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Citizen engagement in public sector innovation: exploring the transition between paradigms

Huong Nguyen^a, Ina Drejer^b and Pilar Marques^c

^aThe Business School, Edinburgh Napier University, Edinburgh, UK; ^bAalborg University Business School, Aalborg Universitet, Aalborg, Denmark; ^cDepartment of Business Organization, Universitat de Girona, Girona, Spain

ABSTRACT

This paper explores how the public sector engages citizens for innovation purposes. It connects the related but currently separate debates concerning the transition from the 'new public management' to the 'new public governance' paradigm and the application of different helix models to public sector innovation. Through a case study of a Danish municipality, the process for changing normativity and the perception of citizens' roles is illustrated. This includes the application of both new structures and instruments for engaging citizens in collaboration and a pragmatic approach to quadruple helix collaboration, which is context-driven rather than strictly compliant with theoretical models.

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KEYWORDS Citizen engagement; local governments; quadruple helix; new public management; new public governance


Introduction

Governments worldwide are facing increasing pressure to more effectively respond to socioeconomic challenges and ensure better delivery of public services at the same time as improving resource efficiency, especially during turbulent times (Lewis, Ricard, and Klijn 2018; Szkuta, Pizzicannella, and Osimo 2014). As a consequence, policy interest in stimulating innovation within the public sector is also increasing (Arundel, Bloch, and Ferguson 2019).

It is widely acknowledged that multi-actor interaction represents a key driver of public sector innovation (Lopes and Farias 2020; Osborne 2010), although it remains unclear which actors can assist public sector organizations in dealing with complex challenges (Clausen, Demircioglu, and Alsos 2020; Torfing 2019). Thus, there exists a need to explore the diversity of the actors and the extent of the interactions involved in collaborations among public sector organizations and other actors (Dockx et al.

CONTACT Huong Nguyen  h.nguyen@napier.ac.uk

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2022). In this regard, recent studies have emphasized the value of engaging with citizens and other civil society actors (e.g. Barrutia and Echebarria 2023; Mendez et al. 2022).

In parallel, a shift can be observed in government strategies, which have changed from being competitive in line with the ‘new public management’ (NPM) paradigm to being collaborative in accordance with the ‘new public governance’ (NPG) paradigm (Hartley 2005; Siebers and Torfing 2018). The collaborative approach is grounded in the notion that the participation of different actors, who have relevant expertise and/or are influenced by related problems or solutions, is pertinent to both understanding and addressing complex matters (Hartley, Sørensen, and Torfing 2013; Torfing 2019).

In this context, innovation systems theory is useful due to the advantages it offers in terms of exploring actors and their interdependencies for innovation purposes (Edquist and Hommen 1999; Lundvall 2010). Since the mid-1990s, the triple helix model has served as a popular heuristic guiding empirical research into innovation systems (Etzkowitz and Leydesdorff 2000; Leydesdorff and Etzkowitz 1996). This model accentuates the non-linear interactions among three key types of actors – namely, government, industry and university actors. Much has been written to advance the theory and applicability of the triple helix, although there have also been calls to facilitate its evolution into a quadruple helix approach capable of driving civil society participation in knowledge creation and innovation processes (Carayannis and Campbell 2012; MacGregor, Marques-Gou, and Simon-Villar 2010). The participation of societal groups is expected to stimulate various forms of innovations associated with broad public value beyond a purely technological focus (European Commission 2010; Nordberg 2015). This is especially relevant for governments, which are supposed to serve the corresponding civil society.

While the idea of the quadruple helix model was suggested as early as 2003 (Leydesdorff and Etzkowitz 2003), it is remarkably difficult to identify empirical cases wherein citizens and civil society organizations (CSOs) have been institutionally included in the innovation activities of public and private organizations. In the case of public organizations, there are two main challenges that require further research in this regard.

First, new sources of innovation and/or new combinations of the available sources require adaptable working mechanisms (von Hippel 1988; Waardenburg et al. 2020). Indeed, the shift from viewing citizens purely as users to considering them partners in innovation processes demands a more systematic approach on the part of public sector organizations, including the introduction of new structures and instruments, in order to build the innovation and leadership capabilities required for successful engagement (Szkuta, Pizzicannella, and Osimo 2014; Torfing, Sørensen, and Røiseland 2019).

Second, citizen engagement in innovation is particularly challenging for public sector organizations because it requires balancing two competing management logics (Agger and Sørensen 2018). On the one side, public bureaucracies are conventionally based on hierarchical relationships. On the other side, collaborative innovation arenas are often driven by a horizontal distribution of authority among stakeholders. Therefore, citizen engagement in public sector innovation is deemed necessary to address current public challenges (e.g. Mendez et al. 2022), but at the same time complex (e.g. Strokosch and Osborne 2020). There is limited research on which to base understanding and offer prescriptions in terms of the paradigm shift from NPM to NPG, where the role of citizens is arguably the most changed and difficult to manage (Siebers and Torfing 2018). The difficulty is also due to the large amount and

heterogeneity of citizens when compared with other actors involved in the collaboration, such as industry or academia (Nguyen and Marques 2021).

