The Three Orders of Public Innovation: Implications for Research and Practice

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Abstract
While the focus on public innovation is rapidly increasing, the public sector has not yet been transformed into a 'serial innovator' that pursues innovation permanently and systematically. To solve this problem, this article aims to broaden the theoretical perspective on public innovation to include generative processes and institutions. As such, it argues that the first-order focus on innovation of public policy, regulation and services should be supplemented by a second-order focus on the new and innovative processes of collaborative interaction through which innovative solutions are generated and a third-order focus on the new and innovative institutional designs that facilitate the scaffolding of these processes. The article finds that the conditioning relationship between the three orders of innovation can usefully be complemented by a transformative relationship between the three orders to foster a better understanding of the dynamic mechanism that may help strengthening the innovative capacity of the public sector.

Keywords
Innovation, co-creation, institutional design, public value, collaboration

Broadening the theoretical perspective on public innovation: A condition for its advancement?
While there has been plenty of research on private sector innovation during the last century, research in public innovation is a fairly recent endeavor, both in the Nordic countries and in the rest of the world (see Kattel et al., 2013). For many years, 'public innovation' was considered as an oxymoron. Fortunately, the myth of the innovative private sector and the rigid public sector has now been debunked (Mazzucato, 2013) and a growing number of public innovation researchers have begun scrutinizing the many examples of public innovation at the level of policy, regulation, and service (see Vries, Bekkers and Tummers, 2016).

Prompted by resource scarcity, wicked problems, and bold political and professional ambitions, public innovation seems to expand, both as a government strategy and as a practical tool to make ends meet, solve new and old problems, and achieve key societal goals. However, public innovation continues to be sporadic and accidental, and has yet to become a pervasive and permanent phenomenon backed by systematic methods and procedures. This article aims to further advance public innovation by offering a broader perspective highlighting some new and innovative processual and institutional conditions that may
accelerate innovation in public policy, regulation, and service. In a nutshell, the argument is that innovation in policy tools, regulatory strategies, and public services, which aims to create public value for citizens and society at large, can be spurred by a new type of collaborative governance process, which in turn are scaffolded by new institutional platforms and arenas that enable public organizations to bring together relevant and affected actors in creative problem-solving processes.

By broadening the perspective on public innovation to include the creation of processes and institutions that propel and support the design of particular innovations in policy, regulation and services, we can move beyond the unfortunate tendency to merely describe and classify singular public innovations, their antecedent conditions and their potential impact (see the literature review provided by Vries, Bekkers and Tummers, 2016), and gain new insights into how to advance public innovation by stimulating new forms of cross-boundary collaboration and building novel institutional platforms and arenas for co-creation (Ansell and Torfing, 2021). As such, we aim to contribute to the development of a more systemic view on public innovation that links institutions and processes to concrete innovative solutions and their impact on value creation (see Emerson and Nabatchi, 2015). The theoretical implication of adopting a broader and systemic view on public innovation is that public innovation research must draw on insights from theories of collaborative networks and theories of institutional forms of governance. The empirical implication is that studies of public innovation must broaden their focus to include a broader set of processual and institutional variables to explain innovative outcomes and impacts. Finally, the practical-political implication is that public innovation is a three-piece endeavor that includes innovation of new types of processes and institutions that can help fostering innovation in policy, regulation and services. At a more concrete level, this means that the advancement of public innovation not only requires creativity and courage, but also key competences in stakeholder analysis, facilitation and institutional design.

This article begins by defining innovation and discussing the drivers of and barriers to innovation in the public sector. Drawing on public innovation studies, theories of collaborative governance and the new research on generativity, it then explains the three orders of public innovation: the innovative solutions at the level of policy, regulation, and service that aim to produce public value; the innovative processes of cross-boundary collaboration through which these innovative solutions are produced; and the innovative institutions in the shape of platforms and arenas that structure these processes and help to turn public organizations into “serial innovators.” Lastly, it explores the interrelationship between the three orders of innovation and reflects on the implications of the discovery of the three orders for public innovation research and public sector practitioners.

