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Moving from Coproduction to Commonization of Digital Public Goods and Services

Abstract (145 words)

The hybridization of digital commons and public administration institutions led by bureaucratic entrepreneurs is a relatively recent phenomenon that has received limited attention in the literature. The term coined to describe this evolution is the “commonization” of digital public goods and services. We define commonization as the integration of shared property, peer production, and self-governance into public administration. To explore the democratizing potential of commonization, we conducted a qualitative study comparing two case studies in France and Spain (Barcelona). Our approach involves forty-four semi-structured interviews and online observations analyzed through the analytical framework of institutional work. Our findings highlight five factors that enhance, and two that hinder, citizen power in co-governance arrangements. In conclusion, we identify the theoretical and practical implications of commonizing digital public goods and services, providing valuable insights for practitioners and scholars, particularly in the New Public Governance paradigm.

Key words: public services co-production; digital commons; co-governance; institutional work; New Public Governance.

Evidence for Practice

- The commonization of digital public goods and services, aligning with the New Public Governance paradigm, holds the potential to empower digital citizens and democratize public administration.
- For digital commonization to be fully effective, the role of public officials must change from prescribers to facilitators so as to limit their effective power while enhancing that of citizens in co-governance arrangements.
- The adaption of public administration to commonization will require significant reforms in the field of administrative law, including ‘legal hacking’, aimed at reorienting public-private contracts to encourage public-commons partnerships.
- To fully achieve the democratizing potential of commonization and to avoid empowering the already empowered, it is essential to educate students at all levels on how to use and participate in self-governed commons, as well as address the structural causes of the digital divide.

Interest in co-production of public goods and services, broadly understood as activities in which citizens and state actors work together to produce benefits (Nabatchi et al. 2017), has grown since it was first introduced in the 1980s. In recent years, it has surged, driven by the demand for administrative modernization, by citizens' democratic aspirations, and by the development of Web 2.0 technologies (Thomas and Streib 2003). Many scholars and practitioners have formulated concepts like “2.0 government” (Chun et al. 2010), “open government” (Lathrop and Ruma 2010), “we-government” (Linders 2012), or “government as a platform” (O’Reilly 2011) to describe this digitalization of co-production. However, one particular form of digital co-production inspired by digital commons has received limited attention so far.

Digital commons have become an integral part of the internet. They include open source software like Linux, collaborative databases like OpenStreetMap, and platforms like Wikipedia. They are defined as digital resources with equal access rights (Lessig 2001), coproduced by peer-to-peer contributions (Benkler 2006), and managed by self-governing communities (Hess and Ostrom 2007). The digital commons movement was initially critical of government interventionism when it emerged in the United States in the 1980s. Its activists, inspired by counter-culture ethics and hacker ethos, sought to build a “third way” in the management of digital resources, opposing the market and bureaucracy (Bollier 2008). Nevertheless, since the 2010s, elected officials and bureaucratic entrepreneurs have found inspiration in digital commons to transform the provision and governance of digital public goods and services.

In the United States, Beth Noveck, chief technology officer in the Obama administration, undertook to democratize the organization of federal administrations along the lines of

Wikipedia (Noveck 2009). In France, the National Institute of Geography (IGN) launched a public policy to cooperate with third-sector communities like OpenStreetMap in the coproduction of “geo-commons”. In Barcelona, anti-globalization activist, Ada Colau, who won the 2015 municipal elections, was committed to democratizing the functioning of local government by delegating the management of certain public goods and software to citizen self-governing communities, such as the online participatory democracy platform, Decidim.

This emerging phenomenon is the commonization of digital public services and goods. After Fattori (2013), we define it as the introduction of shared property, peer-production, and citizen self-governance into public administration institutions. The commonization of digital public services and goods is not self-evident. It raises three central questions for scholars and practitioners of public administration. How can equal right of access and administrative protection of sensitive data coexist? How can the horizontal logic of peer production be integrated into the hierarchical production of official databases and software by bureaucratic administrations (Kostakis 2011)? How can the hierarchical management of public goods and services be reconciled with seemingly paradoxical citizen self-governance institutions?

As we will see later in the first section, the literature on co-production has partly addressed the first two questions but the third remains relatively understudied (Pestoff, Brandsen, and Verschuere 2012). The analytical framework established by Nabatchi et al. (2017) that we used for our research distinguishes two co-production phases: planning and design on one hand, provision and assessment on the other. In this latter phase, public administrations can either open up public data for individuals and organizations to produce their own digital goods and services i.e. open data (Goldstein and Dyson 2013); or create online platforms to crowdsource the provision and assessment of digital public services and goods i.e. citizen crowdsourcing (Liu 2021). In the planning and design phase, in an effort to determine strategic

and operational choices, citizens can be consulted by administrations or, in some cases, share decision-making authority with them i.e. co-governance (Pestoff et al. 2012). Although co-provision and co-assessment initiatives have been widely studied in the literature on open data and citizen crowdsourcing, co-governance experiments remain relatively understudied (Linders 2012). In particular, our understanding of the power dynamics between citizens and administrations in the co-governance of digital public goods and services is limited. To fill this gap in the literature, the study of the co-governance dimension of commonization of public goods and services is highly relevant. The central question addressed by this article is thus the following: can hybrids of self-governed citizen communities and hierarchical public administrations function effectively, and if so, which factors enhance or hinder citizen power in these co-governance institutions?