In light of the above, the present paper aims to answer the following exploratory research question: How do public sector organizations engage citizens for innovation purposes? To accomplish this, based on a case study of a Danish municipality – namely, Aalborg Municipality – this paper empirically describes and analyses the possible transition from the NPM to NPG paradigm while embedding a transition from the triple to quadruple helix model. Thus, this paper contributes to research concerning public sector innovation, particularly with regard to issues related to citizen engagement in innovation. Through the case study, this paper illustrates the paradigmatic change in normativity that has occurred concerning the perception of citizens' roles, which accords with the emphasis of the NPG paradigm and the quadruple helix model on the importance of civil society as active contributors to public sector innovation. In so doing, the paper reveals the importance of the different motivations for such a transition and the structural changes adopted to pursue the new vision, as well as the use of new forms of interactions with citizens, which enable the further evolution of the roles of both government and citizens. However, the paper also shows that the quadruple helix model may understate the complexity of the innovation process, wherein the choice of how and when to involve which actors depends on a multiplicity of context-specific factors.

In addition, this paper contributes to practice by providing insights into the means of increasing the extent of citizen involvement in public sector innovation. First, there must be a clear purpose when engaging with citizens. Both societal challenges and new public sector goals can serve as important motivational factors driving the emergence of an altered perception of citizens' role as central contributors to public sector innovation. Second, rather than seeking to incorporate citizens into existing partnerships, public sector organizations can benefit from introducing new ways of organizing interactions with stakeholders, thereby mobilizing resources and introducing instruments that can empower citizens and facilitate their inclusion in the relevant stage(s) of the innovation process. These new ways of organizing interactions may require organizational capacity building across public sector staff.

The remainder of this paper is organized as follows. The subsequent section presents the theoretical background to understanding the paradigmatic transition and the challenges the public sector faces when seeking to engage citizens. The next section describes the method, data and research context of this study. The empirical section then presents the case study analysis, while the concluding section provides a discussion of the theoretical and policy implications of the findings for public management.

Theoretical background

From the triple to quadruple helix model: a transition in innovation theory and policy

The discussion concerning the quadruple helix model stems from the triple helix of university – industry – government relations (Etzkowitz and Leydesdorff 2000; Leydesdorff 2012). According to the initial model, each partner can contribute differently: the university offers new knowledge sources, the industry is the main focus of

production and the government provides regulatory support for collaborations (Etzkowitz 2008). The potential sources of innovation here lie in the hybridization of activities in which the actors not only play their traditional roles but also adopt new roles or ‘take the role of the other’ (Etzkowitz 2008, 9).

However, several scholars contend that the triple helix model overlooks the roles of other actors who may serve as driving forces within innovation systems (Bunders, Broerse, and Zweekhorst 1999; Jensen and Trägårdh 2004). Thus, a branch of research has extended the model into the quadruple helix by subsuming a *fourth helix* within the knowledge creation and innovation process (Höglund and Linton 2018; Leydesdorff 2012). Among various candidates for the fourth helix, most such studies urge the inclusion of civil society, such as citizens or CSOs, to promote knowledge democracy (Carayannis and Campbell 2012) and better incorporate societal needs into the relevant innovation systems (Jensen and Trägårdh 2004; MacGregor, Marques-Gou, and Simon-Villar 2010).

A noticeable extension of the triple helix into the quadruple helix can also be seen within the European innovation policy discourse (Foray et al. 2012), which targets sustainable and inclusive place-based growth (European Commission 2010). Nevertheless, the quadruple helix remains both a normative model and policy rhetoric. In practice, while the role of civil society in both innovation and local development is perceived as important, the related systems change has proven to be quite challenging (Nguyen and Marques 2021). In fact, it requires a better understanding of how each original helix has a distinct institutional logic and nature that influence how it deals with and shapes this enlarged collaboration (Benneworth, Jorge, and Ridvan 2020). From this perspective, the relevance of the quadruple helix approach, which includes the additional engagement of citizens and other civil society actors in relation to public organizations and public sector innovation, is crucial but still insufficiently investigated.

Innovation in the public sector: the challenge of engaging citizens

The discussion concerning citizens’ participation, as addressed within the quadruple helix discourse in particular and within innovation studies in general, is not fundamentally new. Citizens have long been positioned at the centre of public administration, with their roles being far more complex than those of pure users of innovation (Kirsty and Osborne 2020; Siebers and Torfing 2018). Both democracy and politics are ineluctable aspects when studying the relations between citizens and governments. In a liberal representative democracy, citizens are voters who perform a controlling function through participating in regular elections (Røste 2005; Vigoda 2002). The elected representatives (i.e. politicians) can then legitimately formulate public policies, which represent choices made on behalf of citizens. Thereafter, civil servants implement these policies (Bach, Niklasson, and Painter 2012; Mintrom 2012). Furthermore, in their role as taxpayers, citizens can also place additional pressure on elected representatives and civil servants to provide better public services. However, it has been observed that this representative model of democracy is currently facing a crisis because political parties often fail to meet citizens’ demands (Sønderskov 2020). This issue has increased interest in enabling more direct citizen participation in both policy- and decision-making processes.

From an administrative perspective, the ethos of citizens' roles and inclusion has changed substantially in recent decades. Alongside this change, their interactions in relation to the innovation of governments and other stakeholders have also varied (Hartley 2005; Siebers and Torfing 2018). Since the 1980s, public sector organizations have undergone massive reforms characterized by a common emphasis on opening up to the external world in accordance with the NPM and NPG approaches. Here, the NPM paradigm emerged due to the influence of business-inspired management techniques and neo-liberal economics (Hartley 2005; Siebers and Torfing 2018). In this context, citizens are considered to be customers with specific needs who should be afforded more choices when it comes to using either public or private service providers. Thus, public organizations are expected to be competitive and responsive in order to improve efficiency and, ultimately, enhance citizen satisfaction. As a result, practices such as contracting, outsourcing and tendering have been introduced, with the aim being to invite private suppliers to participate in the supply of public services.