**Defining innovation**

Initially, when public bureaucracies were expanding as a tool for providing the authoritative regulation of society and the economy, and for delivering standardized services to a growing number of citizens, the administrative success criteria were “transparency,” “predictability,” and “stability” (Du Gay, 2005). It should be clear to citizens and other stakeholders what they could expect from the public sector, and regulation and service delivery, should be persistent and secure. Compliance with laws and rules was of the utmost importance, and trumped concerns for obtaining measurable results. This was criticized by the supporters of New Public Management, who saw effectiveness and efficiency as the main goals of post-bureaucratic attempts at deregulating and “marketizing” the public sector (Hood, 1991). The quest for enhanced efficiency through LEAN-based productivity campaigns, and
the outsourcing of service production, hurt service quality and led to increasingly stressful working environments, and it was criticized for fostering a race to the bottom. Advocates of New Public Governance (Osborne, 2006, 2010; Torfing & Triantafillou, 2013) claimed that the only way for effectiveness, efficiency, and quality to go hand in hand was to enhance public innovation—something that was bound to be highly challenging due to the strong emphasis on compliance with centrally formulated rules and performance targets that tend to create a risk averse public sector. The genie was out of the bottle, however, and more and more governments and public organizations embraced the new quest for innovation.

Enhanced innovation allegedly presented the perfect solution to the three key problems. First, public service organizations were caught in a crossfire between growing service expectations and limited public resources. They needed to find new ways to satisfy the needs of service users without driving up public expenditure. Secondly, the public sector was seen to face a growing number of complex, hard-to-solve problems, such as urban decay, gang-related crime, failed integration of immigrants, negative social heritage, and climate change—problems that call for new and creative solutions. Finally, the public sector was increasingly driven by missions to turn the world into a better place by eradicating poverty, eliminating illiteracy, finding cures for infectious diseases, and so on (Kattel & Mazzucato, 2018). The UN Sustainable Development Goals, which aim to save the planet from environmental self-destruction while leaving no one behind, is the latest and perhaps most ambitious example of mission-driven public governance that requires outside-the-box thinking (Ansell et al., 2022).

Innovation can be defined as the development and implementation of new and promising solutions that break with common wisdom and existing practices in a particular context (Mulgan & Albury, 2003; Hartley, 2005; Torfing, 2016). It involves a careful analysis of problems and challenges, creative development of new ideas, testing and revision of prototypes, and consolidation and upscaling of new ideas that work in practice (Van de Ven et al., 2008). Public innovation includes innovation in policy goals and policy instruments, the development of smart ways of regulating social and economic actors through norms, incentives, and voluntary agreements, and new ways of producing and delivering services with a novel form and content. Not to forget, the public sector also produces numerous technical innovations at public universities working in tandem with the health sector, space programs, and the military (Mazzucato, 2013).

For almost 200 years, researchers have agreed that innovation is essential to the development and survival of private firms operating in cut-throat markets. At the same time, it has been a commonly held view that public innovation is a contradiction in terms, since hierarchical control, absence of competition, and emphasis on rule adherence tend to prevent innovation. The negative evaluation of the prospects for public sector innovation led to gross neglect within the social sciences. Even when studies of organizational innovation blossomed in the 1960s and 1970s (Zaltman et al., 1973), there were no attempts made to carve out any special niche for public innovation (Kattel et al., 2015). Pioneers aiming to reverse this trend by focusing on public innovation include Polsby (1984), Kraemer and Perry (1989), Doig and Hargrove (1990), Roberts and Bradley (1991), Borins (2001), and Koch and Hauknes (2005). Their work gradually strengthened the interest in the public sector that was further stimulated by the publication of Mazzucato’s book The Entrepreneurial State in 2013.

While profit is the main driver for the pursuit of innovation in the private sector, the main driver of innovation in the public sector is problems (Ansell & Torfing, 2014), especially “wicked problems” that cannot be solved by standard solutions (Krogh and Torfing, 2015).
Public actors innovate in response to problems with failing policies, regulatory fiascos, planning disasters, poor and declining service quality, and unsolved economic and social problems. Hence, innovation is motivated by an interest in creating new and better solutions that outperform previous concepts and practices (Hartley, 2005). The availability of new technologies, ideas, and discourses, together with enhanced societal turbulence causing political or economic crises, globalization, social unrest, war, and so on may further enhance the motivation to foster public innovation.

As mentioned above, there are some oft-cited barriers to public sector innovation (Halvorsen et al., 2005; Røste, 2005). Centralized control, strong adherence to bureaucratic rules and procedures, rigid performance management systems, and the complexity of public tasks tend to lower the motivation of frontline staff to experiment with new, creative solutions. In addition, the lack of competition and economic incentives in terms of profit, patents, and bonus payments tend to stifle public innovation. Finally, elected politicians and executive public managers tend to be rather risk averse, since innovation failures tend to receive intensive and negative media coverage that may ruin their careers (Borins, 2001).