This article is the first academic attempt to empirically analyze the phenomenon of the commonization of public digital goods and services. In particular, it examines the attempts by bureaucratic entrepreneurs (Teske and Schneider 1994) to reform the state-centric order of public governance by introducing new elements of citizen-centric self-governance as well as the barriers encountered to establish these co-governance arrangements and the hybrid institutional arrangements implemented to overcome them. A literature review outlines the characteristics of digital commons and presents a state-of-the-art overview of research on open data, crowdsourcing and co-governance public policies, their promises and their limitations. This is followed by the presentation of the methodology which was a qualitative investigation of two case studies involving forty-four semi-structured interviews, a “netnography” (Kozinets 2015) of digital communication and workspace applications and an extensive corpus of gray literature. The data collected was interpreted using an inductive thematic analysis approach in the broad analytical framework of “institutional work” that focuses on

“the broad category of purposive action aimed at creating, maintaining, and disrupting institutions” (T. B. Lawrence, Suddaby, and Leca 2009). Finally, the article presents the results and discusses the theoretical and practical implications of commonizing digital public goods and services recommending courses of action for practitioners and avenues of research for scholars concerned with New Public Governance issues in the digital era.

THEORY FROM THE LITERATURE

Three elements characterize the digital commons: equal access rights, peer production, and self-governance. While public administration literature on the co-production of public goods and services has not addressed commonization *per se*, it has explored how hybrid public administrations incorporate these three characteristics, specifically examining open data, citizen crowdsourcing, and co-governance.

Three institutional characteristics of digital commons

Open access and shared ownership. The digital commons emerged in the 1980s in opposition to the burgeoning information capitalism which sought to expand intellectual property rights to software (Boyle 2003). Some hackers defended the moral superiority and technical advantages of a universal right to access software and created “free licenses” (Stallman 1999). Using the paradigmatic example of free software, the legal scholar Lawrence Lessig conceptualizes the digital commons as “resources whose right of access is equitably distributed” (Lessig 2001). Yochai Benkler characterizes “open-access commons” as resources where “no one has asymmetric power to determine their allocation” (Benkler 2006).

However, not all digital commons are classified as open-access commons. Some commons licenses allow use without restriction (e.g. open license) while others exclude particular types

of users (e.g. a peer-production license prohibits use by for-profit companies). Following Dulong de Rosnay and Stalder (2020), the first characteristic of digital commons is that access and right to use are equitably distributed within a more or less open community. This differs from privately or publicly owned digital resources, where access and use are controlled by boards of directors or public administrations and governments.

Voluntary peer-to-peer contribution. The second feature characterizing digital commons is production via voluntary peer-to-peer contributions (Bauwens 2005). These contributions are facilitated by a culture of sharing on the internet and the development of personal computing and instant communication tools that permit asynchronous contributions, granular modularization, and low-cost integration (Benkler 2006). These socio-technical advancements have generated a plethora of citizen crowdsourcing projects like Wikipedia and OpenStreetMap.

Peer-production differs from public or private production in that motivations to contribute are typically intrinsic, such as a desire to participate in the common good or to engage with a community, as opposed to extrinsic hierarchical or monetary incentives (Hars and Ou 2002). Also, participation is not conditioned by status or contractual obligations, as is the case for civil servants and employees, but rather by adherence to contribution rules that apply equally to all contributors.

Self-governance. The third institutional dimension that characterizes digital commons is self-governance. Elinor Ostrom's research identifies eight institutions established by communities to sustainably manage natural commons, one of them being to ensure that “those affected by the rules can participate in modifying them” (Ostrom 1990). In the 2000s, scholars started to use Ostrom's theory to analyze the diverse forms of self-governance employed by online

communities. In digital commons governance, the use of formal or informal rules, as well as the degree of participation can vary, with the vast majority of them being managed by small informal communities, in contrast to large and highly institutionalized projects like Debian and Wikipedia (Schweik and English 2012).

The governance of digital commons is different from that of private companies or public institutions. It is not determined by a market or hierarchical logic, but by a democratic organization where producers and users participate in establishing the rules of use. This self-governance is both a praxis and ethical approach that originates in the hacker culture, which opposes hierarchies and favors horizontal organizations and technical meritocracy, where legitimacy is accorded to those who work well regardless of their status (Coleman 2012).

Co-production of digital public goods and services

These three characteristics of the digital commons seem, at first glance, to be at odds with the practices and organization of public administrations. Nevertheless, even though public administration literature has not yet studied the commonization of digital public goods and services, scholars and practitioners have explored three modes of hybridization between digital commons and public institutions: open data, citizen crowdsourcing and co-governance.