During the 2000s, researchers raised two concerns regarding how NPM has shaped the roles of citizens (Pestoff 2006; Vigoda 2002). First, the market-driven approach to NPM overlooks the value of 'citizenship' because, as both voters and taxpayers, citizens should be able to exert influence on governments to improve the quality of public services. Second, due to them being considered customers within the NPM paradigm, citizens' contributions remain limited, for example, simply evaluating the performance of public services or infrastructures. In response to these concerns, the NPG approach, which has predominantly been considered since the 2010s (Osborne 2010), contends that citizens are not only actors with voices that need to be heard and interests that need to be met but also partners or co-creators with critical resources that should be mobilized (Siebers and Torfing 2018). Therefore, public organizations should be collaborative (Vigoda 2002) and provide an arena for co-creation that facilitates multi-actor collaborations (Torfing, Sørensen, and Røiseland 2019).

The NPM and NPG paradigms are based on different underlying rationales, with collaborative innovation being more strongly emphasized within the latter. The emergence of multilateral public – private – people partnerships within the NPM and NPG paradigms can be seen as a manifestation of helix models. Among these models, bilateral public – private partnerships between governments and businesses have been well investigated in the public management literature (Brogaard 2019; Pestoff 2006), although helix models in general remain largely underexplored, particularly in terms of public sector innovation.

With regard to public sector innovation processes, Cinar et al. (2019) found that interactions with different partners, especially citizens, represent the aspect most frequently reported to be challenging by public organizations. The practice of citizen engagement is perceived to be challenging for several reasons (Kirsty and Osborne 2020). First, a unidirectional model of service production remains prevalent within innovation processes. Actors from the production and consumption sides are perceived to play different roles, while citizens, as consumers, are rarely engaged in initiating and developing solutions. Second, and relatedly, power asymmetries exist between organizations and citizens, which may prevent citizens from participating in collaborations (Vigoda 2002). Third, structural changes, such as partnerships and networks, have generally failed to embed citizen participation. Fourth, while the increased participation of citizens according to the NPG paradigm has been called

Table 1. Citizen participation and helix collaboration in the NPM and NPG paradigms.

Paradigm	New Public Management <i>Competitive government strategy: market- and customer-centred</i>	New Public Governance <i>Collaborative government strategy: civil-society-driven</i>
Role of Citizens	Customers	Partners/co-creators
Role of Governments	Service providers	Promoters of the co-creation arena
Types of Interactions	Inter-organization: partnerships, networks, etc. <ul style="list-style-type: none"> ● Contracting and tendering ● Public – private partnership 	<ul style="list-style-type: none"> ● Distributed authority among partners (including citizens) ● Public – private – people partnership
Helix Collaborative Approach	Triple helix (government, industry, academia)	Quadruple helix (government, industry, academia, civil society)

Source: Authors' elaboration based on Hartley (2005), Sorrentino et al. (2018) and Torfing et al. (2019).

for (Torfing, Sørensen, and Røiseland 2019), its actual efficacy requires further investigation (Sønderskov 2020).

Table 1 presents the main aspects of the way in which the public sector relates to citizens for innovation purposes, including the expected roles of citizens and governments as well as the types of interactions required for innovation. It also associates the NPM paradigm with a triple helix approach and the NPG paradigm with a quadruple helix model.

Research context and method

In this section, citizen participation in public sector innovation will be examined via an exploratory research method that applies an in-depth case study approach. Qualitative interviews conducted with stakeholders in a Danish municipality constitute the primary data source.

Research context: Denmark

With a population of six million people, Denmark is a small and relatively homogenous Scandinavian country that operates with three levels of governance: national, regional and municipal (local). Denmark is considered a suitable research context for this study for two main reasons. First, Denmark has a long tradition of involving civil society associations in political-administrative processes (Torpe 2003). Indeed, it follows a corporatist democratic model that includes the involvement of relevant interest groups in the preparation and implementation of public policies (Christiansen et al. 2010). Second, Denmark is generally perceived as a well-governed country (e.g. Fukuyama 2015), which provides legitimacy to the notion of it serving as a source of inspiration for other countries. In addition, among the different levels of governance, this study is particularly focused on local governments, given that they are the closest level of government to the citizenry. Furthermore, following a structural reform implemented in Denmark in 2007, a total of 98 municipalities – reduced from the 271 that existed prior to the reform – are responsible for most citizen-related service delivery tasks, which has prompted the municipalities to focus more on citizen involvement in policy processes (Altinget and Morgen 2017).

According to national public sector innovation surveys carried out in 2017 and 2020, there is considerable innovative activity taking place within the Danish municipalities. In fact, more than 80% of the surveyed workplaces had introduced at least one innovation – defined as ‘a new or significantly changed way to improve the workplace’s activities and results’ (COI and Statistics Denmark 2019, 6) – during a two-year period.¹ These surveys also revealed that, among the four types of quadruple helix actors, civil society was the actor most frequently reported to be involved in municipal innovation. However, rather than being directly involved as a collaboration partner, civil society primarily served as a factor promoting innovation.

Interestingly, only a small fraction of the innovative municipal workplaces surveyed reported engaging in narrowly defined triple helix or quadruple helix relations where all of the partners were actively engaged in collaborations (less than 2% for both types).² Moreover, broadening the definition to include actors as initiators or promoters had only a limited effect on the proportion of workplaces that engaged in triple helix relations, while the proportion that engaged in quadruple helix interactions increased to 11% in the 2017 survey and 8% in the 2020 survey.