That said, we should remember that the public sector has some important and distinctive innovation drivers (Halvorsen et al., 2005; Torfing, 2016). High political and professional aspirations coupled with a well-educated staff and relatively easy access to expertise and scientific research provide potent levers for public innovation. Moreover, the sheer size of the public sector enables it to invest in innovative solutions and to absorb the cost of innovation failures that would bankrupt small or medium-sized firms. Finally, the new focus on strategic management, entrepreneurial spirit, and the production of public value possibly also tends to stimulate public innovation (Crosby, ’t Hart and Torfing, 2017). Whether the drivers of public innovation outweigh the barriers is an empirical question, but even a quick scan of the many public innovations produced in recent decades reveals the considerable innovation capacity of the public sector. Active labor-market policies, preventive health care, new climate policies, the use of voluntary agreements and standards in public regulation, digital service provision, one-stop shops for social welfare, online education, and so on all attest to the innovativeness of the public sector.

Public innovation has its own distinct drivers, but innovative solutions may not always be welcomed. Some might see innovative policy, regulation and services as an improvement, while others might see the same innovations as a wrecking ball destroying cherished ideas and practices or as the human face of expenditure cuts. Hence, the positive or negative assessment of innovative outcomes depends on the eye of the beholder.

Despite the growing focus on the need for innovation and the many examples of public innovation, the problem is that innovation continues to be sporadic, episodic and accidental, and driven by contingent events, such as shifts in government, new public managers, negative media coverage, suggestions from external consultancy firms, or chance discoveries made by public employees. There is still some way to go before the public sector becomes a “serial innovator” that pursues innovation systematically based on well-known methods, procedures, and organizational templates, and does it pervasively and on a permanent basis by continuously asking the question: How can innovation help to enhance public value production in this area?

The next three sections offer a new integrated account of public innovation that explores how the public sector can transform itself by creating new and innovative institutions and processes capable of accelerating the production of innovative solutions. We begin with the innovative solutions and proceed to discuss the accelerating conditions.
Innovative solutions

Public innovation is not always called for and should not be seen as a goal in itself, but as a means to an end. The old saying, “Don’t fix a car that ain’t broke!” remains as true as ever. Innovation should only be pursued in those cases where problems must be solved, challenges met, and missions achieved. We should pursue innovation whenever it is needed and wanted; never for the sake of innovating. The ultimate purpose of public innovation should be that it contributes to the production of public value, either for a particular group or society at large (Moore, 1995; Bennington & Moore, 2011). Ensuring that innovation creates real value requires that innovators identify the needs behind the demands of societal actors, and that they carefully explore the problems, challenges, and goals to which they seek to respond.

Innovative public value solutions can help to improve the ability of public policy to address pressing problems, the way that society and the economy is governed and regulated, and the quality of public services provided to needy citizens. Policy innovation is needed when existing policies cannot deliver the desired results. The breakthrough for preventive health policy offers a case in point: The curative approach to health proves to be more and more costly due to the constant development of new treatment methods and the growth of life-style related illnesses. A new preventive health policy aiming to improve the general health of the population, thereby preventing disease from emerging, provides a smart solution to this problem and is widely diffused (Rogers, 2002). Another example is the shift from welfare to workfare policies. The enduring economic crisis in the 1970s and 1980s was seen to create increasing structural employment that called for more active efforts to get unemployed people back into the labor market (Torfing, 1999). New workfare policies were consequently introduced and fostered a new type of unemployment benefits that were conditional upon demonstration of an active job-seeking behavior and/or mandatory participation in labor-market education and job-training schemes (Blomberg & Kildal, 2011; Lødemel & Trickey, 2001).

Policy innovation often relies on regulatory innovation (Black et al., 2006) and the introduction of new regulatory tools such as public information, voluntary standards, tradable permits, vouchers, and so on, which tend to be less coercive and top-down and more dependent on regulated self-regulation (Salamon, 2002). The multilevel EU government system aiming to spur policy integration has fostered innovative forms of regulation and governance, such as the Open Method of Coordination, which aims to enhance policy coordination across multiple levels of governance without steering too heavy-handedly (Tömmel & Verdun, 2009). At national and local levels, congestion charges have been introduced to regulate car traffic as a part of new climate policies (Ieromonachou, Potter & Warren, 2006).

