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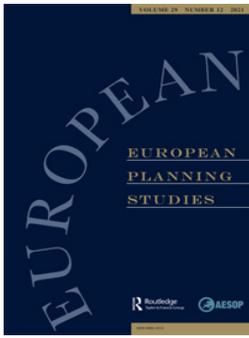
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Conditions for networked co-production through digital participatory platforms in urban planning

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ABSTRACT

Contemporary urban development is increasingly characterized by collaboration and co-production between ‘experts’ and the ‘public’ in urban planning processes. Recently, local planning actors have adopted digital participatory platforms (DPPs) which are specifically built for networked engagement and collaboration purposes. However, the knowledge on embedding DPPs in wider planning dialogues is still limited and scattered. The aim of this paper is to provide a better understanding of the organizational conditions for the successful adoption and implementation of such networked co-production. Through a set of semi-structured interviews with representatives from public agencies and platform companies, we have analysed how organizational conditions for networked co-production manifest themselves in seven cases of DPP implementation. The analysis shows that these conditions are co-constitutive and co-evolutive rather than concurrent or sequential, with strong links between the compatibility of public agencies, attitudes to co-production, organizational cultures and incentives for co-production. The results critically emphasize the need to adopt holistic approaches to networked co-production, allowing for extensive experimentation and ‘learning by doing’.

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1. Introduction

Over time, urban planning and community scholars have studied various ways to improve communication and collaboration between ‘experts’ and the ‘public’ in planning processes. Essentially, public participation is seen as ‘a cornerstone of democracy’ (Roberts 2004, 315), in which democratic legitimacy strongly depends on the nature and quality of public decision-making. Public participation is also a core component of sustainability. The importance of public participation for sustainable cities and communities is emphasized in the UN Sustainable Development Goal SDG 11, particularly subgoal 11.3.¹ By helping to make institutions more accountable, public participation

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also strengthens SDG 16.6.² Lane (2005) reviews the complex historical legacy of public participation that has underpinned ideological shifts in planning, from blueprint and synoptic planning to the current era characterized by theoretical pluralism. Unsurprisingly, the academic and practice-oriented literature feature dozens of theoretical models, each with their own assumptions and limitations (Babelon 2021). A challenge remains the capacity to combine a critical stance with pragmatism to operationalize progressive modes of participation, including the capacity for participants to shape and co-produce the context and aim of public participation itself (cf. Davis and Andrew 2018; Swyngedouw 2005).

A specific form of public participation is co-production, generally defined as ‘the public sector and citizens making better use of each other’s assets and resources to achieve better outcomes and improved efficiency’ (Bovaird and Loeffler 2012, 1121). A renewed interest has appeared in co-production of public services, in light of fiscal pressures and austerity regimes by governments around the world (Voorberg, Bekkers, and Tummers 2015; Brandsen and Honingh 2016). In the pre-Internet age, the potential for co-production was somewhat constrained by a limited ability of government to effectively coordinate citizen actions and, in some cases, the difficulty of citizens to self-organize. However, ‘the advent of the Internet’s unique many-to-many interactivity and ubiquitous communications promises to enable coproduction on an unprecedented scale’ (Linders 2012, 446). Social media and Web 2.0 have affected governments’ communication with citizens (De Souza and Bhagwatwar 2014; Fredericks and Foth 2013).

A particular type of web-based technology adopted by civic organizations or governments is represented by *digital participatory platforms (DPPs)*, used in urban planning and urban development processes. DPPS are defined as a type of social media explicitly built for engagement and collaboration purposes. DPPs enable user-generated content and include a range of functionalities (e.g. analytics, map-based, geo-located inputs, importing/exporting of data, ranking of ideas) which transcend and considerably differ from social media such as Facebook, Twitter or Instagram. Previous studies focus on the potential of DPPs to *inform* planning decisions, involve large numbers of citizens, foster deliberation and crowdsource geo-located information (Fredericks and Foth 2013; Jones et al. 2015; Afzalan and Muller 2018; Falco and Kleinhans 2018a). Other studies have framed DPPs in the context of smart city governance, referring to ‘technologically-mediated municipal reciprocity’ (Webster and Leleux 2018) and ‘networked co-production’ in virtual communities of citizens (Meijer 2011).

Networked coproduction has not been systematically studied (Linders 2012, 447; see also Meijer 2011; De Souza and Bhagwatwar 2014; Falco and Kleinhans 2018a; Webster and Leleux 2018). Planning organizations usually do not evaluate the effectiveness of DPPs in terms of co-production (Afzalan and Muller 2018, 172). Various conditions related to technology and organizational matters must be met to enable co-production. In view of the scarcity of empirical research, there is a need to look under the proverbial bonnet of DPP-based co-production. Using a basic framework of factors affecting co-production (Voorberg, Bekkers, and Tummers 2015), the aim of this paper is to provide a better understanding of the organizational conditions for the successful adoption and implementation of such networked co-production. The research question is: How do key organizational conditions affect the adoption and implementation of DPPs as a tool for co-production of planning solutions?

This paper builds on a previously conducted systematic review of DPPs (Falco and Kleinhans 2018a). From this study, we have selected seven DPPs that have been implemented in the years 2017–2019 by nine local governments in five European countries: The Netherlands, Belgium, England, France, and Sweden. This selection will be fully explained in Section 2. While we fully acknowledge the fundamental importance of citizens' experiences, our study is limited to the perceptions of representatives of local public agencies and the involved platform companies. We have therefore employed a qualitative approach, conducting semi-structured interviews with key informants from public agencies and platform companies. The article is structured as follows: Section 2 addresses theories of co-production and sets out the conceptual background for the study of analysis. Section 3 presents our methodological approach to the data collection and analysis. Section 4 describes the results of the interviews, highlighting the main findings. Section 5 discusses the results. Section 6 offers conclusions and sets out directions for future research.

