

Factors Enabling Public Organisations to Engage in Open Government Data-Driven Co-Creation

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ABSTRACT

Purpose: This article explores the concept of open government data (OGD)-driven co-creation, which combines the principles of OGD and co-creation to stimulate innovation and create public value. It focuses specifically on the organisational characteristics and capacities that enable public organisations to engage effectively in OGD-based co-creation.

Design/Methodology/Approach: Existing literature has primarily examined drivers and barriers from the perspective of data publication capabilities, while less attention has been paid to the capacities required to use OGD co-creatively. This study therefore seeks to identify the organisational features and capacities that enable public organisations to engage in OGD-driven co-creation as constructive partners. To this end, it employs a systematic literature review, synthesising findings from two distinct but related bodies of research: one focusing on OGD implementation and the other on OGD-driven co-creation.

Findings: The results suggest that the capacity of public organisations to publish open data is a necessary but not sufficient condition for engaging in OGD-based co-creation. Effective engagement in such practices requires deeper organisational transformation. Specifically, public organisations must adopt co-creation as a strategic orientation, embrace a service-dominant logic, use agile and participatory approaches, and invest in building trust, leadership, and employee capabilities to support collaborative innovation based on OGD.

Practical Implications: The study identifies and synthesises organisational factors that serve as preconditions for public organisations to take a constructive and active role in OGD-driven co-creation. It offers insights into the types of internal reform and capacity-building needed to prepare public organisations to co-create within open data ecosystems.

Originality/Value: The article represents an initial attempt to systematically synthesise the organisational prerequisites for OGD-driven co-creation. As such, it provides a basis for further research on the development of an integrated framework for organisational readiness for OGD-driven co-creation, as well as practical tools for its assessment.

Keywords: barriers, co-creation, drivers, open government data, public organisations

Dejavniki, ki javnim organizacijam omogočajo soustvarjanje z odprtimi podatki javnega sektorja

POVZETEK

Namen: prispevek obravnava koncept soustvarjanja, ki temelji na odprtih podatkih javnega sektorja (OPJS) in združuje načela OPJS ter soustvarjanja z namenom spodbujanja inovacij in ustvarjanja javne vrednosti. Posebej se osredotoča na organizacijske značilnosti in zmogljivosti, ki javnim organizacijam omogočajo učinkovito vključevanje v soustvarjanje na podlagi OPJS.

Zasnova/metodologija/pristop: dosedanja literatura je spodbujevalne in zaviralne dejavnike večinoma preučevala z vidika zmogljivosti za objavljanje OPJS, manj pozornosti pa je namenila zmogljivostim, potrebnim za njihovo soustvarjalno uporabo. Študija zato opredeljuje organizacijske značilnosti, ki javnim organizacijam omogočajo, da se v soustvarjanje na podlagi OPJS vključujejo kot konstruktivni partnerji. V ta namen je bil izveden sistematičen pregled literature ter analiza ugotovitev dveh ločenih, vendar povezanih raziskovalnih sklopov: (1) o OPJS in (2) o soustvarjanju na podlagi OPJS.

Rezultati: rezultati kažejo, da je zmogljivost javnih organizacij za objavljanje OPJS nujna, vendar sama po sebi ne zadošča za soustvarjanje s temi podatki. Za učinkovito sodelovanje v takih praksah je potrebna globlja organizacijska preobrazba. To pomeni, da morajo javne organizacije soustvarjanje sprejeti kot strateško usmeritev, slediti storitveno-dominantni logiki (angl. *service-dominant logic*), uporabljati agilne in participativne pristope ter krepiti zaupanje, vodenje in kompetence zaposlenih, ki omogočajo sodelovalne inovacije na podlagi OPJS.

Praktične implikacije: študija opredeljuje in sintetizira organizacijske dejavnike, ki javnim organizacijam omogočajo, da prevzamejo konstruktivno in aktivno vlogo v pobudah soustvarjanja na podlagi OPJS. Hkrati ponuja vpogled v notranje reforme in krepitev zmogljivosti, ki so potrebne, da bi bile javne organizacije pripravljene na soustvarjanje v ekosistemi OPJS.