Open data. The first form of hybridization is open data. It is no surprise that Lawrence Lessig, who was instrumental in theorizing open access commons, was also one of the first to advocate for opening up government data. Since the late 2000s, a growing number of activists and scholars have argued for the right of citizens to access public databases, algorithms and software. They advanced three main justifications: to promote political transparency and democratic accountability (Lathrop and Ruma 2010); to stimulate economic growth and competitiveness by encouraging the private sector to create applications that governments

have not considered or lack the resources to develop (Goldstein and Dyson 2013); to take advantage of the near-zero marginal cost of data dissemination that facilitates this process of data sharing.

The adoption of open data policies within public administrations faces several obstacles (Janssen 2012). Firstly, several scholars demonstrate that the existing institutional order often resists change (Ruijter et al. 2020), for example, public officials concerned about their information monopoly and the possible exposure to administrative sanctions (Wirtz et al. 2016), or private companies who distribute public information concerned about reduced income (Zhu 2017). Secondly, there may be legal resistance to institutionalizing the right of access to public information, as other legal institutions within the administration dealing with issues like tax or administrative secrecy may oppose such policies (Shulz 2019). Lastly, administrations may be reluctant to commit finances to overcoming the technical and economic barriers to the adoption of open data policies (Barry and Bannister 2014).

To overcome those obstacles, strong political support was sought to secure funding and persuade reluctant administrations, while training initiatives were undertaken to counteract the risk-averse culture of public officials (Attard et al. 2015). Legal initiatives were taken to make sensitive data accessible (de Rosnay and Janssen 2014). To date, the hybridization of open-access commons and public data has yielded mixed results. While a considerable amount of data have been made accessible to the public, politically sensitive information remains the exclusive domain of certain administrations (Shulz 2019). Furthermore, open data policies have not always been accompanied by enhanced citizen accountability and the actors best positioned to handle open data are well-resourced corporations rather than associations or small companies (Bates 2014).

Citizen crowdsourcing. The second form of hybridization between digital commons and public administrations concerns citizen crowdsourcing. Citizen crowdsourcing is defined as participatory online activity carried out by a group of volunteer citizens in response to an online call by a public organization (Liu 2021; P. Dutil 2015; Noveck 2009). Three main arguments have been advanced to justify involving citizens in enriching public information and IT infrastructures (Thomas 2013): it enhances participative democracy by encouraging the active contribution of citizens in the co-production of public actions; it is an efficient way of producing public goods and services as it reduces the cost of specialized knowledge or large-scale data collection that would otherwise be expensive or time-consuming; it is facilitated by the prevalence of smartphones and the low cost of aggregating digital contributions.

Nevertheless, there is some resistance to integrating citizen crowdsourcing into administrations. Firstly, public officials and agents are reluctant to integrate citizen input because they don't trust the quality of data produced by non-experts (Sieber and Johnson 2011). Secondly, the question of legal liability arises if information is inadvertently or deliberately vandalized (Scassa 2013). Thirdly, not all citizens are equally positioned to contribute. Active contributors of online content form a homogeneous sociological group which reinforces the traditional "civic engagement gap" and risks marginalizing disadvantaged service users (Dutil et al. 2008). Finally, crowdsourcing technologies and protocols may be too expensive for smaller governments (Brabham 2013).

What solutions have been implemented? To overcome the first two barriers, administrations have embedded citizen contributions into official information production protocols, although this bureaucratization may discourage volunteers from contributing (Mehta, Bruns, and Newton 2017). As for the last two barriers, managing crowds requires programs, including compensation schemes, trust-building and channels through which participants can express

their opinions (Harrison and Johnson 2019).

Co-governance. The third form of hybridization concerns the articulation between self-governing (citizen-centric) and hierarchical (state-centric) institutions in co-governed organizations. Brandsen and Pestoff (2006) define co-governance as an arrangement where citizens and third sector organizations participate in the planning, design and delivery of public goods and services. Scholars and practitioners have several arguments in favor of co-governance of public information and IT infrastructure: it enhances direct democracy since it provides a diverse group of citizens with decision-making power over public goods and services (Osborne 2006); it enhances public trust and accountability in the management of digital public services (Ackerman 2004); it promotes innovation and collective intelligence in the development of digital public technology and services; it is technically facilitated by online and asynchronous digital tools (Sorrentino, Sicilia, and Howlett 2018).

But compared with open data and crowdsourcing literature, research on the co-governance of digital public goods and services, the barriers present and the efforts to overcome them is more limited (Linders 2012; Nabatchi, Sancino, and Sicilia 2017). A larger body of literature exists on experimental co-governance in non-digital public services such as civic management facilities in Barcelona (Blanco, Salazar, and Bianchi 2020) or public-citizen local partnerships in England and Scotland (Fenwick, Miller, and McTavish 2012). These studies suggest that a tension exists between the desire of citizen communities to self-organize and the hierarchical administrative procedures imposed by state actors. The single case study conducted on e-government platforms characterized as digital commons comes to the same conclusion (Rotta et al. 2019). While some authors argue that in co-governance arrangements, citizen communities have a significant degree of autonomy with respect to state actors (Rhodes 2000), others demonstrate that public bureaucracy creates power asymmetries in favor of public

authorities (Agranoff 2006). Thus, the existing literature on co-governance of digital public goods and services fails to provide a comprehensive framework that identifies the factors determining the power balance between public administrations and citizens in co-governance arrangements. Given that one of the main characteristics of digital commons is self-governance, studying efforts to hybridize commons (citizen-centric) institutions and public services (state-centric) institutions could shed light on this gap in the literature.