2. Co-production through digital platforms

2.1. The nature of co-production

The concept of co-production partly stems from Elinor Ostrom's work on the management of common-pool resources (e.g. Ostrom 1996). A renewed interest has appeared in the citizen co-production of public services, partly due to the fiscal pressures faced by many governments around the world as a consequence of the financial crisis of 2008 (Parrado et al. 2013, 86; see also Linders 2012; Van Eijk and Steen 2014, 359). Co-production is also regarded as part of 'a drive to reinvigorate voluntary participation and strengthen social cohesion in an increasingly fragmented and individualized society' (Brandsen and Honingh 2016, 427). Co-production in urban planning is the result of long-term developments in the processes of state-society engagement (Watson 2014). It can be seen as a more recent outcome of consolidated paradigm shifts in urban planning towards a more communicative and collaborative approach (Lane 2005; Healey 1998). Due to technological developments, emphasis on the role of citizens as (co-)producers of information and data for planning has been placed with the development of concepts such as Volunteered Geographic Information, citizens as sensors, and Public Participation Geographical Information Systems (e.g. Goodchild 2007; Brown and Kytta 2014; Jankowski et al. 2021).

Bovaird and Loeffler (2012) define co-production as the public sector and citizens making better use of each other's assets and resources to achieve better outcomes and improved efficiency. Conceptually, several types of co-production can be distinguished. These types are based on the extent to which citizens are involved in both the design and implementation of professionally produced services, and the extent to which citizens are engaged in tasks that are part of the core process of service delivery, or complementary to this core process (Brandsen and Honingh 2016, 432, see also Bovaird 2007; Fung 2015). Scholars have identified organizational and individual factors that influence whether co-production 'works' in practice. As for the latter, these include personal motivation, the urge for personal control, self-interest (tangible benefits), sociality (an individual's desire for a sense of belonging), a sense of responsibility, citizens' perceived ability to

effectively influence service provision, and their ability to access social capital (Van Eijk and Steen 2014; Voorberg, Bekkers, and Tummers 2015).

2.2. Organizational factors affecting co-production

As Ostrom (1996, 1080) cautions, ‘designing institutional arrangements that help induce successful co-productive strategies is far more daunting than demonstrating their theoretical existence’. Co-production places the spotlight on the institutional conditions for using DPPs in dialogues between governments and citizens. Voorberg, Bekkers, and Tummers (2015, 1342) have identified four organizational factors that affect co-production. First, the compatibility of public organizations to citizen participation, i.e. the ‘presence or absence of inviting organizational structures and procedures within the public organization’ and infrastructures to communicate with citizens. For example, Bovaird and Loeffler (2012) observe that co-production requires development of new skills of public sector professionals to work with citizens and recognize their assets (cf. Parrado et al. 2013). A second factor is how public officials and politicians perceive co-production upfront. While they may be attracted by the promises of networked co-production, they may also consider it as undesirable, because of unpredictable behaviour of citizens and ‘political and professional reluctance to lose status and control’ (Voorberg, Bekkers, and Tummers 2015, 1342). Third, a ‘risk-averse, conservative administrative culture’ may explain why citizens are not seen as a reliable partner (ibid., 1342; Magno and Cassia 2015). A fourth organizational factor is the presence or absence of incentives to start co-production. For public officials, ‘it is often unclear to what extent public services can be improved by incorporating citizens or how co-creation creates budgetary benefits’ (Voorberg, Bekkers, and Tummers 2015, 1343; see also Magno and Cassia 2015). We will elaborate these four, highly interrelated organizational factors in the context of the adoption and implementation of DPPs.

2.2.1. Compatibility of public organizations

Once a public organization has set up a DPP, awareness among the target group of citizens is an important dimension of participation. Reasons or motivations for non-participation can range from lack of awareness to disinterest, abstention, and exclusion (Lutz and Hoffmann 2017; Saunders et al. 2021). Hence, DPP deployment must be part of a wider embedded multichannel participation approach that taps into offline and online information channels that easily fit with citizens’ daily routines (Afzalan and Muller 2018; Falco and Kleinhans 2018a; Hjerpe, Glaas, and Storbjörk 2018).

According to Bovaird and Loeffler (2012, 1119), ‘citizens are only willing to co-produce in a relatively narrow range of activities that are genuinely important to them and are keen that their co-production effort is not wasted by public agencies’. Therefore, a key challenge for DPP adoption is the extent to which users feel that participation is rewarded by the public organization, by responding to users’ input or highlighting the links between user input and the preferred outcome (Parrado et al. 2013). These interactions emphasize the need for a clear phasing of the public engagement process, from crowdsourcing inputs to responses, discussion, filtering, feedback and siphoning towards scenarios or solutions. Here, expectation management is of key importance. New technologies, such as DPPs, often come ‘bundled with the expectations that there

will be a positive change or improvement in how citizens relate to governments' (Robinson and Johnson 2020, 60). Users expect that their time and efforts will pay off, particularly if they are aware that it is not always possible to identify how the produced data are employed in the urban planning process (Hasler, Chenal, and Soutter 2017; Eriksson, Fredriksson, and Syssner 2021; Saunders et al. 2021).