Innovation in policy and regulation may trigger service innovation (Fuglsang, 2010), but dissatisfaction with existing services, the development of professional knowledge, and new technologies are also important drivers. Service innovation can be defined as “the creation of new value propositions by means of developing existing or creating new practices and/or resources, or by means of integrating practices and resources in new ways” (Skålén et al., 2015, p. 137). Public service innovations are often developed by a public service organization in order to create new value within a broader eco-system of public and private users and stakeholders (Chen et al., 2020). It may either lead to a new type of service, such as the introduction of health screening or student grants, or to the transformation of the whole system for service production, for example by systematically involving private firms or volunteers in service delivery, or by exploiting new technological possibilities.
In elderly care, public service innovation famously includes efforts to allow people to remain in their own home as long as possible by providing new services aimed at training and empowering them, together with tools and social care enabling them to extend the quality of life associated with remaining at home rather than being placed in a public elderly care center (Kjellberg & Ibsen, 2010). In the education sector, the introduction of online teaching solved the problem that many people live outside the big educational metropoles but require access to academic education and degrees. The Open University in the UK was a pioneer in this area, massively expanding participation in higher education by bringing in new students, including adults (who were not necessarily pre-qualified) as part-time students, and using new methods to deliver teaching to students, such as supported self-learning, radio/TV, summer schools and online lectures (Mulgan & Albury, 2003). Today, many master’s programs offer online education, especially in countries like Norway with long distances from higher education institutions.

Innovations in the form and content of particular public services are sometimes combined with innovations in how these services are produced and delivered. To illustrate, a local elderly care center in Denmark involved its professional staff, the relatives of its elderly residents, and volunteers from the neighborhood to transform a large, boring parking lot into a lush garden with a lawn, fruit trees, and flowers and a small Danish-style allotment with an adjacent henhouse. Everything was built outside normal working hours, and is maintained by a combination of staff, elderly residents and their relatives, and local volunteers (Bentzen et al., 2020). Another example of innovation in how services are produced and delivered is the development of the independent Dutch homecare provider Buurtzorg, which is based on self-governing nursing teams and has managed to produce high employee and user satisfaction while cutting costs (Drennan et al., 2018; Gray et al., 2015). Finally, chronically ill patients are increasingly treated in their own homes through a combination of user-friendly tools and video consultations (Clemensen, Larsen, & Ejskjaer, 2005).

Research in public service innovation is rapidly expanding and for good reason, since it is really the heart and soul of public innovation. When successful, it may produce a triple gain by saving public money, improving the well-being and work motivation of public employees, and benefiting users and citizens who receive better quality services. Fortunately, public employees tend to spend just as much time on producing service innovation as employees in the private sector, although some service areas are less likely to innovate their services (Bysted & Hansen, 2015). Nevertheless, given the aforementioned challenges to the public sector, there is dire need to further expand the production of service innovation as well as innovation in public policy and regulation.

Innovative solutions do not always come in the shape of innovative policies, regulations, and services. The world confronts a large array of big, hairy, and audacious problems calling for innovation solutions that defy easy classification (Eggers & Macmillan, 2013). In the Netherlands, persistent problems with gang-related crime and violence have fostered a multi-dimensional innovation. Young criminals and at-risk youth have been invited to become part of a specially created soccer team in a high-profile local soccer club. They sign contracts, receive training, and play regular soccer matches, but they must adhere to strict discipline and codes of conduct that extend to their behavior in school, in their spare time, and at home. They must also participate in monthly seminars on issues such as health, drugs, bullying, and community politics (Torfing & Triantafillou, 2016a). Such an innovation combines innovation in policy, regulation and services with conceptual innovation.
Innovative processes

With the growing interest in public innovation, there has been increasing focus on generative governance, defined as the governance processes and institutions that tend to generate innovative solutions (Ansell & Torfing, 2021). The second order of innovation is the generative processes that stimulate and facilitate the development and emergence of yet undiscovered solutions in public policy, regulation and services. Some processes have been shown to be more generative than others. Processes of centralized, rational, and algorithmic decisionmaking, followed by implementation based on command and control, tend to straightjacket innovation (Damanpour, 1996; Roberts, 2000). By contrast, distributed, pragmatic, and heuristic processes based on flexible adaptation tend to spur the production of innovative solutions (Hopkins et al., 2014). Such innovation processes may be found in competitive market economies where numerous private firms compete for markets, customers, and profit by constantly innovating their product, technology, and marketing strategies. However, cut-throat competition tends to prevent knowledge sharing and leads to overinvestment in innovation processes aimed at being the first to the patent office, thus depleting the resources available for bringing the innovative solution to the market (Teece, 1992). For that reason, we focus here on collaborative innovation processes that bring together relevant and affected actors in open exchange processes wherein differences are constructively managed to find joint solutions to common problems (Chesbrough, 2012; Gray, 1989; Torfing, 2019).