METHODS

Selection of case studies

The selection strategy was to take two similar cases of commonization where the balance of power in co-governed organizations tilted in different directions, one towards citizen communities and one towards public administrations, in order to uncover the key determinants at play (Flyvbjerg 2006). We conducted a systematic search for examples of hybridization of digital commons and public administrations, using keywords such as “digital commons”, “communs numériques”, and “procomùn digital” on government web portals in English, French, and Spanish, as well as on the website of the Open Government Partnership, which serves as a collaborative platform for open government policies in over 100 countries. We identified eleven (n=11) potential case studies. In order to select relevant case studies for a qualitative investigation, we set three selection criteria: sufficient historical background (>5 years), a large number of users (>10,000), and addressing significant political issues. Among the remaining four potential cases (n=4), in order to facilitate a clearer comparison that could reveal the key determinants at play, we chose one in which the balance of power clearly favored the public administration and one where self-organizational institutions were favored. Respectively, these two cases were the National Address Database and Decidim.

Presentation of case studies

The National Address Database (BAN) is an official database of all addresses in France and their geographical coordinates. Today, BAN is part of the public data service and its APIⁱ is solicited several million times per day. Launched in 2015 by a partnership between French administrations, the postal service, La Poste, and the French association, OpenStreetMap, the objective is to provide an open, contributory and co-governed digital commons. However, after OpenStreetMap left BAN, governance was mainly by the public administration.

Decidim is an online platform for participatory democracy. It is used in twenty countries around the world, by more than a hundred cities and national authorities such as the French Parliament. Decidim won second prize for the most innovative open-source software from the European Commission (2019). Launched in 2016 by elected officials and agents of Barcelona City Council, the platform is now governed by a citizen association.

Data collection method

For each case, we collected three types of empirical data. The first dataset comprises forty-four (n=44) semi-structured interviews (n=28 for the BAN and n=16 for Decidim). Interviewees were selected according to both positional and reputational criteria. We identified the current and former heads of BAN and Decidim, as well as the directors of the administrations and departments involved (positional criterion). For BAN, these were directors of the Institut National de Géographie and the Ministère du Numérique, heads of the Address department of the Ministry of Finance and the public company La Poste. For Decidim, they were Barcelona's elected representative in charge of democracy, and heads of the Barcelona and Catalonia administration Citizen Participation departments. From these interviews, we then identified public officials, developers and users that were regularly cited (reputational criterion). Each

semi-structured interview lasted around an hour (42 mins for the shortest and 1h35 for the longest), and was conducted according to an interview guide composed of 5 sections: (1) sociological background, (2) current position in and functioning of the organization, (3) online and offline practices around the digital commons under study, (4) political dimension and power relations, (5) general representations of the administration, the digital commons and co-production. The second dataset is comprised of online netnographic observations (Kozinets 2015). In both cases, the producers of the digital commons under study conducted their work and communication activities on platforms, namely *GitHub*, *Slack* and *Metadecidim*. Github is a collaborative platform for improving software code. The activity of each contributor and their interactions can be tracked. Slack and Metadecidim are exchange platforms that enable participants to communicate collectively through chat channels or web pages dedicated to specific topics ranging from technical issues to strategic decision-making. We collected data from these digital spaces by visiting them once a week, or when we knew a particular event was about to take place (Annual General Meeting, decision-making, etc.) for the duration of the survey. Where relevant, we recorded the written exchange sequence, or screenshots when visual documents were exchanged, in our field notes. The third dataset consists of all available administrative documents (n=18), including public reports, referrals to the Prime Minister, legal documents, meeting minutes and association statutes.

Data analysis method

We conducted data analysis using the framework of the sociology of institutional work. Lawrence, Suddaby and Leca (2011) define institutional work as “the practices of individual and collective actors aimed at creating, maintaining, and disrupting institutions”. Specifically, this framework considers attempts to reform institutions, the resistance of the previous institutional order, and the initiatives of reform entrepreneurs to overcome resistance. To

investigate this institutional work in both cases, we analyzed our three data sets – interviews, online observations, administrative documents – using the applied thematic analysis method (Guest, MacQueen, and Namey 2011). By employing an inductive approach and analyzing our transcribed interviews and fieldwork notes, we have identified four thematic sections that we elaborate on in our results: (1) the context i.e. the issues, actors and institutions involved; (2) the justifications and practices deployed to establish co-governance arrangements; (3) the resistance by state-centric institutions; (4) the solutions pursued to resolve these challenges in hybrid public-commons institutions.