Izvirnost/vrednost: prispevek predstavlja prvi poskus sistematične sinteze organizacijskih predpogojev za soustvarjanje na podlagi OPJS. S tem zagotavlja podlago za nadaljnje raziskave, usmerjene v razvoj celostnega okvira organizacijske pripravljenosti za soustvarjanje na podlagi OPJS in praktičnih orodij za njeno ocenjevanje.

Ključne besede: zaviralni dejavniki, soustvarjanje, spodbujevalni dejavniki, odprti podatki javnega sektorja, javne organizacije

JEL: H83

1 Introduction

We are living in the midst of the Fourth Industrial Revolution, often described as a time in which data is regarded as the new oil or gold. Open government data (OGD) has become a key component of this expanding data economy. In the public sector, OGD is increasingly seen as a “goldmine” for public administration, with the potential to improve democratic practices and strengthen governance (Ruijter et al., 2020b).

Despite its potential to promote transparency and drive innovation, it is widely acknowledged that open data holds no inherent value. The mere act of making data publicly available does not automatically produce public value or lead to societal or economic benefits (Charalabidis et al., 2018b; Hitz-Gamper et al., 2019). One promising way to activate the value of OGD is through co-creation. OGD is recognised as a key basis of co-creation for the purpose of transforming public services (McBride et al., 2019b) and generating significant public and economic value (Wirtz et al., 2023). This recognition has given rise to the concept of OGD-driven co-creation (McBride et al., 2019a; Toots et al., 2017b), which brings together two major trends in contemporary public administration: open data and collaborative service design. Thus, OGD-driven co-creation is a process in which public data enables citizens and other stakeholders to actively contribute to the design and delivery of public services (Callinan et al., 2018). These services typically (1) make use of or are driven by OGD, (2) are co-created by actors from diverse stakeholder groups, and (3) generate public value (McBride et al., 2019a). The core advantage of this approach lies in its potential to democratise service provision, lower barriers to collaboration compared to traditional models, and enhance value creation (McBride, et al., 2019b).

While there is a substantial body of research on OGD, OGD-driven co-creation is a relatively new concept and the evidence base remains fragmented. The literature largely examines OGD-driven co-creation in the context of particular services or projects, which limits the development of more generalisable insights. Moreover, OGD-driven co-creation is closely connected to the wider OGD literature, as it depends on the availability, quality, governance, and reuse conditions of open data. It is therefore difficult to analyse OGD-driven co-creation in isolation from the broader research on OGD policy implementation.

The OGD literature has dealt with the definition of OGD and extensively researched its policy implementation, including drivers and barriers, expected benefits, and innovative potential (McBride et al., 2019a). In the early stages of the field, it was essential to distinguish OGD—understood as raw digital

data generated through governmental processes—from other open government initiatives that provide public access to information through e-government portals, often in the form of reports, minutes, or budgets (Johnson and Robinson, 2014). Despite variation across definitions (Hitz-Gamper et al., 2019; Kleiman et al., 2022; McBride et al., 2019b), core characteristics include that OGD should be understandable, available free of charge, and published in machine-readable formats that enable reuse and redistribution by any interested party. The main justifiable constraints typically relate to security and privacy, including the protection of personal data and compliance with data protection regulations (Kleiman et al., 2022).

Departing from this definition, research has approached the issue of OGD policy implementation comprehensively at macro, meso, and micro levels. At the macro level, central issues of interest and analysis have been national open data platforms (Hogan et al., 2017), the effects of different (state) governance systems (Kassen, 2018; Safarov, 2019, 2020), best practices and conditions for effective OGD implementation (Michener and Ritter, 2017; Zuijderwijk et al., 2019), and the relationship between OGD and public value—specifically transparency (Kasymova et al., 2016; Matheus and Janssen, 2020) and anti-corruption (Bvuma and Joseph, 2019; Park and Kim, 2020).