Co-creation, design thinking, and collective impact are examples of collaborative innovative processes that allow a diverse group of actors from the state, the market and civil society to iteratively pass through different steps to develop innovative solutions. The growing literature on collaborative governance has already stressed the importance of multi-actor collaboration for knowledge sharing, coordination, and creative problem-solving (Ansell & Gash, 2008; Emerson & Nabatchi, 2015), and new contributions inspired by business management and marketing research (Prahalad & Ramaswamy, 2004; Sanders & Stappers, 2003) go one step further and talk about “collaborative innovation” and “co-creation” (Ansell & Torfing, 2021; Bommert, 2010; Brandsen et al., 2018; Torfing, 2016; Torfing et al., 2019).

The concept of co-creation extends and renews the co-production concept, which was originally promoted by Ostrom and her colleagues (Parks et al., 1981), and further developed by Alford (1998), and Brandsen and Honingh (2016). Whereas co-production refers to an essentially dyadic relation between service producers and service consumers who deploy their different resources and competences in the flexible and needs-based production of a predetermined public service, co-creation tends to involve a broader range of public and private actors, including users, citizens, and civil society organizations, in the pursuit of innovative solutions (Torfing et al., 2019). As such, co-creation can be defined as a process whereby two or more actors collaborate—ideally on an equal footing—in order to define shared problems and design, and implement innovative solutions (Ansell & Torfing, 2021). There are four steps of co-creation. It is initiated by actors who bring together relevant and affected actors in a process of trust-based problem-solving based on the exchange and pooling of resources, competences, and ideas. In the design phase, the actors explore the problems at hand, design solutions, and test prototypes to promote fast learning. In the implementation phase, the actors must secure proper financing, coordinate action, and consolidate new solutions to secure a real and robust impact. The final step is the evaluation phase, where results and impacts are measured and scrutinized, and successful solutions are upscaled and diffused. User and stakeholder feedback in the evaluation phase sometimes triggers another round of initiation, design, and implementation.
**Design thinking** is a method for co-creating innovative solutions emphasizing empathetic engagement with users in order to better understand the problem at hand and highlights the use of prototyping as a tool for learning about the impact and feasibility of different solutions (Bason, 2010; Goldschmidt & Weil, 1998; Owen, 2007; Stickdorn & Schneider, 2011; Tang & Gero, 2001). It builds on Simon's definition of design as the changing of existing conditions and properties into a preferred arrangement, and thus views design as a deliberative attempt to create innovative solutions in response to a particular set of problems and needs that are identified and defined through engagement with relevant and affected actors who may also help to co-design new and better solutions. The design thinking process described by the Stanford Design School IDEO runs through six steps: 1) **Observation**, where problems, challenges, and behaviors are investigated from the perspectives of end users and other stakeholders; 2) **Ideation**, where diverse ideas for solving problems are brainstormed and evaluated based on the needs and desires of those who will eventually use the new design; 3) **Rapid prototyping**, which aims to make the future concrete by quickly producing tangible models of promising solutions; 4) **User feedback**, where end users and other downstream stakeholders are invited to comment on and evaluate the prototype and validate its usefulness; 5) **Iteration**, which aims to redesign the prototype based on user feedback to develop desirable outcomes; and 6) **Implementation**, where the validated prototype is upscaled and flexibly adapted based on continued monitoring of user feedback. The strength of design thinking lies in its empathetic dialogue between producers and users and other affected actors, and its focus on experimentation and fast learning.