RESULTS

Case study 1: The National Address Database (BAN)

Context. A geolocated database of addresses is essential to achieve a “digital grip” on a geographic area, enabling such actions as the rapid dispatch of firefighters and the delivery of packages to remote areas. In France, a limited number of databases of geolocated addresses have traditionally been managed by central administrations, including the National Institute of Geography (IGN) and the national postal service, La Poste. But in the 2010s, two main problems were revealed in the geographic information sector: these databases were created in silos, resulting in duplication, non-rational production and additional costs; they faced increasing competition from private actors such as Google Maps, undermining the digital sovereignty of the French government and public administrations. Surprisingly, IGN and La Poste did not react to this mobilization. The OpenStreetMap (OSM) association, was the first to react. In 2011, it quickly self-organized with a hundred individual contributors on digital platforms (wikis, forums, mailing lists) to constitute the first version of a unified database of geolocated addresses that was produced, managed, and distributed as a digital commons.

Co-governance. Henri Verdier, then director of the public agency responsible for open data policies (Etalab), decided to join forces with OSM to co-produce an official National Address Database. This bureaucratic entrepreneur justified his decision with two arguments: building BAN as a digital commons would allow administrations to cooperate with each other rather than operate in silos and secondly, joining forces with OSM would harness the power of crowdsourcing and counteract the power of large foreign platforms. As he noted: “OpenStreetMap is the only real alternative to Google Maps today (...). Preserving our digital sovereignty requires building new, more loyal and respectful alliances with users and contributors” (Pezziardi and Verdier 2017). In 2015, OSM and Etalab forged a partnership with IGN and La Poste. This partnership stipulated that BAN would become an official digital commons co-governed by the public administration and the citizen association, OSM.

In concrete terms, the first version of BAN's co-governance took place in two layers. The first layer was the steering committee made up of the directors and presidents of the four founding organizations who met every six months to decide on major strategic orientations. The second layer was the technical committee, composed of project managers, engineers and developers, of the organizations implementing the decisions of the steering committee. The person in charge of BAN at Etalab and the director of OSM participated in both the technical and the steering committees, the former as technical coordinator and the latter as OSM technical representative. Individual crowdsource participants were not directly present on these two committees, but were represented by OSM.

Barriers. This hybrid organization faced several problems. Firstly, IGN and La Poste opposed the collaboration with Etalab and especially OSM because of a clash between their cultural and organizational norms. As the former IGN director stated: “It was hard to make the agile ‘young-bearded-man’ world of the internet, and IGN with its large structures work together.” As the

director of OSM stated: “[Etalab and OSM] are culturally based on a horizontal approach; we don't try to be complex or bureaucratic, we try to do things simply, directly, by ourselves. That's something quite strong that we bring to the table in comparison with the corporate culture of La Poste and the bureaucratic culture of IGN.” Secondly, IGN and La Poste, opposed two of the digital commons characteristics held by BAN as they were reluctant to integrate the contributions of volunteer citizens because of accountability issues, and to distribute the database under an open license because, having undergone new public management reforms, there were selling their own databases.

The heads of IGN and La Poste used their power within the steering committee to slow the project's progress between 2015 and 2017. In consequence, the director of OSM and the BAN project manager at Etalab tried to bypass the steering committee ‘from below’. As the latter stated, with the informal approval of his superior Henri Verdier, he “proposed several times that the members of the technical committee move forward on legal issues and economic models, conduct workshops together, propose things to our chiefs”. But as he acknowledged, “they don't want to propose things that go beyond their role.” When questioned about the license discussion in an interview, the technical director of BAN at IGN replied: “It doesn't concern me. I am asked to do technical things, I do them, but licenses are not my problem (...). That's a matter for the heads and lawyers”.

Bureaucratic power was evident at both levels of the co-governance. In the steering committee, the old IGN administration and the powerful public company, La Poste, were more powerful than the young Etalab administration and the small OSM citizen association and could delayed the project's progress. In the technical committee, the employees of these two former organizations were neither able nor willing to make decisions that their superiors didn't support. The lack of a conflict resolution process caused the project to stall and the steering

committee stopped meeting.

Resolution. In 2017, the center-right presidential candidate, Emmanuel Macron, was elected, with two consequences. Firstly, the new government didn't accept BAN as a digital commons, as this did not fit with their political culture and agenda. The former French Prime Minister, Edouard Philippe, considered: "creating a free and unified national address database is an important issue for the French economy (...). I have asked DINSIC [Directorate in charge of digital technology, including Etalab], in agreement with the stakeholders, to implement new governance and operating procedures" (Philippe 2019). Secondly, Henri Verdier was dismissed as director of DINSIC and could no longer defend the commonization of BAN. The BAN project manager at Etalab, on the request of the new government and lacking the political support from the new director of DINSIC, was obliged to establish a hierarchical governance system of BAN that excluded OSM association and any form of direct representation of individual contributors.

However, since 2019, he has continued to engage with the community outside the administration, holding meetings with various actors in the geographic information ecosystem and establishing an open digital workspace using Slack. Through the open discussion channels of this application about two hundred registered participants exchange information, submit requests, or report anomalies regarding BAN. On the closed discussion channels, a group of national and local public actors discussed the strategic direction of BAN and resolved some conflicts before they became public. In parallel to formal hierarchical governance endorsed by the central administration, this informal digital space permits, according to BAN project manager at Etalab, "a more agile governance, with public agents and people genuinely affected and concerned about the project, rather than the high-ranking officials (...). We almost no longer needed an official body because we had created channels for debates and decisions".