Solutions co-created through DPPs usually need to be legitimized and approved in democratic decision-making bodies such as local councils. There is often a time gap between the establishment of a range of options through the DPP and the resulting changes in the built environment, physical infrastructures or community services (Hasler, Chenal, and Soutter 2017; Wilson, Tewdwr-Jones, and Comber 2019). Furthermore, there is a risk of 'cherry-picking' from citizen inputs to support existing presumptions for decision-making, which can affect the transparency of both participation and decision-making processes (Kahila-Tani, Kyttä, and Geertman 2019). Hence, digital participation can create an 'illusion of participation and influence', as the workings of representative democracy for decision-making in urban affairs may not coincide with the outcomes of participatory decision-making (Swyngedouw 2005; Fung 2015; Babelon 2021).

Another key consideration concerns the question of whether users can remain anonymous or whether they should register in order to use the platform. Anonymous comments or other inputs can raise concerns about their validity and representativeness (Kahila-Tani, Kyttä, and Geertman 2019). Registration places substantial demands on planners regarding assessments of data quality, ethical and privacy issues (Hasler, Chenal, and Soutter 2017; Afzalan and Muller 2018). For instance, different modes of user registration and logging onto DPPs, e.g. through a Facebook or Google account, can hinder participation due to privacy issues, at the same time as user registration may give local authorities insight about participant demographics (Babelon 2021).

2.2.2. Attitudes to citizen participation and co-production

In line with the promise of online interactivity and ubiquitous communications, many civil servants and public officials are sincerely supportive towards platform-based co-production with citizens (Linders 2012; Afzalan and Muller 2018). Even in case of clear political support, some of their colleagues might be hesitant or even outright against an online co-production process with citizens. Apart a reluctance to lose status and control (Voorberg, Bekkers, and Tummers 2015), they perceive strong pressure from the public to respond real-time to citizens' inputs, which requires a lot of resources (Falco and Kleinhans, 2018b). Furthermore, making mistakes during the interaction or making promises which cannot be fulfilled, bears the risk of political consequences and sparking or strengthening distrust. Civil servants may also refer to 'negative participation legacies'. These are previous experiences with public participation attempts that did not work out as expected or simply failed to attract a sufficient critical mass of participants. Finally, civil servants face the daunting task of filtering from the 'wisdom of the crowds' towards a narrow selection of inputs in the context of scarce resources (Seltzer and Mahmoudi 2013; Hasler, Chenal, and Soutter 2017). This process of filtering reveals the power exercised by planning officials in determining which inputs reach formal decision-making (Eriksson, Fredriksson, and Syssner 2021) and inherently involves 'disqualifying' inputs from users, unless the process is fully based on voting by platform users.

2.2.3. Organizational/administrative culture

The intentions of public agencies to enlarge digital participation by ‘the public’ raise significant organizational challenges. In fact, digital participation often requires a fundamental revision of daily routines, workflows and protocols. First, agencies need to meet regulations on privacy, data protection and security, and accessibility of media, for example for people with various disabilities or language minority groups (Bricout et al. 2020). Secondly, agencies need to prepare clear strategy and policy guidelines on how to co-ordinate and stimulate digital participation. Such guidelines should include demographics, target population and stakeholders, feedback, monitoring, and measuring activities on DPPs (Bryer and Zavattaro 2011; Falco and Kleinhans 2018b). Both factors (regulations and policy guidelines) require signification co-ordination, workflow integration, and collaboration across departments of public agencies. Third, the revision should include necessary changes in the ‘back offices’ of governments to adequately respond to inputs and establish meaningful interactions with and among citizens. This not only requires the availability of expertise and experienced in-house staff capable of ‘managing’ digital participation using DPPs, but also a lot of ‘learning by doing’ (Bryer and Zavattaro 2011; Jones et al. 2015; Falco and Kleinhans 2018b). As a prerequisite to this revision, overcoming an outdated organizational culture which underestimates the value of citizens’ input constitutes a major challenge (Voorberg, Bekkers, and Tummers 2015; see also Nabatchi 2012).

2.2.4. Incentives for co-production

The take-up rates of co-production platforms and apps can be low, implying unrepresentativeness and that a large segment of the population does not have access to or does not feel comfortable making use of online collaboration tools, risking further empowering only the already empowered (Linders 2012, 452; Nabatchi 2012). While the COVID-19 pandemic has accelerated a shift to technology-mediated, pervasive, applications across society, disparities in digital literacy, access, affordability and usability continue to pose challenges for marginalized populations (Bricout et al. 2020, 94–95; Robinson and Johnson 2020). Lowering the adoption barriers and providing user-friendly DPP functionalities are very important but not sufficient conditions for a wide take-up. Basically, target groups must be aware of the existence and purposes of DPPs, so enhancing visibility is crucial. Promotional campaigns across multiple sources and media can provide clear incentives by increasing the visibility and legitimacy of DPPs (Stratigea, Papadopoulou, and Panagiotopoulou 2015; Hjerpe, Glaas, and Storbjörk 2018), and trained staff should be assigned to facilitate user inputs and online conversations (Jones et al. 2015). The added value of pursuing networked co-production through DPPs needs to be clear and shared across all those involved.

Based on the preceding contextualization of organizational conditions for networked co-production, the left part of [Figure 1](#) provides the analytical framework that will be used for the empirical analysis.