**Collective impact** is a data-driven form of co-creation aimed at maximizing the impact of collaborative innovation through a dedicated effort to construct and communicate real-time data through dashboards, weekly outcome diaries, or the production of a running narrative that documents how the work is unfolding (Kania & Kramer, 2013). The strength of the collective impact framework is that it clearly specifies the conditions for using continuous feedback and mutual learning as drivers of creative problem-solving (Kania & Kramer, 2011). First, all participants must have a common agenda, including a common understanding of the problems and a shared approach to solving them through collective action. Without a common vision consisting of one or more goals and some ideas about how they can be achieved, there can be no purposeful collaboration or clear measure of success. Second, the common agenda must be translated into shared measurement, and impact data must be collected consistently across all participants, who should be invited to discuss what they see and what can be learned. The shared measurement helps to align the actors by providing a common object for analysis that encourages joint deliberation. It also strengthens horizontal accountability by allowing the actors to hold each other to account for results and facilitates mutual learning about current practices, what works, and what needs to be changed. Third, the results of the rapid learning generated through reflection on results and outcomes be disseminated through continuous communication to all participants so that they can all act in unison on the new insights, whether these point to doing more of the same, or to doing things differently to improve the impact. Fourth, a mutually reinforcing action plan must be drawn up to ensure that the participating actors respond to new knowledge and adopt new solutions at the same time, thus creating cascading levels of linked collaboration between co-creation arenas, partner organizations and community members (Hanleybrown et al., 2012). Finally, all of the above must be supported by a backbone organization equipped with a committed staff with skills enabling it to collect and analyze data, communicate learning points, and coordinate action.
Co-creation, design thinking, and collective impact are new and innovative processes aiming to spur the production of innovative solutions. They set a new agenda, provide a new mindset, and recommend that distributed actors use different procedures to produce innovative solutions to pressing problems. The actual use of the new practices remains limited and is typically found at the local or regional level, where dedicated public leaders and employees aim to enhance innovation by changing how they are interacting and the tools they are using. However, in countries such as Denmark, Finland, and Norway, where the limitations of both Traditional Public Administration and New Public Management have been emphasized, co-creation seems to be on the march (Degnegaard et al., 2015; Raisio et al., 2021; Sillak et al., 2021; Torfing et al., 2022). Co-creation, design thinking, and collective impact have gradually gained the status of “magic concepts” (Pollitt & Hupe, 2011), which is likely to help to enhance the diffusion of the new and dedicated innovation processes and thus the production of innovative solutions. The growing embrace of co-creation and similar process concepts is conditional on the development of new forms of co-creational leadership (Hofstad et al., 2021) and the development of strategies for coping with the tensions between distributed innovation processes and the traditional forms of bureaucratic administration (Torfing et al., 2022).

The new collaborative innovation processes are often initiated by public administrators aiming to mobilize the ideas and resources of societal actors (Hofstad et al., 2022). However, citizen and private stakeholders may also play a role in co-initiating co-creation processes (Sørensen and Torfing, 2018). Finally, there are also examples of co-creation being initiated by elected politicians aiming to strengthen their political leadership through a sustained dialogue with citizens (Hendriks and Lees-Marshment, 2019; Sørensen and Torfing, 2019). No matter how collaborative innovation processes are initiated, critical questions arise around the democratic legitimacy of the involvement of relevant and affected actors in public innovation and the problems with ensuring accountability. Part of the answer to these question may be ensure the democratic anchorage of collaborative innovation processes (Sørensen and Torfing, 2005) and to combine top-down oversight with new forms of social accountability that aim to facilitate public scrutiny of innovative solutions (see Fox, 2015).

**Innovative institutions**

We cannot expect second-order innovation processes such as co-creation, design thinking, and collective impact to emerge spontaneously when needed and to be entirely self-regulated. Third-order innovation in the shape of *generative institutions* is needed to lower the transaction costs of collaborating and to provide a supporting framework of rules, norms, procedures, and so on. Generative institutions are relatively stable infrastructures that create the spaces and opportunities for collaborative innovation processes to emerge, develop, and adapt (Ansell and Torfing, 2021). They can be purposively designed to scaffold distributed innovation processes, but existing institutions may also function as generative frameworks. To illustrate, a local municipality may want to design public-private innovation partnership in order to facilitate the involvement of local citizens and private stakeholders in the development of innovative urban solutions, only to find that the local library already functions as a meeting place for public and private actors, including users and citizens, who are engaged in creating place-based innovation. An example of the latter is found in the city of Aarhus in Denmark where the new library DOKK1 functions as a breeding ground for collaborative innovation and has been dubbed “the real city hall” by local actors.

We will argue for the importance of three types of generative institutions: platforms, arenas, and innovation eco-systems. Platforms are generative, in the sense that they offer
malleable narratives and reusable tools and resources that interested actors can combine to support their sustained interaction (Foerderer et al., 2014; Nambisan, 2009). Platforms broadcast appealing agendas that help to attract relevant and affected actors and motivate their collaboration. They bring distributed actors together and provide templates that help to organize and structure their interaction. They provide mindsets, boundary objects, and process tools that facilitate the exploration of problems and solutions. They make it easy to communicate across organizational and sectoral boundaries and provide access to the blended financing of innovative solutions (Ansell & Gash, 2018; Ansell & Miura, 2019). Examples of platforms include “urban living labs” aiming to facilitate collaborative knowledge production and experimental innovation (Bulkeley et al., 2016; Steen & Van Bueren, 2017); “agricultural innovation platforms” aiming to create an environment in which agricultural actors can engage, experiment, learn, and build adaptive capacity (Adekunle & Fatunbi, 2012; Nederlof et al., 2011; Van Rooyen et al., 2017); “citizen deliberation platforms” aiming to create an interface between citizens and elected politicians to spur policy innovation (Agger, 2021; Perry et al., 2018); and “social hackathons” aiming to involve public service producers, service users, and local citizens in social service innovation (Kangro & Lepik, 2021; Yuan & Gasco-Hernandez, 2021).