The outcome of the BAN case study is thus mixed. On one hand, the official decision-making power in BAN now lies with the state. On the other, initiatives to make it a digital commons have infused into its governance, and the introduction of innovative digital workspaces has enabled the emergence of an informal co-governance.

Case study 2: Decidim

Context. Although governments have been setting up digital participation platforms for the past decade, they are criticized by activists and researchers who question the fact that the architecture of these platforms is unilaterally decided by administrations and that production is attributed to large IT companies or start-ups in the flourishing *civic tech* market that offer closed technologies. In Barcelona, political activists, open source developers and committed academics who met during the protests of the Indignados (2011) mobilized against this lock-in of public-private partnerships. They signed up to the left-wing “Barcelona en comú” list, which defends a political agenda that includes democratizing the city council and opening up administrations to citizen participation. After winning the 2015 municipal elections, some were appointed to the Citizen Participation Department. To fulfill campaign promises, these bureaucratic entrepreneurs created a participatory democracy platform called Decidim.

Co-governance. Instead of locating this platform in an administration or public-private partnership, the Citizen Participation Department decided to create Decidim as a digital commons co-governed by the administration and a self-organized citizen community for two reasons. First, it allows the governance of this democratic software to be democratic itself. Second, it makes the software less dependent on government support and therefore more resilient to political change. As the Decidim team manager explains: “it’s a classic scenario; when there is political change, the new government cuts financing and the project collapses

(...). Our idea of a self-governed community was to be able to maintain the project even without government support”.

How did the co-governance of Decidim unfold? The Decidim team actively built up a community outside the administration, composed in 2017 of about fifty academics, volunteers and cooperative salaried developers, by organizing meetings and events in self-governed hackerspaces and social centers. To reduce the effective governing power of the public agents involved in Decidim, they decided, along with this community, to create the Decidim Association whose statute stipulated that public administration representatives could not become members but could only join advisory committees without effective power. However, to be able to use, finance and develop Decidim features, the public administration needed to structure their collaboration with the association. To establish this co-governance, they sought to modify the institutional framework around public-private partnerships by creating a new public-commons partnership that would co-govern public technologies through open communities rather than by delegating their development to large IT companies.

Barriers. There were two principal barriers to the commonization of Decidim. Firstly, the creation of the Decidim association faced opposition from the Municipal Institute of Informatics (IMI), which held a twenty-year monopoly on digital issues within the administration. The head of the IMI refused to allow a platform on which official votes could be cast to be produced and managed by a self-governed citizens' association. Secondly, the public-commons partnership faced resistance from the legal department of the administration due to a lack of accountability. As the head of the Department of Citizen Participation explained:

“The problem is: who guarantees the service? (...). The administration provides a service to citizens with guarantees. And when I make a contract with a company, it

gives me guarantees. There is a client/supplier relationship. But here, it's not like that! A self-governed association of volunteer developers (...) doesn't provide any guarantees. It was very complicated to explain to my Legal Department colleagues that money is given without specification sheets and accountability and that it's not a classic subsidy neither. It was straddling the line between a public service delegation and a non-refundable subsidy. We therefore had to invent clauses to establish a relationship of accountability.”

Resolutions. To counter IMI's administrative opposition, the head of Citizen Participation Department sought out political allies. He approached the political head of the Department of Citizen Participation who was both a hacker and a close collaborator of Mayor Ada Colau, as well as the Chief Technology Officer of the administration who was an activist for digital commons and the political head of IMI. Their support enabled the Citizen Participation Department to overcome IMI's opposition.

As for the legal department opposition, the head of Citizen Participation negotiated with them by implementing some legal hacks. Firstly, it was agreed to transfer ownership of Decidim from the city hall to the association. Although the software was already under free license (GPL3), the accounts on Github, the communication tools (Telegram, Twitter, etc.), the graphic identity and the brand still belonged to the administration. The negotiation with the legal department was simplified by the fact that there was no direct money transfer and the delegation of code ownership relieved hierarchical superiors of legal responsibility. Secondly, the Citizen Participation Department engaged developer cooperatives to develop specific Decidim features by legally circumventing public-private framework agreements that the city council had with large IT firms. It cut the tenders into “small lots”, favored companies with expertise in open-source community software development and added clauses stipulating that

all contractually funded production had to have an open-source license. We describe these practices as “legal hacks for the commons” after David Bollier (Gear and Bollier 2020, 223). Finally, another agreement was written and signed in 2021 to formalize the direct funding of the association by Barcelona and the Catalonia region. This agreement resolved the tension between the need for accountability while allowing the association to self-organize. As Peña-Lopez states, “We had to make clauses that were more formal than real: we said we would have a coordination committee to monitor what the association was doing”. Usually in public-private partnerships the contract allows the public administration to maintain control. In the case of Decidim, where the delegatee is a self-governing community, control was maintained to “reassure” public officials but the monitoring committee had little to no power.

Today, the major strategic decisions are made at the association’s general assembly, and day-to-day operations are carried out through digital work (Github) and communication platforms (Telegram, Metadecidim). However, two elements hinder citizen power in the co-governance organization. Firstly, the head of Decidim in the Barcelona administration still has a significant amount of power over the community because of his access to administrative resources, in particular, proximity to political power, symbolic authority and public finance. Secondly, the association members constitute a relatively homogeneous social group of young, educated, urban men with IT skills from which a large number of citizens are excluded.