3. Methodology

As this paper aims to provide a better understanding of the organizational conditions for successful adoption and implementation of networked co-production, we have chosen to

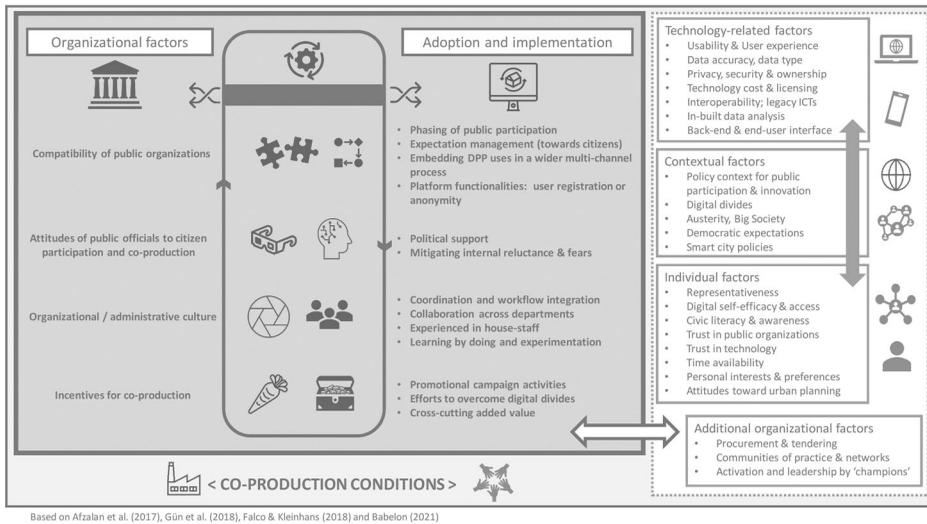


Figure 1. Analytical framework.

study the adoption and implementation of a limited number of DPPs in more detail. Based on a systematic literature review of participatory platforms across the world (Falco and Kleinhans 2018a), we have selected seven platforms which provide relevant examples to answer our research question. The selection was based on three criteria: (1) application to a real-world case where the engagement process had already been completed and final decisions had been made or were close to being made; (2) deployment of multiple platform features that facilitated two-way interaction between citizens and professionals, and (3) feasibility of conducting as many semi-structured interviews as possible. The scarcity of potential, well-documented and 'completed' cases required us to cast our net widely, while acknowledging travel resource restrictions, which excluded countries outside Europe. We do not claim that our selection is in any way representative or that it represents certain (dis)connections between institutional and organizational factors across countries, as the selection criteria are more related to practicalities and stages of development. Obviously, implementation of platform-based produced solutions would offer ultimate 'proof' of the potential and conditions for DPPs to enable co-production. However, considering the large time gap between plan approval and (offline) realization, at least in urban development, we do not limit ourselves to implemented examples of co-production.

The platforms and the relative cities where they have been/are being adopted and implemented are: TransformCity (Amsterdam), CitizenLab (Hasselt and Schiedam), Commonplace (Newcastle), Carticipe (Lille), Cap Collectif (Grenoble, Rennes), Sticky-world (Hexham), Minstad (Gothenburg). We started our data collection in January 2018 throughout September 2019 by means of semi-structured interviews. These were conducted face to face, with phone interviewing as an alternative when face to face was not feasible. We have conducted a total of 27 semi-structured interviews with three to four key informants per case study (see Appendix). Interviews have been conducted initially with the communication officer or local councillor. Through the

snowballing technique, we reached out to project managers, the responsible person at the platform company and to other relevant stakeholders. After obtaining informed consent, the interviews lasted approximately 1 hour and revolved around three main themes: platform adoption, the embedding of the DPP in the public participation process, and offline outcomes and decisions. Interviews were transcribed verbatim in order to avoid any misinterpretation and to minimize personal bias in the analysis of the main aspects. For the coding of the interviews and identifying themes (see the left part of [Figure 1](#)), we have initially used the software Atlas.ti and completed the coding manually.

4. Results

In this section we highlight the main organizational and process-related conditions that are at the basis of DDP-based co-production in planning. The analysis follows the structure of the analytical framework (see [Figure 1](#)).

4.1. Compatibility of public organizations

4.1.1. Phasing the engagement process and expectation management

According to our respondents, phasing the engagement process and expectation management deliver ‘by-products’ that are essential to co-production efforts, such as increased trust in government and avoidance of too high or false expectations by engaged citizens regarding how their input will be used and how the process will unfold. Our interviewees highlighted the importance of at least three (overlapping) phases once the co-production process has started on the DPP: (1) input; (2) analysis, which involves qualitative and quantitative analysis of comments, votes, ideas; and (3) feedback. As one interviewee from the platform Cap Collectif stated:

Our methodology is grounded in a stepwise approach to citizen participation, featuring an idea submission phase, different analytical phases, and a feedback phase about what has been decided and why, including a clear explanation of what will be done as a result.

While these phases should have a clearly defined timeline to manage the expectations of citizens, they do not represent a linear process by default, but rather a more iterative one. Communication about the phases of analysis, filtering, approval and implementation of a project or plan is fundamental to avoid loss of interest and disappointment on the part of the citizens and thus feeds into management of expectations. This is one example of the strong relationship between the factors ‘compatibility’ and ‘incentives for co-production’. One of our interviewees, a city councillor, in relation to a co-production project for a new design for a city park highlighted that the platform fell into disuse for a while after the feedback phase:

The political discussion about which plan was approved took longer than we anticipated at first. So, that is one of our lessons that we learned. We put a really strict timing on the platform with a timeline and we were not able to follow it. And there was a really long time between the input we got from the people and the actual results. We took the ideas to a design company, who needed a few months to come up with a plan. And the plan had to go for approval, which was a bit of a discussion (...), and the administrative, legal stuff on finding a contractor and tender process.

Therefore, it appears that the feedback phase is very important for managing expectations on the length of the process and the actual implementation of DPP outputs.