Method: case overview and data collection

Although the survey data referenced above provide an overview of the extent of the engagement with citizens and other civil society actors in terms of the Danish municipalities’ innovation activities, insights are not provided into how this engagement is organized. Therefore, an in-depth case study of a large Danish municipality – namely, Aalborg Municipality – was conducted to gain further insights into the organization of citizen engagement in public sector innovation.

Aalborg Municipality, which had 217,075 inhabitants in 2020, is the third largest municipality in Denmark (StatBank Denmark [n.d.a](#)). As a consequence of the above-mentioned structural reform, Aalborg Municipality merged with three smaller and mainly rural municipalities in 2007, increasing its population from 164,000 to 193,500 at the time (StatBank Denmark [n.d.b](#)). Aalborg Municipality was selected to serve as a case study due to its well-established experience with the triple helix approach, which dates back to the 1980s and the collaboration between the Aalborg university, the regional county council and the local business community related to the North Denmark Science Park (Dalum 1995). Furthermore, Aalborg Municipality’s explicit commitment to collaboration with civil society is documented in selected municipal sub-strategies, including the 2016–2020 Sustainability Strategy, which describes the municipality’s development as not only being *for* but also *with* citizens (Aalborg Kommune 2016).

A total of 17 semi-structured interviews were conducted in the spring of 2018 and 2019. The interviewees were 21 actors who understood or were actively engaged in collaborative innovations between Aalborg Municipality and other helix actors. More specifically, the interviewees represented the local government (Gov), academia (Aca), civil society (CS) and a hybrid organization spanning academia and business (B). Appendix 1 provides an overview of the participating departments of Aalborg Municipality, while Appendix 2 offers an overview of the interviewees. Several interviewees were involved in the same innovation projects, which allowed the triangulation of certain responses.

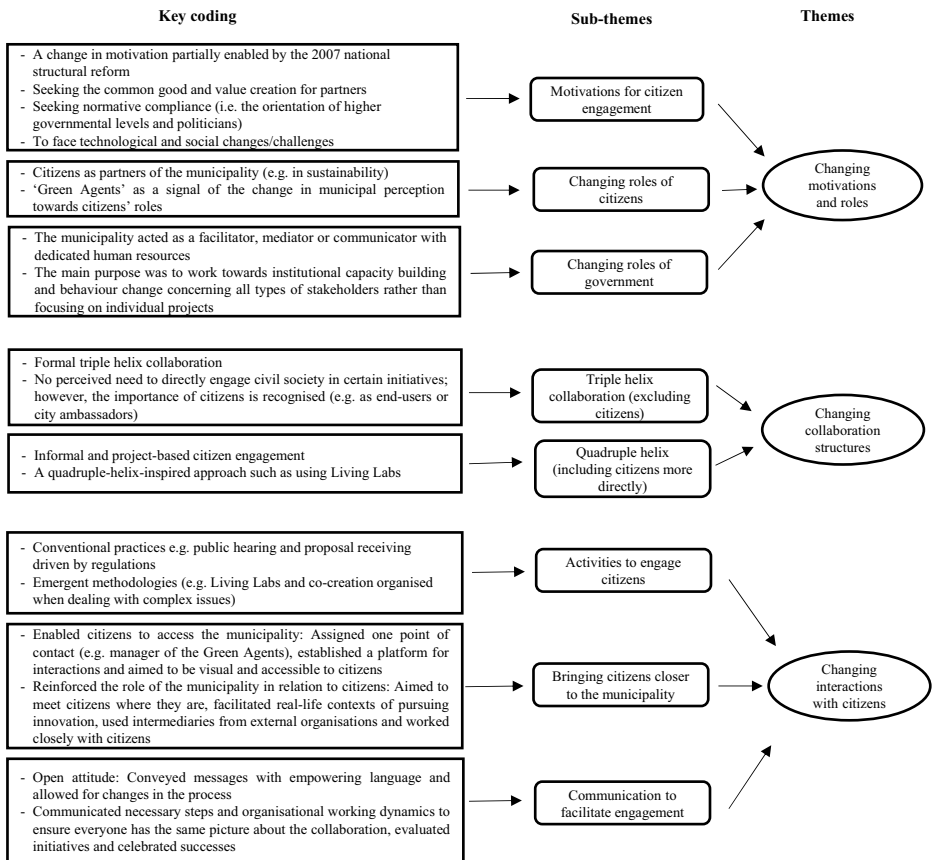


Figure 1. Data structure when exploring changes in a municipality's collaborative innovation practices.

The interview protocol focused on the formation and organization of the collaboration, as detailed in Appendix 3. The interviews were conducted on a face-to-face basis at the interviewees' workplaces, except for one interview that was conducted via email at the respondent's request. The average interview duration was 54 minutes. All of the interviews were recorded and transcribed verbatim. The utilized secondary data included information available on Aalborg Municipality's website, public videos and leaflets.

Aalborg Municipality represented the central unit of investigation in this study. The data analysis was conducted iteratively in sets, starting with the municipal interviewees and followed by the collaborators from other helices (if there were any and if interviewees were available). The data structure was explored via a thematic technique (Braun and Clarke 2006) and visualized accordingly (Gioia, Corley, and Hamilton 2012), as shown in Figure 1. After each interview, the respondent's relevant narratives were inductively coded and assigned to themes, which were then related to aggregate dimensions that provided the main elements necessary to answer the above-mentioned research question. While the codes were kept close to the interviewees' terms and expressions, the

themes were adjusted based on the interview guidelines and the theoretical bases of the NPM and NPG paradigms, as presented in [Table 1](#).