Like BAN, the outcome of the Decidim case study is thus mixed. On one hand, the official decision-making power is now in the hands of the self-governing association. On the other, administration still has effective power over strategic decisions, and the promise of a co-governance that empowers citizens ultimately only empowers a segment of the population.

DISCUSSION

The existing literature on co-governance of (digital) public goods and services suggests that there is a tension between the desire of citizen communities to self-organize and the hierarchical administrative procedures imposed by state actors (Rotta et al. 2019). However, it lacks a comprehensive framework that identifies the factors determining the power balance between public administrations and citizens in co-governance arrangements. Based on the results our two case studies, we have identified five factors that enhance, and two that hinder, citizen power in the co-governance of commonized digital public goods and services.

Table 1. Comparative summary of the two case studies

<i>Case study</i>	<i>Context</i>	<i>Co-governance</i>	<i>Barriers</i>	<i>Resolutions</i>	<i>Outcomes</i>
<i>BAN geographic open database</i>	(/) Administrative need for a unified geographic database due to siloed databases and competition from private actors (+) First to react: citizen association OSM (+) Engagement of a bureaucratic entrepreneur	(+) Partnership between the public administration, La Poste and OSM association (-) A steering committee and a technical committee	(-) Opposition from the heads of IGN and La Poste due to cultural differences, accountability issue and economic interests (-) Opposition from civil agent of IGN and La Poste who respect hierarchical governance	(-) Loss of political support due to change in government (-) Loss of bureaucratic entrepreneur support dismissed by the new government	(-) Hierarchical governance (+) Informal co-governance in digital work and communication spaces
<i>Decidim democratic free software</i>	(+) Campaign promise to open administrations to citizen participation (+) Engagement of bureaucratic entrepreneurs	(+) Partnership between the public administration and Decidim association (+) A citizen self-governed assembly and a coordination committee with public officials	(-) Opposition from the Municipal Institute of Informatics (IMI) due to power retention (-) Opposition from legal department for accountability issues	(+) Gain enduring political support of the majority in power (+) Legal work carried by reform entrepreneurs	(+) Co-governance (-) Informal public official power due to their administrative resources (-) Effective power belongs to IT-skilled citizens

Note: Each point represent a factor that enhances (+), hinders (-) or has no particular effect on (/) citizen power in digital co-governance organization.

Factors that enhance citizen power in digital co-governance arrangements

The first factor is support within the administration for the commonization of digital public goods and services. Bureaucratic entrepreneurs are the principal actors who prepare the

institutions to incorporate the self-governing components of commonization. In the case of BAN, the dismissal of Henri Verdier, a staunch defender of the commonization of the database, was an important turning point to understand the evolution of the process. In the case of Decidim, support from inside the administration was decisive in transferring decision-making power to the association.

The second factor is a political context favorable to commons-like reform, i.e., relatively little opposition from the existing institutional order and significant lasting political support. In the case of BAN, the opposition of IGN, La Poste and later of the new center-right government led to the erosion of self-governance and the state's reappropriation of decision-making power, which we describe as the “state-ization” of co-governance. In the case of Decidim, government support facilitated the creation of the association and the “commonization” of the software.

The third factor is the willingness to adapt to existing legitimate state-centric governance institutions so as to minimize resistance from civil officials. In the case of Decidim, the association set up a committee to supervise its activities so as to guarantee accountability for public finances, although this committee has limited effective power over the association's governance. There are two sides to this factor because it can lead to a state-ization of co-governance, like in the BAN case study where the steering committee had much more power than the technical committee.

The fourth factor is the opening of digital (e.g., Github) and organizational (e.g., Slack, Metadecidim) workspaces that allow individual citizens or associations to participate in operational and strategic decision-making. These digital spaces allow bureaucratic entrepreneurs to enhance commons-like governance in a way that is relatively autonomous

from their hierarchies, which are unaccustomed to these spaces, while at the same time fostering a culture of collaboration among local and national public officials. In the case of BAN, Slack allows for informal exchanges, while in the case of Decidim, the Metadecidim platform is the space where official decisions are made.

The fifth factor is the ability to modify or create new legal administrative rules so as to institutionalize citizen-centric co-governance. This can be achieved through legal work, from legislative reforms to legal hacks. In the case of BAN, the absence of this factor hindered the establishment of citizen power, represented by the OSM association, in the co-governance organization. Conversely, in the case of Decidim, bureaucratic entrepreneurs undertook significant legal work to formalize the association's statutes, transfer public property rights to the citizens' association, and establish public funding for the digital commons while guaranteeing autonomy for the association through contractual texts. This factor is the most innovative for public administration and warrants further research as presented below.

Factors hindering citizen power in digital co-governance arrangements

This article identifies two major risks for the citizen-centric co-governance promise offered by the commonization of public goods and services.

