, our research also uncovers challenges to the implementation of platform strategies. Interaction platforms are likely to confront many of the traditional challenges identified in research on public participation and deliberation. Production platforms are only as good as the inputs that they mobilize and open innovation platforms have to grapple with incentive problems that may constrain public and private engagement. Co-creation platforms will confront the same types of political and structural barriers to success that other public efforts at change must overcome. Thus, while governance platforms have potential, we should avoid thinking of them as magical creations that will solve all our problems. Like other governance institutions, they take work, commitment, and a bit of luck to be successful.

Are governance platforms limited or marginal efforts to improve governance or are they major governance innovations? It is probably unfair to hold them to a standard of radical change at this stage of their development. However, a few governance platforms do suggest the potential for a wider and deeper transformation of governance. The surprising growth of the UN Global Compact offers one such example. Governance platforms may never be capable of harnessing the same power as successful business platforms, but they demonstrate potential for achieving important governance goals. By illuminating the basic organizing logic of governance platforms, this article has sought to help researchers and practitioners better understand this emerging mode of governance.

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Figure 1: A Typology of Governance Platforms