Empirical analysis

This section presents the insights derived from the case study concerning efforts to engage citizens in innovation-related processes. The analysis is structured according to the main themes presented in [Figure 1](#), which are all related to the aspects emphasized in [Table 1](#) regarding how the public sector relates to citizens within the NPM and NPG paradigms. The ‘Motivations for citizen engagement’ and ‘Changing the roles of citizens’ themes directly relate to the ‘Role of citizens’ aspect in [Table 1](#); the ‘Changing the roles of governments’ theme relates to the ‘Role of governments’ aspect in [Table 1](#); and the ‘Changing collaboration structures’ and ‘Changing interactions with citizens’ themes relate to the ‘Types of interactions’ aspect in [Table 1](#). Moreover, the discussion concerning structural changes explicitly addresses the helix collaboration approach.

The discussion of the insights is in the following drawing on selected quotes from interviews. Representative quotes from the interviews, which are the basis for the key coding presented in [Figure 1](#), are summarized in [Appendix 4](#).

Motivations for citizen engagement

Due to the structural reform that was introduced in 2007, the division of tasks among the municipal (local), regional and national government levels in Denmark changed. Prior to the reform, the municipalities were responsible for a range of functions related to social welfare, primary education, eldercare, public health, childcare, employment, etc. Following the reform, the municipalities were, alongside their existing tasks, assigned welfare tasks related to specialized social institutions and specialized education and rehabilitation, in addition to tasks related to infrastructure, culture, environment and planning (Vrangbæk 2010). While the reform could be seen as a centralization exercise, it has also paved the way for new forms of organization and provided additional human resources for the now larger municipalities. Thus, actors within Aalborg Municipality reported that the emergence of a new partnership set-up, whereby a changing perception of the relations between governments and external stakeholders led to a paradigm shift in terms of the way the municipality interacted with stakeholders, was partially propelled by the structural reform. One respondent summarized this changing perception as follows:

We could increasingly see that it was important to try to put the right partners together for the benefit not only of the citizens we try to serve but also for our benefit as an organization and for the benefit of the companies. Then, we also saw the need to try to include universities and other knowledge institutions. (Gov2)

This collaborative strategy was aligned with the scheme of higher governmental levels and the orientation of politicians. In particular, the latter was driven by a local contextualization intended to improve the competitiveness of Aalborg Municipality:

We facilitate these kinds of projects in the ‘open school’, which is part of the school reform introduced here in Denmark in 2014. [...] As a school, you are supposed to, or you are required to, be more open towards the surrounding community and to work together. (Gov10)

The politicians think it is very important that, in a small town such as Aalborg, we should be very, very *[with emphasis]* good at collaborating with the university, companies, the municipality and everybody in the city. (Gov6)

Furthermore, collaboration with different stakeholders was perceived as crucial when it comes to addressing the technological and administrative changes in the various operating fields. Such changes could entail, for example, local specialization demands in the healthcare, health promotion and disease prevention fields:

The healthcare system is changing, as it is worldwide, I think, due to increasing specialization. Therefore, more tasks go to the municipalities and local practitioners [...]. We need more knowledge. [...] The municipalities have an interest in strengthening collaboration to prompt more research in the municipal health service area. (Gov11)

Changing the roles of citizens

Within the new paradigm adopted following the structural reform, companies and citizens were perceived as partners of the municipality and recognized to possess resources critical to addressing several public issues, including sustainability:

During that event [the 2007 reform], I came here from a small municipality [...]. We had a new head of environmental management who had a vision, and I could see that vision right away: we should try to establish a whole new way of cooperating with our local companies, such as a partnership. (Gov8)

This is a new development of the welfare state. [...] Citizens now have a new role whereby they are no longer clients or customers. Instead, they are partners, you could say. They are on equal terms [with the municipality]. (Gov1)

An illustrative example of this change in perception regarding the roles of citizens, where they were repositioned from being merely customers to being partners and co-creators, can be seen in the Green Agents initiative. This initiative was established in 2015 under the auspices of Aalborg Municipality’s Centre for Green Transition with the aim of ‘co-creating a smart and sustainable Aalborg’ (Aalborg Kommune 2016). The primary objective was to ‘get in contact with people who like to solve [environmental] problems or come up with green solutions, and then support them’ (Gov1).

With this initiative, the municipality sought to develop local solutions to major challenges, especially through the participation of civil society, including individual citizens and CSOs. Moreover, the Green Agents initiative supplemented the triple helix Network for Sustainable Business Development established in 2008, which sought to strengthen companies’ competitiveness through the pursuit of sustainability.

Changing the roles of governments

While Aalborg Municipality has retained the role of a service provider in relation to many tasks (e.g. homecare for the elderly), it has also worked on actively establishing

collaborative links with stakeholders via dedicating human resources to such collaborations.

All of the municipal departments investigated during this analysis had employees who served as gatekeepers tasked with establishing connections between the municipality and different stakeholders, and they were typically assigned a specific budget to do so. For instance, as part of the Green Agents initiative mentioned above, a project manager was assigned the specific task of making it easier for *citizens* to initiate and engage with environmental projects. Similar tasks were performed in relation to other types of stakeholders, for example, a ‘business playmaker’ linked schools with *business* partners in the educational field, while a ‘research director’ worked to improve *academics’* research concerning municipal health issues. In formal networks involving multiple actors, such as the above-mentioned Network for Sustainable Business Development, the municipality has employed an increasing number of full-time staff to administer the related partnerships: ‘Back in 2008, there was just [one]; now [in 2018], we are 14’ (Gov8).