Firstly, the commonization of public services only involves a small proportion of citizens. Reliance on a small and potentially unrepresentative segment of the population risks a loss of democratic legitimacy, the “burn-out” of participants and unequal citizen empowerment (Clark, Brudney, and Jang 2013; Xu and Tang 2020).

Secondly, the tendencies towards state-ization of co-governance are important and seem inherent to this type of hybrid organization. As Agranoff (2006) points out, the power of public

actors tends to exceed that of external stakeholders. The former are able to use administrative norms and procedures as forms of power to control and redirect the actions of the digital commons. In the case of BAN, the head of IGN insisted on a separation between the steering and the operational committees. For Decidim, we note that even in institutions with strong citizen-centric co-governance, public actors have specific financial, political and symbolic resources that outsiders don't have. This result accords with Pera and Bianchi (2022) when they indicate that tension "within hybrid forms of commons between grassroots organizations and local government seems almost inevitable and is difficult to resolve due to (...) local government's power and right to rule".

CONCLUSION

Based on an extensive literature review and two case studies, this article conceptualizes a new form of citizen co-production. Commonization of digital public goods and services is characterized by a redistribution of access, contribution and decision-making power from the state to citizens and civic communities. It has the potential to play a transformative role in democratizing public administrations by fostering cooperation between public authorities and certain citizens with strong IT skills in co-governance arrangements. This digitally-mediated democratization of public administration could represent a shift away from traditional hierarchical and bureaucratic models towards more collaborative and participatory approaches within the New Public Governance (NPG) paradigm. NPG emphasizes a pluralistic model of value-centered public service administration based on interorganizational relationships, networks, collaborative partnerships, and other forms of multi-actor public action (McMullin 2021; Pestoff, Brandsen, and Verschuere 2012). To conclude, we would like to point out that our research findings has practical and theoretical implications for the fostering of citizen power in NPG reforms.

Implications for public administration practitioners

The commonization of digital public goods and services involves rethinking and changing the role of public officials in co-governance arrangements from prescribers to facilitators. Our research suggests that they need to use administrative resources carefully to effectively empower self-organizing citizens and encourage the sustainability of communities without being over- or under-involved. This implies transforming the effective power, mindset, practices and, consequently, training of public servants.

Secondly, administrations need to create new forms of digitally-based organizations that shift the focus from government to citizen by creating governance structures founded not only on status but on more horizontal criteria such as the introduction of a do-ocracy i.e. where decisions and authority are granted to individuals based on their proactive actions and contributions. To this end, collaborative work platforms such as Slack and Github are useful resources for officials to create open organizations that welcome citizen input. These tools also provide avenues for officials to counter resistance from upper echelons, as their power is less relevant in these digital spaces.

Thirdly, the administration needs significant legal reform to accommodate the commonization of digital public goods and services. This process involves subtle but essential changes to legal texts governing public procurement, project funding and contracts with private and non-profit actors in the IT sector. In public procurement, clauses could be introduced to encourage cooperation between developer cooperatives and voluntary associations, rather than competition between large corporations. In public-commons contracts, clauses could establish shared property and the legal authority of the community to self-organize the digital public good or service with limited interference from public actors.

Finally, commonization necessitates addressing the digital divide and educating citizens on participation in co-operative governance. The first step is to implement an ambitious digital education policy to teach students how to contribute to and participate in digital commons. This would not only improve their digital literacy, but would also allow them to experiment with self-governed organizations. It is also essential to take a more comprehensive and structural approach to address geographical and socioeconomic inequalities that highly contribute to the digital divide.

Implications for public administration scholars

Commonization, although on the rise, remains understudied by public administration scholars. Investigations need to be carried out to answer open questions that will inform New Public Governance research: How are public officials adapting to the new practices of self-governed communities that they are being asked to facilitate and adopt? Will technical solutions, such as the Github platform, be sufficient to bypass traditional state-centric organizations and institute citizen-centric organizations on a long-term and structural basis? Will new legal and organizational institutions, such as public-commons partnerships, remain marginal or will they become part of a new paradigm for public administration?

From a political theory perspective, commonization is transforming the relationship between state and society. However, the results of this transformation will be partly determined by path dependence dynamics that characterize the evolution of political institutions (Pollitt and Bouckaert 2011). This assertion accords with McMullin (2021) who shows that public service co-production by third-sector organizations takes different forms depending on the dominant public management paradigm in different countries, namely, neo-Weberian in western European countries, New Public Management in Anglo-American countries, and New Public

Governance in countries or regions like Quebec. These variations should be studied in further research.

Limitations

Two limitations of this research have been identified. Firstly, these case studies are relatively recent and the robustness of the findings need to be tested over time. Secondly, it is possible that the factors uncovered have different weightings due to the fact that Decidim is conducted by a local administration while BAN is conducted by a national administration. Yet, although the different scales might influence the relative importance of the factors when comparing the two cases, the nature of these factors might remain consistent, as they relate to structural elements intrinsic to any public administration, such as hierarchical organization, the significance of status, and the unequal access to political power in comparison to that of citizens. These results need to be refined by conducting other comparative studies that vary in scale from local to national and transnational levels.

Endnotes:

ⁱ An Application Programming Interface (API) is a standardized protocol that allows software applications to communicate and exchange data.

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