Apart from the timing, a key consideration is whether (aggregated) feedback will be provided collectively, or whether feedback is provided individually and on a real time basis. This dilemma is illustrated by one of our interviewees from the Hasselt case, where the ideas that received the most likes on the platform were incorporated into the redesign of the park. Only after the completion of this redesign, the local authority publicly communicated which ideas were used and which ones not used, and for which reasons. However, this ruled out the possibility of individual feedback and subsequent online discussion about this feedback.

Feedback is also relevant for expectation management. Several respondents have suggested a direct relationship between citizens' perceived level influence of 'being heard', involvement, and feedback on their input. It is widespread knowledge in the participation literature that feeling ownership over an issue makes people more likely to speak out, but only if they feel that this can make a difference. This also applies to the use of DPPs (see e.g. Parrado et al. 2013; Saunders et al. 2021). One interviewee for the Newcastle case study stated that:

... these things are dual-edged, because if you consult and then you ignore most of the feedback that you gain, people very quickly will work out: 'actually, it is not worth my time or effort to say anything'.

However, the literature highlights the inherent difficulty in assessing the value and influence of individual citizen inputs on the planning process. Even though users want their time and efforts to pay off, identifying how their inputs are valued and employed is a huge if not impossible challenge (Hasler, Chenal, and Soutter 2017; Eriksson, Fredriksson, and Syssner 2021; Saunders et al. 2021), also because democratic decision-making may not coincide with inputs in the participatory process (Swyngedouw 2005; Fung 2015; Babelon 2021). The first point was elaborated by a respondent in Gothenburg:

If we consider individual citizen suggestions, it is difficult to measure their actual influence on planning. Apart from the fact that any planning process can include many online suggestions by citizens, it might be difficult to show direct links between citizens' inputs and final outcomes, because the process subsequently includes (political) choices and other complexities.

4.1.2. Embedding DPP uses in a wider multi-channel process

Technological features play an important role in facilitating co-production. However, as highlighted by previous studies (Falco and Kleinhans, 2018b; Royo, Pina, and Garcia-Rayado 2020; Babelon 2021; Mehmood and Imran 2021), it is not the availability of technology *per se* that determines the success of co-production efforts through DPPs. This is stressed by many interviewees, including the DPP software companies. One interviewee from the Carticipe platform made a plea for a comprehensive approach to the use of DPPs:

We are apostles of what we call the 'phygital', which blends both digital and physical/in-person methods, which amount to methodologies that aim to broaden participation and

generate results. Building on the premise that we are a process, we aren't a tool for continuous engagement; we have no intention of become one.

In fact, the interviews reveal a kind of consensus that digital features and adoption of DPPs should complement traditional and physical face-to-face approaches, even though all interviewees agree that DPPs guarantee engagement numbers that are larger than those generated through more traditional ways of consulting citizens, such as town hall meetings. In the Hasselt case, DPP technology was able to guarantee the involvement of over 2000 citizens compared to 80–90 participants who were involved through workshops for a different project. However, in line with a large body of research, respondents observed that DPPs were adopted more often by specific demographic groups, e.g. young adults and working families, and much less by youngster and older people. This points to the need for complementarity in the participation approach to avoid exclusion.

4.1.3. User registration or anonymity?

Posting, commenting and voting are features of all studied DPPs. During the interviews, an interesting discussion appeared with regard to the revealed information of platform users. In some cases, commenting was allowed in an anonymous form, whereas in other cases, user registration was required and anonymity was not allowed. Each of the two options has its pros and cons regarding participation rates, the moderation of comments, data quality, ethics and privacy requirements, and the 'democratization' of contributions (e.g. Afzalan and Muller 2018; Kahila-Tani, Kytä, and Geertman 2019). Respondents in favour of anonymous comments argue that this allows for more participation quantitatively, by lowering the entry barriers, whereas those in favour of user registration argue that user registration allows for more meaningful and well-considered comments thus leading to a lower need for moderation by the platform administrators, a point that was raised by the engagement officer from the Schiedam.

However, ethical and privacy issues may not only be a concern for planners (Hasler, Chenal, and Soutter 2017; Bricout et al. 2020). For reasons linked to privacy, convenience or reluctance to engage under one's own name, user registration may prevent potential participants from submitting an idea, voting, or even comment on other posts. An interviewee at the city of Rennes explained the difficulty of striking a balance regarding the needs of various groups:

For someone who is accustomed to digital tools, it may be irritating to register because it takes time, given also that they are participating without expecting anything in return [...] As for someone who is not comfortable with digital technology, such as an older or socially deprived citizen with little access to internet, they might find it complicated to log onto the platform.

4.2. Attitudes towards co-production and the organizational culture

The analysis has revealed that the second and third condition for DPP-based co-production are strongly related, so they will be discussed here jointly. Especially for the stage of adoption, political support is a prerequisite that needs to be in place for any DPP-based co-production effort to work. In line with the literature (e.g. Linders 2012;

Afzalan and Muller 2018), clear political commitment and positive political support have, in fact, been mentioned by all interviewees, regardless of their position. Several respondents highlighted that indispensable support not only concerns processes and procedures, but particularly also willingness of individual civil servants and politicians to use the platform.

However, councillors and officers within local planning agencies can also resist the adoption of DPPs for co-production efforts. The interviews highlighted several reasons why this can happen, which are strongly in line with the literature: lack of adequate staff (Jones et al. 2015), fear of giving away power (Voorberg, Bekkers, and Tummers 2015), a firm belief in the role and effectiveness of representative democracy, fear of having to dedicate too much time to online moderation (Falco and Kleinhans, 2018b), preference for offline methods, and a perception that citizen participation is not much needed at all (Nabatchi 2012). Sometimes, the issue basically comes down to insufficient staff capacity to take on the extra work.