According to some interviewees, these municipal employees served as ‘a communicator’ (Gov3) or as ‘a facilitator or a mediator’ (Gov8) who linked and ‘put people together’ (Gov1). On the one hand, they ‘open[ed] the right door at the right time’ (Gov2), thereby allowing the external partners to approach the correct persons and resources to meet their needs. On the other hand, they ensured that the internal teams were cognizant of the purpose of the collaboration and facilitated the involvement of relevant staff in consideration of their intensive schedules. Interestingly, while some positions were project-based, the tasks were focused more on building institutional capacity and changing behaviour within the municipality and its partners than on targeting the results of individual projects:

In the beginning, it was us who had to come up with all of the solutions. We had to contact people and say, ‘We think this is a good idea. Would you like to be involved in it?’ [...] But during the three years I have been here, things have changed. People are now coming to us. (Gov1)

The success criteria are not really about the individual projects; rather, they are about building the capacity to use research in the municipality, to know how to collaborate for research and to build a researcher community that knows about municipal health services. Therefore, it is more about capacity building on both sides. (Gov11)

Changing collaboration structures

Triple helix collaborations remained widely applied within partnerships intended to promote both employment and business growth:

We have different clusters where we have a joint secretariat [...] and different kinds of networks. [...] Almost everything we do is like a triple helix. We work a lot in a triangle, mixing businesses, the university or university college, and the public sector. (Gov7)

This approach appealed due to Aalborg’s history as an industrial city with ‘a very good university, especially on the technical side, that is also very collaborative’ and focused on ‘working with the business sector [...] and with the city’ (Gov7). There was no evidence of a need or intention to shift from the triple to the quadruple helix in such partnerships. The interviewees revealed that they operated with a strong business

focus, regardless of the specific economic, environmental or social targets. Thus, the ‘formal involvement of civil society [was] lesser’ (Aca1). As another academic confirmed, ‘We do not interact much with NGOs’ (Aca6). Here, citizens were perceived as important but also as end-users who ‘benefit[ed] in the end’ (Aca5) or ‘ambassadors of the city’ (Gov7) who attracted businesses or essential elements of the business environment.

However, with regard to the other main tasks of the municipality, more quadruple-helix-oriented means of collaboration were employed. The Living Lab concept was, for example, applied when building the Nursing Home of the Future project in 2012–2013, after which it spread as a methodology throughout the municipal Department of Care for the Elderly and Disabled. The main aim was to promote user-driven innovation projects that integrated research and development on the part of different public and private partners. As one interviewee explained: ‘It is really important to bring technology, or whatever it is, as close as possible to the people who will be involved, who will be affected and who will use [the service]’ (Gov2).

Accordingly, these projects emphasized the importance of engaging with ‘citizens using the services’, for example, senior citizens and nursing home residents, and their representatives, including the ‘Committee for the Elderly and Disabled’ (Gov3). Their roles varied from participating in workshops and interviews to testing and evaluating initiatives (Gov2), although they were not involved in providing the actual solutions. Nevertheless, the quadruple-helix-inspired methodology was viewed as ‘a new way to work better’ by ‘normally inviting [civil society] to give them the opportunity to be involved in projects’ (Gov3). For example, an innovation unit was established in 2015 to facilitate this type of collaborative arrangement within projects run by the Department of Care for the Elderly and Disabled.

Changing interactions with citizens

Aalborg Municipality hosted diverse activities for citizens, ranging from conventional practices (e.g. public hearings, receiving proposals) to emergent methodologies (e.g. interactive expert-led workshops, prototype testing of the Living Lab, co-creation). The former activities were mainly driven by regulations intended to promote the democratic influence within the system: ‘When making a local plan in Denmark, we must have a public hearing period lasting for up to eight weeks. [...] We receive a stack of comments from citizens’ (Gov6). By contrast, the latter activities tended to be organized when the related problems proved ‘more difficult to solve’ (Gov6) or ‘could not be legislated’ (Aca2), such as changing building devices for environmental purposes (Aca3). The strategy here was summarized by an urban planner as follows:

We have a lot of different tools [...]. For some, we must be very precise and do things by the book. Sometimes, we must listen to what [stakeholders] are saying and [look at] the overall goals. They are more adaptive, constructive and innovative when finding solutions. (Gov6)

In general, the municipality employed a two-way interaction process when approaching citizens. First, the municipality encouraged the voluntary flow of ideas from citizens by assigning a single point of contact and establishing interfacing platforms. For instance, the Green Agents initiative sought to be visual and accessible to both citizens and CSOs in relation to different sustainability activities by recruiting a dedicated project manager, establishing connections via social media and organizing

an annual Sustainability Festival, among other things. This Sustainability Festival was held annually in an effort to build ‘a strong network’ among actors, which represented a change from its original objective:

In the beginning, the aim of the Sustainability Festival was to show off all of the good initiatives that the municipality runs, but then we changed it. Instead, we developed a platform for others, so that they can show what they are doing to attain sustainability. (Gov1)