At the meso (organisational) level, the literature explores how public organisations can improve data provision and maximise the potential of OGD for public value creation (Hitz-Gamper et al., 2019), for example through hackathons (Johnson and Robinson, 2014). At this level, research concentrates strongly on the operational and organisational challenges of opening data, such as data-related problems (e.g. privacy and security risks, data sensitivity, embargo periods and loss of control over subsequent use), as well as infrastructure- and process-related problems (e.g. limited infrastructure and resources, unclear or shared ownership, and necessary changes to organisational processes) (Charalabidis et al., 2018a).

At the micro level, research focuses on attitudes and capabilities among both civil servants (Kleiman et al., 2022) and external stakeholders (Wirtz et al., 2018), as well as approaches for overcoming challenges in publishing and using OGD.

Taken together, this body of literature has been dominated by questions of generating and releasing data (Charalabidis et al., 2018b), while impact and reuse, although present, have often been addressed less directly and integrated less systematically across studies.

These concerns have become more explicitly addressed with the emergence of the concept of OGD-driven co-creation, which frames co-creation as a mechanism for activating the innovative potential of OGD through collaborative service development. As a relatively new research stream, this literature has focused predominantly at the service level, on OGD-driven co-creation of public services (Jarke, 2019; Mahajan et al., 2021; McBride et al., 2018a, 2019a, 2019b; Toots et al., 2017b). In this context, a strong link to the previous body

of literature on OGD implementation is noted, as it has become evident that barriers related to OGD release and to co-creation based on OGD are interdependent and may reinforce one another: “the supply of OGD depends on its perceived value, whereas the perception of value depends on awareness of the benefits of open data, which can best be demonstrated through actual OGD-driven services” (McBride et al., 2019a, p. 91). This suggests that unless public organisations address core OGD barriers—particularly those affecting availability and quality—the opportunities for co-creating public services based on OGD will remain limited. Related studies identify further OGD implementation-related barriers to OGD-driven co-creation, including low data quality, organisational pushback, inadequate legal frameworks, and a lack of government support (McBride et al., 2018a).

The literature on OGD-driven co-creation has also focused on the inclusion of external actors in such initiatives, for example through ‘walkshops’ for senior citizens as a hard-to-reach group (Jarke, 2019), and has endeavoured to take more of an ecosystem perspective by outlining the wider environment suitable for OGD-driven co-creation. Regarding the latter, Khayyat and Bannister (2017) develop a model of a co-creation ecosystem built around OGD, proposing primary and secondary activities for different actors (public organisations, corporates, communities, individuals, academics, and experts) to strengthen synergy during co-creation. Similarly, Toots et al. (2017b) conceptualise a Data-Driven Public Service Co-production framework that incorporates principles of agile development and continuous improvement.

Although these contributions provide valuable insights and recommendations—including for public organisations (e.g., reconsidering the role of stakeholders and the concept of public services (McBride et al., 2018a))—they predominantly focus on the act of co-creation based on OGD. Thus, they offer limited systematic understanding of the preconditions that make public organisations ready in the first place to engage effectively in OGD-driven co-creation. In particular, the literature does not yet provide a consolidated account of the organisational properties, features, and capacities that enable public organisations to act as constructive OGD-based co-creators, beyond the general challenge of publishing data. This gap motivates a systematic analysis of the OGD and OGD-driven co-creation literatures, with a specific focus on public organisations, to identify the organisational preconditions for successful co-creation of new or renewed public services based on OGD.

To achieve this, the research is guided by the following research question:

What organisational features and capacities enable public organisations to participate effectively in OGD-driven co-creation?

The next section outlines the methodology, followed by sections presenting and discussing the findings. The paper concludes by answering the research question, outlining the study’s limitations, and suggesting directions for future research.