Emphasizing the role of representative democracy, the analysis revealed that while city council members may fully support participation, they may also express the opinion that their elected position enables them to decide what is best for all people in their constituency (see also Swyngedouw 2005; Fung 2015; Babelon 2021). One respondent from the Hasselt case revealed various forms of reluctance in the public agency:

From a lot of different angles: the fear of giving away power, of making false expectations, of eh, yes making people unhappy if you ask what they want and then you cannot give it. But also, from the administration there is a fear that it is a lot of work and the fear of a digital platform, that is not easy for everyone.

The interviews revealed that role of the civil servants involved in the co-production process may be expanded to have a say in choosing the platform that best fits their needs and technological expertise, along with the determination of priorities and matters for which a co-production process is appropriate. Regarding the stage of implementation, we find that a DPP-based co-production effort requires input and commitment from various parts of departments within public agencies. To make a participatory process as smooth as possible, existing workflows need to be co-ordinated and integrated, which is dependent on both the organizational culture and the aforementioned preparedness of individual public officers. The need for communication and co-ordination between different departments involved is in line with previous research on organizational requirements for DPPs-based co-production efforts (Falco and Kleinhans, 2018b; Afzalan, Sanchez, and Evans-Cowley 2017). In view of workflow integration, collaboration and the associated changes in organizational culture, the Rennes case has put in place an interesting initiative called ‘network of public participation ambassadors’ to support co-production. One respondent explained as follows:

We will set up an internal repository with extensive information about public participation, including info sheets about methodologies, case studies, and practical facilitation tools. We will also set up an intra-organizational network of public participation ambassadors. This is a bit of a cut-and-paste from our existing experience with participatory budgeting, whereby we already have a member of staff in the drop-in offices in every neighbourhood who is knowledgeable about participatory budgeting [...] And we will launch a training programme for staff around public participation.

While co-production processes may require culture changes, they can also help to grow a new organizational culture underpinned by a strong citizen-centric approach and greater transparency. Several respondents observed that the platform helped to operationalize the city's wider commitment in terms of transparency: A respondent from Rennes explained that:

We have a transparent accountability of activity on the platform, including a list with the number of paper votes and digital votes per participatory budgeting project. It is part of the city council's public participation charter, whereby we commit to be as transparent as possible. One can also find such data on the city's Open Data portal.

In line with previous research, the interviews showed that DPP take-up and effective exploitation to the purpose of co-production entailed extensive 'learning by doing' and experimentation across different phases of a single project. The presence of experienced in-house staff was particularly instrumental in generating changes in organizational culture and workflows (Bryer and Zavattaro 2011; Jones et al. 2015; Falco and Kleinhans 2018b), although change in workflows also occurred in cases where procurement of consultancy services was concomitant with DPP use (Cartcipe in Grenoble, Stickyworld in Hexham). In turn, DPP upgrades were often requested by the organizations during the course of projects (e.g. Cap Collectif projects) or as a result of project evaluations.

4.3. Incentives for co-production

The analysis shows that this condition's importance is twofold. On the one hand, all interviewees agree on the need to invest heavily in publicity, external communication and promotional campaigning before a DPP-based co-production effort can start (cf. Stratigea, Papadopoulou, and Panagiotopoulou 2015; Hjerpe, Glaas, and Storbjörk 2018). Obviously, the intention is to engage as many participants as possible across different socioeconomic and demographic profiles. On the other hand, carefully considered incentives and support are needed to mitigate digital illiteracy and the digital divide that still emerges in various guises. In terms of promotional campaigning, the Amsterdam case shows how such efforts can be meaningfully contextualized in the target area. The platform co-founder explained that

... we have done off-line guerrilla-fundraisers in the area itself. We have been putting posters and postcards in the cafes. It is very important (...). We had newsletters, we have social media accounts. We have sessions (...) and events that we organize and we all connect them to the platform. So, it is really on-line/off-line combination. People want to know the faces behind the platform.

This quote shows a clear link to the previously discussed condition of embedding a DPP in a wider multi-channel process, and the absence of a single solution. When it comes to publicity and attracting people to engage, the co-founder of CitizenLab emphasized clever combinations of different communication channels, from local newspapers and billboards, to social media, press releases and flyers.

With regards to online campaigning, an interviewee from the Hexham case highlighted the advantages of videos and other media content to spark the interest of citizens. In addition, personalization and online branding through the use of city logos and official graphics contributes to the perception on the part of citizens of institutional and official

support and adoption. A particularly technology-based incentive for co-production was mentioned in the Gothenburg case. It concerns the importance of map-based visualization in placing and pinning new ideas with a clear spatial location and spatial consequences. The Minstad platform used 3D visualization, which helped enormously to facilitate insight and understanding among platform users:

3D visualisation provides a whole different perspective than 2D maps. One can understand volumes and the overall context in a totally different way. Users can experience the city in 3D, which was what we developed from the beginning. It is much harder on a 2D map to experience space and how things relate to each other.

Even so, the interviews pointed out that the ‘digital divide’ surfaced in the process of engagement on the chosen platform. In the Amsterdam case study, one respondent highlighted that technology can be perceived as an obstacle and can put off people if no countermeasures are taken:

There were a lot of citizens who actually emailed me and said: ‘can you help me to put this idea, because I have this idea, but I don’t know how to put it on the platform’. Some of them said ‘OK, we looked at the platform but it did not really look like it was for us’. You know, because it looks too technical to them.