Whereas platforms are relatively permanent infrastructures designed to support collaborative innovation processes, arenas are ad hoc meeting grounds that are supported and structured by platforms, but managed and adapted by the participating actors. Arenas bring a particular set of actors together in trust-based collaboration, and involve the convening of meetings, facilitation of discussions, ground-rules for collaborative engagement and joint decisionmaking, procedures for mediating conflicts, and the tracking of decisions and results (Ansell et al., 2022). Rules, norms, procedures, and forms of knowledge are gradually created through the sedimentation of social patterns of interaction, but may be subjected to joint evaluation and scrutiny leading to self-managed revisions. Arenas may even reinvent their entire purpose or trigger the formation of new arenas, possibly supported by the same platform. Workshops, networks, and partnerships are good examples of collaborative arenas that enable distributed innovation. In Gentofte Municipality in Denmark, the city council creates Task Committees typically consisting of ten citizens and five politicians who aim to find innovative solutions to local problems and challenges. The new arenas for collaborative innovation tend to strengthen the political leadership of the councillors, the innovative capacity of the local municipality, and the democratic legitimacy of public governance (Sørensen & Torfing, 2019).

For workshops, networks and partnership to function as arenas for collaborative innovation, they must be must have a clear mandate, access to key resources including funding and authority, and support from political and administrative leaders acting as champions. In other words, collaborative arenas must be properly metagoverned by public authorities, which must avoid doing too much and too little (Steven and Verhoest, 2016; Sørensen and Torfing, 2009).

The formation of collaborative arenas is easier if there is a well-managed innovation eco-system to draw upon. A particular problem or policy domain tends to contain a large number of activities and actors who are interacting in complex ways, thus constituting an eco-system. Think of a hospital with an emergency room, the critical care unit, the nurses’ union, the faculty of medical doctors, the patients, their families, ambulance drivers, and so on. A hospital can be usefully described as a complex eco-system of interdependent and loosely coupled actors, each of whom are developing their different perspectives and interests and seeking to advance them when and where possible, often by
encouraging innovation. The hospital is governed by a single overarching authority that aims to orchestrate the interaction between the manifold actors and ensure some degree of coordination and harmony. However, as the number of actors increases, and the actors begin to form networks with external actors, it becomes impossible to maintain hierarchical control, and the system will tend to become polycentric. Polycentric eco-systems can be exploited to form problem-focused or mission-driven arenas, and to spark collaborative innovation based on a distributed leadership. Hence, cultivating innovation eco-systems may help to generate innovative processes and solutions. The Building and Living Dialogue in the Swedish city of Malmö illustrates the generativity of local eco-systems. The project aimed to encourage the upgrading of building energy standards. Drawing on previous efforts and the actors involved in these, city planners directly involved a broad range of stakeholders, including citizens from some of Sweden’s most diverse neighborhoods, in the planning process, which produced innovative outcomes enhancing environmental sustainability (Fitzgerald & Lenhart, 2016).

Different collaborative arenas may be supported by the same platform and/or eco-system, but different platforms and eco-systems may also co-exist and give rise to a plethora of collaborative arenas. Both platforms, eco-systems and arenas tend to generate collaborative processes, which in turn may generate innovative solutions.

**A combined and dynamic view of the three orders of innovation**

The three orders of innovation presented above offer different perspectives on public innovation. In fact, they describe three different levels where public innovation may take place: at the level of policy, regulation, or service, where public value is produced in new ways (first order); at the level of innovation processes, where new distributed and collaborative forms of interactions are gaining ground but need further expansion (second order); and at the level of innovative institutions, where new innovation-enhancing infrastructures are being developed (third order). While different forms of innovation are often presented and assumed to be at the same level, thus merely targeting different aspects of the public sector, the leveling of the different forms of innovation hides their interrelationship and the fact that some forms of public innovation may be conducive for the enhancement of other forms of public innovation. Hence, the argument here is that the institutional innovations described above (generative institutions) help to spur collaborative interactions (generative processes), which in turn support the creation of innovative solutions; in short, higher order innovations support lower order innovations.