Second, the municipality also endeavoured to meet citizens where they are. In the departments tasked with providing public services directly to citizens, such as providing care for elderly and disabled people, solution development according to the Living Lab methodology was considered feasible in real-life contexts with ‘real users’ (Gov2). In other areas, several interviewees emphasized the significance of the intermediary organizations that worked closely with citizens. Among the examples offered of ‘good collaborators’ were non-profit housing associations, which were said to be technically ‘very strong and very agile’ in Denmark (Gov6). As another interviewee stated:

Housing associations are very important to us because we can reach a lot of people through them. I think [...] 30% of the citizens of Aalborg live in social housing. (Gov1)

In this vein, a partner from a co-creation centre, who worked for a housing association, confirmed the following:

What we want is to hold these meetings in the area where citizens live, especially when we know they don’t want to travel all the way from X to Y, [even if] it’s maybe just 500–600 metres [...]. ‘If the mountain will not come to Muhammad, then Muhammad must go to the mountain’. It is this philosophy. (CS2)

In terms of these interactions involving citizens, an interviewed CSO representative summarized the experience as follows:

It takes some time [for people] to see the aim and structure. However, what is important is having an open attitude when you invite people to take ownership and responsibility. [...] The next thing is to have an open and well-structured process. What are we doing next? How will we communicate along the way? [...] The final point is to celebrate success. This is very important. (CS1)

An ‘open attitude’ was deemed crucial when communicating with citizens whose roles were perceived as changing. Thus, the municipality sought to convey messages using language that empowered the public to both engage and express their thoughts:

When we go to meetings and presentations, we always say that it is very important that we all contribute and that we cannot achieve our goals alone. We want them to be engaged, we want to listen and to use their knowledge, and so on. (Gov1)

It’s very good to try to involve elderly people so they also have the chance to speak their minds. Suddenly, someone directs attention towards them and says, ‘We take you very seriously. You are like an expert in this field’. (Gov2)

This open attitude also entailed having the flexibility to make changes throughout the process, as ‘people may have better ideas than yourself’ (CS1). Indeed, while the municipality might have had a certain frame of reference, collaboration often required ‘a lot of negotiations and a lot of give and take’ (Gov6). Moreover, it required transparent communication: ‘We have to explain all the time why we are doing what

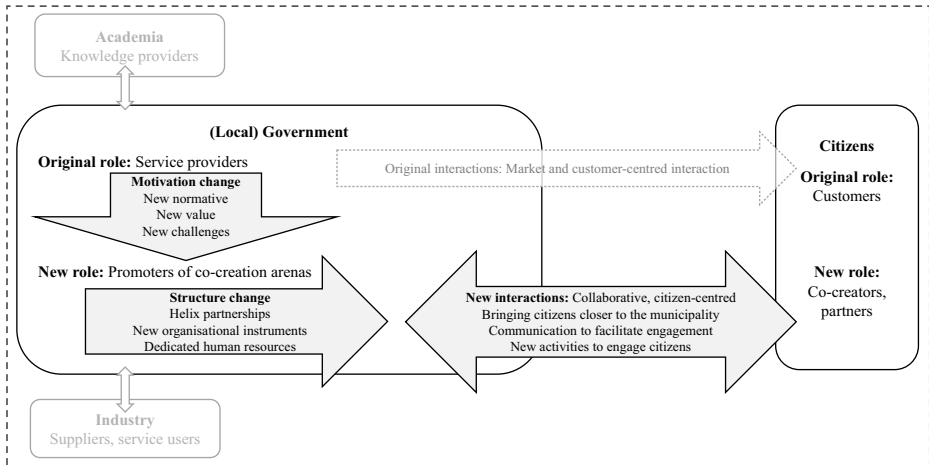


Figure 2. How public sector organizations engage citizens for innovation purposes: transitioning from NPM to NPG.

we are doing' (Gov6). As per all of the interviewees, effective communication was key to achieving successful engagement and ensuring that everyone 'had the same picture' (Gov1) in mind regarding the expectations, goals and progression of the collaborations.

Discussion and conclusions

The present paper has examined how public sector organizations engage citizens for the purpose of innovation. This was accomplished through analysing the transition that has taken place in Aalborg Municipality, where citizens, along with other stakeholders, are now actively involved in idea generation and problem-solving activities that may lead to public sector innovations. Figure 2 summarizes the findings of the analysis, which are then elaborated in the following sections.

Motivational change in public sector innovation

The analysis revealed how an external shock, such as a structural reform, combined with new tasks and societal challenges, can prove instrumental with regard to the emergence of an altered perception of the roles of citizens in public sector innovation. Accordingly, active citizen engagement is increasingly acknowledged as important when it comes to developing public services and solving complex public problems. In the case study, sustainability and the provision of welfare services were the two notable challenges in relation to which active citizen participation was deemed valuable.

The normative background to the introduction of key instruments at the organizational level, which were used to explicitly articulate the growing need for active contributions on the part of civil society and other stakeholders, was a distinct

development in terms of the altered perception of the roles of citizens as central actors. This perception accorded with a change in normativity from the NPM-based perception of citizens as customers to the NPG-based perception of citizens as resourceful co-creators.

Changing modes of citizen engagement

Two outstanding modes of direct engagement were observed in the analysis providing citizens with different degrees of latitude when it comes to influencing innovation processes. The first mode is related to the consultative nature of the Living Lab context, which provides users with opportunities to participate in planning infrastructures and prototyping healthcare products. The second mode aims to foster a co-creative landscape, wherein citizens are considered equal partners who are capable of detecting environmental problems and providing support to help realize local solutions. These two modes are applied to different groups of citizens in different fields, and they involve various levels of relations among existing stakeholders.