The ‘digital divide’ entails a strong relationship between the factors ‘compatibility of public organizations’ and ‘incentives for co-production’, in the sense that tailor-made incentives should be embedded in the engagement strategy of the public organization. The persistence of the digital divide has pushed some of our respondents to restore face-to-face voting and place more emphasis on in-person participation, as explained by the project leader in the Rennes case:

After having spoken with neighbourhood representatives, we decided to restore the physical vote rather than just keep the voting procedure digital, because people were not able to use the digital platform, which has led us to question the use of the platform somewhat.

5. Discussion

We structure our analysis of the findings based on our analytical framework (see [Figure 1](#)). Rather than fully discrete, the four conditions are interdependent and co-constitutive.

5.1. From compatibility to pro-activity/agility

With regards to compatibility of public agencies, the interviews have revealed strong relationships between the iterative phasing of the co-production process, management of expectations towards platform users, and the provision of feedback on platform inputs, provided collectively, individually, at certain moments, or on a real time basis. In fact, the results show that the public agencies and the procured platform companies should not just be compatible to DPP-supported co-production, but should enact proactive and agile phasing of the participation, multichannel ecologies of (communication) tools, methods, and publics. Agility and pro-activity should also manifest through organizational attitudes, workflows, and cultures (Section 5.2), emphasizing the interdependent nature of the organizational conditions.

A ‘phygital’ approach, i.e. a participatory methodology that is at once digital and in-person/physical, provides an effective entry point into such multichannel participation ecologies. Such a hybrid approach to networked co-production is based on an appropriation of the recursive value potential of well-crafted, human-centred participation both *through* and *beyond* DPPs (Babelon 2021). Seltzer and Mahmoudi (2013, 13) already highlighted that ‘useful citizen involvement will be the result of a multiplicity of techniques and opportunities in a planning process, not a single form or moment in time’ (see also Saunders et al. 2021).

The reasoning behind a ‘phygital’ approach not only concerns addressing various human needs, but also preventing the exclusion of participants. People may feel more confident on a DPP than in a traditional setting where they may experience public speaking anxiety, and thus become excluded – a manifestation of the ‘illusion of transparency’ in participation (Falco 2016). While DPPs can limit participation biases arising from the overriding influence of more vocal participants at public meetings, group influence can nonetheless affect the way in which individual users interact with a DPP. Individual users may be influenced by other users’ comments if these are publicly visible (e.g. with Cap Collectif, Carticpe, Commonplace, Stickyworld). While in-person methods may suffer from the illusion of transparency, DPPs can suffer from the ‘illusion of participation’ in various ways. First, the interactive functionalities enable new forms of citizen input which in-person methods cannot offer and which can lead to high expectations from, but also the strong disappointment of, participants. Second, our results show that such functionalities may raise entry barriers and thus generate exclusion due to digital illiteracy. Third, our results show the existence of a sobering time gap between crowdsourced platform solutions and realization after public decision-making (Hasler, Chenal, and Soutter 2017; Wilson, Tewdwr-Jones, and Comber 2019). Finally, the implemented solutions may differ significantly from those initially proposed by citizens, as they need to be defined, refined, or limited in order to fit the competences and capabilities of the public agency (see e.g. Royo, Pina, and Garcia-Rayado 2020; Mehmood and Imran 2021).

5.2. Attitudes, appropriation and organizational culture: towards co-transformative practices

Our results confirm that political support for the adoption and implementation is a prerequisite for any DPP-based co-production effort to work. However, political support does not guarantee that all public officials are working together in the same direction. In line with earlier research, the interviews have revealed various reasons for internal reluctance, based on staff and skill deficits, losing status and control, a presumed undermining of representative democracy (Fung 2015; Voorberg, Bekkers, and Tummers 2015; Kahila-Tani, Kyttä, and Geertman 2019; Royo, Pina, and Garcia-Rayado 2020), and fear of raising expectations which cannot be met (see also Section 5.1).

Our results show that part of the reluctance within public agencies is rooted in a lack of appropriation of a DPP-based co-production approach due to realistic concerns. Public agencies, and individual staff working there, should be encouraged and able adapt DPPs to their own specific needs and purposes. Such appropriation, particularly if led by ‘champions’ within the organization, can help to change attitudes towards DPPs and co-production during the course of a project or over time across several

projects (Babelon 2021). Where DPP adoption induces undue staff workloads without the provision of additional resources, e.g. more allocated staff hours or new staff hire, procured consultancy services or in-house training, staff attitudes will unlikely improve.

By providing evidence that DPP technology and workflows shape each other recursively, our findings also indicate that effective adoption and implementation of DPPs is achieved through: (1) continuous realignment between client needs and DPP functionalities; (2) providing resources for experimentation and supporting ‘learning by doing’ approach among organizational staff, especially for first-time adopters; (3) sharing investment costs and benefits across departments; (4) appropriate internal co-ordination and administration of the DPP back-end system, where relevant; and (5) the presence of experienced in-house staff, such as public participation professionals, as opposed to subject-specific planning experts. Ultimately, of course, ‘public participation can only be understood in terms of the decision-making context in which it is embedded’ (Lane 2005, 297). A critical pragmatic analysis of the decision-making context, and the way in which it both stems from and encourages transformative practices, deserves an empirical paper of its own, as it extends beyond organizational factors per se.