2 Methodology

The methodological approach is based on a systematic analysis of the two bodies of literature introduced above: OGD and OGD-driven co-creation. This choice follows from the review of prior research (see Introduction), which indicates that:

1. although the OGD literature primarily addresses issues related to the publication of government data, it also (to some extent) examines questions of OGD (re)use that may involve co-creation;
2. barriers identified in the OGD literature on the public organisation side, particularly those related to data availability and data quality, are also reported as barriers to OGD-driven co-creation.

Because the unit of analysis is public organisations, with a focus on their organisational features and capacities to engage actively in OGD-driven co-creation, organisational capacity for publishing OGD cannot be treated as peripheral. OGD is produced through public organisations' work, and public organisations often reuse their own data (and data published by other public organisations) when developing or renewing public services. Public organisations are therefore both potential co-creators and key suppliers of the data used in co-creation processes. Excluding the substantial OGD literature would risk overlooking organisational conditions that shape the feasibility and quality of OGD-driven co-creation.

Accordingly, the methodological focus is limited to drivers and barriers within public organisations, understood as factors that enable or constrain organisational readiness to engage as constructive partners in OGD-driven co-creation. Factors relating primarily to external co-creators, or to relationship dynamics among stakeholders in specific initiatives, fall outside the scope of this paper and are therefore excluded.

In line with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (Page et al., 2021) reporting guidelines, we conducted two systematic literature reviews and documented the identification, screening, and inclusion steps. The reviews were designed as a two-step, analytically linked process. Review 1 synthesises the OGD implementation literature to identify organisational drivers and barriers affecting the opening of data (i.e., supply-side readiness) and, where discussed, its potential for reuse. Review 2 examines the more conceptually specific literature on OGD-driven co-creation to identify organisational drivers and barriers shaping public organisations' participation in co-creation based on OGD. This design enables a systematic comparison of the two evidence bases and allows us to assess the extent to which OGD-related drivers and barriers associated with data opening overlap with those relevant to OGD-driven co-creation, and which factors remain applicable.

Review 1 therefore informed the design of Review 2 in two ways. First, the set of organisational drivers and barriers derived from Review 1 was used as an

initial, deductive reference point for the second review. Second, the thematic dimensions developed in Review 1 to organise the identified organisational drivers and barriers were used as a shared coding frame to structure the extraction and synthesis of evidence from Review 2, ensuring comparability across the two bodies of literature. At the same time, however, the coding scheme was adapted to accommodate co-creation-specific factors. During Review 2, factors were coded into the same overarching thematic dimensions where applicable; however, we also allowed inductive coding to capture organisational drivers and barriers that were not covered by the OGD implementation literature.

2.1 Systematic Literature Review of the OGD Literature (Review 1)

A systematic search for relevant English-language articles on OGD, specifically addressing drivers and barriers within public organisations, was conducted using two major bibliographic databases: Web of Science (WoS) and Scopus. To ensure comprehensive coverage and capture as many relevant studies as possible, the search strategy incorporated commonly used synonyms for the terms drivers and barriers. Given the substantial scholarly attention this topic has received, the search was deliberately focused on studies that explicitly examine the enabling and inhibiting factors related to OGD. To maintain alignment with the scope of the research, the search was further limited to the fields of public administration and the public sector.

The search string used was as follows:

```
(Topic/Article title, Abstract, Keywords = "open  
government data" AND "open data" AND (Topic/Article  
title, Abstract, Keywords = drivers OR barriers OR  
motivators OR catalysts OR incentives OR enablers OR  
facilitators OR obstacles OR challenges OR hurdles OR  
impediments OR constraints OR limitations OR restraints))
```