That said, we should also consider that dissatisfaction with new innovative solutions may lead to critique of the innovation process, and eventually to learning, and future changes in how these processes are planned, organized, and conducted. The dissatisfaction may be articulated by users, relevant bystanders, or media aimed at holding the innovators to account for the innovations they have produced. In the literature, this is discussed as an instance of social accountability (Fox, 2015). In much the same way, the actors engaged in collaborative innovation processes may be critical of the institutional infrastructures scaffolding their interaction. The institutional framework may be judged to be inadequate, inappropriate, or constraining, and the actors may attempt to amend it to suit their needs. Hence, for platforms and arenas to provide effective support of collaborative innovation processes, they must be socially embedded through a process of reflexive adaptation so that they fit the social, political, and economic conditions on the ground (Ansell et al., 2020). Over time, generative platforms and arenas can engage in organizational learning and adapt to the feedback they receive from the attempt to enhance their social embeddedness.
The conditioning relationships linking higher order innovation to lower order innovation and the reflexive learning and transformation processes linking the lower orders of innovation with the higher ones are displayed in Figure 1.

Understanding the conditioning and transforming relationship between the three orders of innovation may help to spur public innovation and enhance the production of public value. Researchers may explore the variability and effectiveness of innovative processes and institutions, that is, the generativity, and the need to adapt, revise, and transform them to spur innovation in policy, regulation, and services. Few if any have tried to do this, although recent work clearly take us in this direction (see Torfing, Krogh & Ejrnæs, 2020; Torfing and Triantafillou, 2016b; Torfing et al., 2022). Practitioners may acquire a better understanding of how the embrace and construction of innovative processes and institutions can accelerate the production of innovative solutions, and how social accountability and social embeddedness can pave the way for much needed transformations of the processes and institutions supporting public innovation.

**Implications for researchers and practitioners**
The discovery of the dynamic interplay between innovative institutions, innovative processes, and innovative solutions prompts us to avoid the myopic gaze at a particular
innovative solution that can solve a particular problem or help us to accomplish an important mission and instead invest in experimentation with new processes and the construction of supportive institutions. Second and third-order innovations are essential for developing innovative public value outcomes. We should build theoretical and practical models that encompass innovative solutions, processes, and institutions, while at the same time further explore the mutual conditioning and transformation of the three orders of innovation. Such models will allow us to develop a broader and more systemic theory of public innovation that combines and integrates key insights from public innovation research, collaborative governance theory and the new institutionalism, and focus on the generativity of processes and institutions. Empirical research may conduct broad-based case studies, aiming to link different institutional and processual aspects to the production of innovative solutions and their impact, and benefit from Qualitative Comparative Analysis (QCA) that will help to identify competing constellations of factors driving public innovation. Drawing on this type of analysis, and well-known methods of trial-and-error, practitioners may innovate institutions and processes, in order to foster innovative solutions. This endeavor will, however, require the development of a new skill set that includes the ability to identify and convene relevant and affected actors, facilitate trust-based collaboration, and design a supporting institutional framework.

Building on the contribution of this paper, the research agenda may expand in different directions. One set of questions deserving further attention is whether, in particular contexts, there are particularly good and productive fits between innovative institutions, processes, and solutions (Ansell et al., 2022). Another set of questions concerns how the formation and use of innovative processes and institutions can be promoted through different forms of strategic management and what the drivers and barriers are (Ongaro et al., 2021). A third set of questions is about the prospect for critically evaluating and revising processes and institutions to better support the endeavor to produce innovative solutions. A final set of questions concerns the democratic implications of building new and innovative institutions and making use of innovative processes to spur innovation. What are the consequences for participation, transparency, and accountability?

On a final note, we believe that further attention to the interrelationship between the three orders of public innovation may help turn public innovation into a self-accelerating endeavor. This will happen if we critically evaluate the processual and institutional support each time we produce an innovative public solution. Hence, the simultaneous innovation of solutions, processes, and institutions will ultimately enable the public sector to become a serial innovator.

References


Torfing, J. and Triantafillou, P. (2016b). *Enhancing Public Innovation by Transforming Governance*. Cambridge: Cambridge University Press. [https://doi.org/10.1017/CBO9781316105337](https://doi.org/10.1017/CBO9781316105337)