5.3. From incentives to intrinsic, co-generative motivation

The results show that incentives are needed to start any DPP-based co-production effort and to engage as many participants as possible with various profiles and interests. Beyond the pre-requisites of promotional campaigning and strategies to overcome digital divides, incentives should both comprise *forward-looking outcomes* (i.e. generating longer-term, less immediately tangible positive outcomes, such as the UN-SDG goals) and offer *something to look forward to*. Examples of the latter are more immediate rewards, such as rapid self-efficacy in conducting DPP projects, or quick tangible outcomes in terms of massifying public participation compared to more traditional methods. Previous research has also shown the importance of feedback and platform users seeing their contributions being implemented or otherwise taken into account (e.g. Bryer and Zavattaro 2011; Falco and Kleinhans 2018b; Royo, Pina, and Garcia-Rayado 2020; Eriksson, Fredriksson, and Syssner 2021). Such intrinsic motivation is ideally shared or *co-generative*, leading to ‘win-win-win’ situations among public officers, citizens and elected officials, on the basis of growing mutual trust, greater democratic leverage, or rising collective interest in civic matters and urban affairs. Compelling ‘dialogue’ presupposes that participation shapes the very context or ‘frame’ in which participation takes place (Swyngedouw 2005). There are also intrinsic differences and complementarities between ‘participation’ as the identification of solutions, and ‘deliberation’ as the identification and exploration of the actual issues at stake (Hildreth 2012).

6. Conclusions and further research

Through a set of interviews with public agency and platform stakeholders, this study seeks to answer the question of how key organizational conditions affect the adoption and implementation of DPPs as a tool for co-production of planning solutions. The four co-production conditions in our analytical framework and our results critically

emphasize the need to adopt holistic approaches to networked co-production. We conclude that these four key organizational conditions are strongly interrelated in their shaping of the implementation of DPPs for co-production purposes. These conditions can create, nurture but also thwart hybrid ‘ecologies of co-production’ that reflexively harness the evolving interdependencies between technology use and planning practices. Such ‘ecologies of co-production’ recognize both the strengths and limitations of multiple tools, methods and approaches and how these can align with particular moments and phases in the temporal continuum of co-productive planning processes. If used carefully, DPPs can augment the whole life cycle of planning projects and policies (Kahila-Tani 2015). Their use-value and return on cost/time investment can accrue over time as both public agency and planning professionals and citizens become more familiar with their use.

This study contributes to the literature in several ways. First, by providing an elaboration of the framework by Voorberg, Bekkers, and Tummers (2015), we show that the organizational conditions in the context of networked co-production through DPPs are co-constitutive and co-evolutive rather than concurrent or sequential. It is precisely for this reason that we use the term ‘ecologies of co-production’ in our conclusion. Second, in light of the ‘widely shared affirmative framing of online participation’ (Lutz and Hoffmann 2017, 888) and a lack of empirical analysis, our study offers a look under the proverbial bonnet of DPP-based co-production among public agency ‘forerunners’ across seven European cities. The study shows that DPP use among public agencies not only continues to feature extensive experimentation and ‘learning by doing’, but also reveals a significant scope for improvement. Third, even with networked co-production of a solution, actors need to take into account the extended time and effort for implementing the chosen solution. This step needs to be part of the expectation management towards citizens and can be supported by regular online feedback regarding the implementation process.

Obviously, this study has limitations. By elaborating an existing typology (Voorberg, Bekkers, and Tummers 2015), our study cannot offer a fully encompassing analysis of organizational conditions for DPP-based co-production (which is also reflected in the partial coverage of the model in Figure 1). Furthermore, our results are based on self-reported attitudes and views from public agencies and platform companies at a fixed point in time, and from different countries with highly different contexts. These offer a limited view on the dynamics over time. Regardless of our deliberate choice to limit our target group to public agencies and platform companies, we fully acknowledge the fundamental importance of citizens’ experiences with DPP-based co-production. Further research should therefore adopt a longitudinal approach and monitor citizens’ and public agency professionals’ perspectives and experiences over the course of a co-production project. Future empirical research can also compare the ways in which different modes of digital participation influence both the type, quality and quantity of input that individual users provide. Finally, our study included only examples of DPPs developed by commercial platform companies. Future research may examine examples of local, non-corporate and open-source platforms that are not owned by private companies, but nevertheless play an important role in urban planning.

Notes

1. SDG 11.3 aims to ‘enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries’.
2. SDG 16.6 aims to ‘develop effective, accountable and transparent institutions at all levels’.

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Appendix. List of cases

DPP	City	Country	Participation case	Interviewee position
TransformCity	Amsterdam	The Netherlands	Neighbourhood Planning	City Planner Platform Co-Founder Community Stakeholder
CitizenLab	Hasselt	Belgium	City park design	Communication Officer City Councillor Platform Founder IT Department Officer
	Schiedam	The Netherlands	Urban regeneration projects	Policy Officer Engagement Officer Programme Manager
Commonplace	Newcastle	England	Active mobility infrastructure	Engagement Officer Community Leader Platform Co-Founder
Stickyworld – now ‘Confers’	Hexham	England	Central marketplace design	Consultancy Engagement Officer City Councillor Platform Co-Founder
Carticpe – now ‘Carticpe-Debatomap’	Lille	France	Metropolitan plan	Consultancy Engagement Officer Platform manager Engagement officer
Cap Collectif	Rennes	France	City agency’s engagement portal	Project leader Project officer Engagement Officer/Intern
	Grenoble	France	Metropolitan agency’s engagement portal	Platform Head of Consulting Engagement Officer Project Leader
Minstad	Gothenburg	Sweden	Input for city-wide planning strategies	GIS expert at City planning department Platform Manager Digital Services Manager