Rather than incorporating citizens into existing partnerships, several new organizational instruments have been employed by public sector organizations to accommodate the emergent need for citizen inclusion within the innovation system. This strategy is consistent with the practices employed elsewhere (Nguyen and Marques 2021; Roman et al. 2020). Effective citizen engagement initially requires the lead actors, such as local governments, to both empower citizens and provide opportunities for them to establish themselves as legitimate actors involved in the organization of innovation within existing organizations.

The findings also suggest that effectively approaching citizens requires the presence of governmental agencies that persistently reinforce relationships with citizens and mobilize resources to facilitate their active contribution to innovation. Furthermore, ‘meeting citizens where they are’ requires the presence of municipal departments or intermediary organizations in close proximity to citizens. Earnest commitments by local governments are critical to enabling such a change. Conventional bureaucratic organizations may consider citizens to be a homogeneous group and, therefore, adopt the mantra that ‘you cannot find them; they find you’ (Kornberger et al. 2017, 187).

The implementation of new citizen engagement activities and concepts, such as the Living Lab and co-creation, entails organizational capacity building. The associated learning curve tends to be steep for both existing governmental staff with shifting professional identities and new employees tasked with performing facilitating roles (Hofstad and Torfing 2015; Horsbøl 2018). The present findings indicate that any scenario will require a significant amount of time to enable the translation of theoretical concepts into practice (e.g. via training sessions or experiments) and allow for behavioural changes among governments and citizens alike. In addition, collecting ideas from citizens is only one aspect of Living Lab and co-creation activities. The meaningful incorporation and realization of citizens’ inputs are contingent upon the availability of resources (e.g. human, financial, infrastructure) and the practice of smooth cooperation throughout the whole organization to avoid role confusion and enact changes. Ultimately, such activities should represent a profound shift towards the

inclusion of citizens, not one-off events (Leino and Puumala 2020) or instances of solely engaging with citizens at data-gathering points.

Finally, open communication is essential to catalyse the success of citizen engagement. Indeed, communication is often cited as an important factor in collaborations due to its role in facilitating knowledge exchange, building trust and conveying expectations to partners (Fonseca 2019; Nieth 2019). The findings of the case study support this notion and further highlight how adaptation is required for each type of actor, especially citizens. Effective interaction throughout the whole process necessitates the use of empowering language to stimulate citizen participation, encourage attitudes that allow for negotiation and implement clear procedures for eliciting the expected results. Nevertheless, the power asymmetries that exist between citizens and governments mean that these factors do not play out straightforwardly.

Helix collaborations in practice

This analysis has also explored the extent to which the observed changing normativity from the NPM to NPG paradigm is associated with a move from triple helix to quadruple helix collaborations. While survey data reveal that actors from all helices only rarely participate in the same stage of development of an innovation process, it is also relatively rare for them to participate in the same innovation project. In line with this, the case study illustrated how the quadruple helix model tends to oversimplify the complexity of the innovation process, which can be studied at different levels (organization, project, specific innovation), where all four types of actors/helices are presumed to be present and to interact in intermittent ways.

Moreover, the findings of the case study suggest possible explanations for this empirical observation. The choice of which actors to involve depended on different factors, including the purpose of the project, availability of existing resources and efficiency of actor participation. Such findings have important theoretical and empirical implications for the development of helix models. There is currently a lack of research to guide the organization of triple and quadruple helix relations in practice. Most previous studies have analysed such relations at the system level in the forms of networks and partnerships, while empirical research at the project-based micro-level remains lacking (Höglund and Linton 2018; Miller, McAdam, and McAdam 2018). The findings of the current analysis suggest that, while all quadruple helix actors might be important in relation to the implementation of innovation projects, the organization of these actors' interactions is often pragmatic and context-driven rather than being strictly compliant with the prescriptions of theoretical models.

Limitations and future research

This study has some limitations that invite further investigation. First, the empirical data primarily allowed for the exploration of municipal employees' perspectives. Thus, future studies could examine how citizens reflect and act on their changing roles in public sector innovation processes. Second, the study was conducted in a context characterized by a relatively high level of trust in public authorities, which may not

be the case in other countries. Indeed, when compared with other countries, the level of trust in public authorities is high in Denmark (Primetime 2023). However, while more research in other countries is certainly necessary, the present findings concerning the oversimplification of the quadruple helix model may apply generally. The considerable efforts required to engage citizens in a country with a relatively high level of trust in public authorities suggest that it may be even more challenging to mobilize citizens in other contexts. Still, there is no reason to assume that the findings of the present case study concerning the mechanisms associated with transitions from NPM to NPG practices, as well as with how citizen engagement plays out in reality, will differ dramatically from what is observed in other countries – except maybe in terms of the extent to which these interactions and mechanisms can be observed. Finally, further assessment of the costs and risks associated with citizen participation in policy and service processes is required, since these may outweigh the possible gains (Sønderskov 2020).

Notes

1. All of the figures mentioned in the remainder of this section are derived from the authors' own calculations based on survey data provided by Statistics Denmark. For further information, see (Statistics Denmark., n.d.). 'Public Sector Innovation'. Statistics Denmark. Accessed April 12, 2023. <https://www.dst.dk/en/Statistik/dokumentation/documentationofstatistics/public-sector-innovation>.
2. Triple helix relations are defined as relations between municipal, academic and business sector actors *without* relations to civil society actors, whereas quadruple helix relations are defined as relations between municipal, academic, business sector and civil society actors.

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