AND

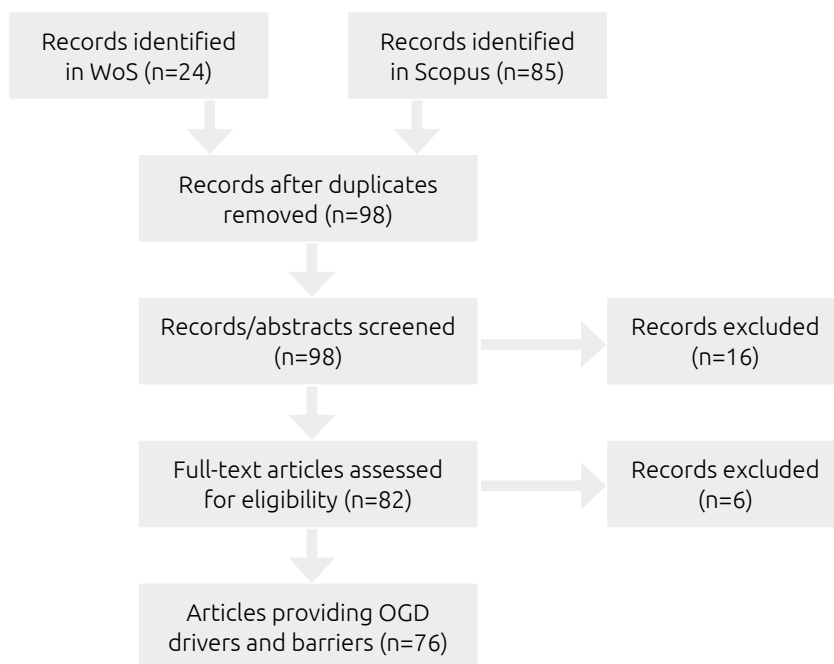
```
(All fields = "public administration" OR "public sector")
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AND

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DOCUMENT TYPE: (Article) AND LANGUAGE: (English)
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The PRISMA diagram (Figure 1) illustrates the steps of the systematic content review of articles obtained from both databases.

Figure 1: Systematic review of the literature on OGD (PRISMA diagram)



Source: Authors' own.

Based on the search strategy and selected keywords, 109 articles were identified in the initial step—24 from the WoS database and 85 from Scopus. After removing 11 duplicates, the first round of abstract screening was conducted on 98 articles. In this step, 16 articles were excluded from further analysis because they did not address enabling or inhibiting factors related to OGD or did not focus on public organisations. After a full reading of the remaining 82 articles, six additional articles were excluded: one was written in Chinese, and five did not address factors relevant to OGD.

Although the remaining 76 articles contained drivers and/or barriers, not all these related to public organisations, which are the unit of analysis in this study. Therefore, a third reading was conducted to retain only those drivers and barriers that referred to our research subject. Operationally, during the third reading we first grouped the full set of extracted drivers and barriers from the second reading into six categories according to the referent (i.e., what the factor concerned), and then selected only the items relating to public organisations:

1. Organisational factors
2. Contextual factors
3. Data quality factors
4. OGD portal-related factors
5. Factors related to external actors (e.g. OGD users)

6. Factors related to the relationship between publishers and users as part of the OGD ecosystem

The set of OGD drivers and barriers analysed in this study includes only factors that directly concern public organisations as the unit of analysis. Hence, most items were drawn from category 1, which covers organisational characteristics that facilitate or constrain data openness and its reuse (e.g., structures, resources, routines, leadership, and culture). Following a review of the other categories, we also retained some factors from category 2 and category 3. From category 2 (contextual factors), we included in the analysis external pressure to open data and external support (e.g., guidance, funding, enabling policies). Although public organisations have limited control over these conditions, they are relevant because organisations must be able to interpret and respond to external demands and opportunities. From category 3, we retained factors relating to the organisation's capability to publish high-quality data, as this capability influences whether OGD initiatives can be implemented effectively and properly support co-creation in practice.

The remaining categories formed only for methodological purpose were excluded from further analysis because they do not capture drivers and barriers within public organisations: category 4 focuses on the presence and design of (national) OGD portals; category 5 concerns characteristics of external actors (e.g., users) relevant to OGD reuse; and category 6 addresses relationships across the wider OGD ecosystem, which is relevant for the evaluation of specific OGD initiatives (not public organisations).

2.2 Systematic Literature Review of the Literature on OGD-Driven Co-creation (Review 2)

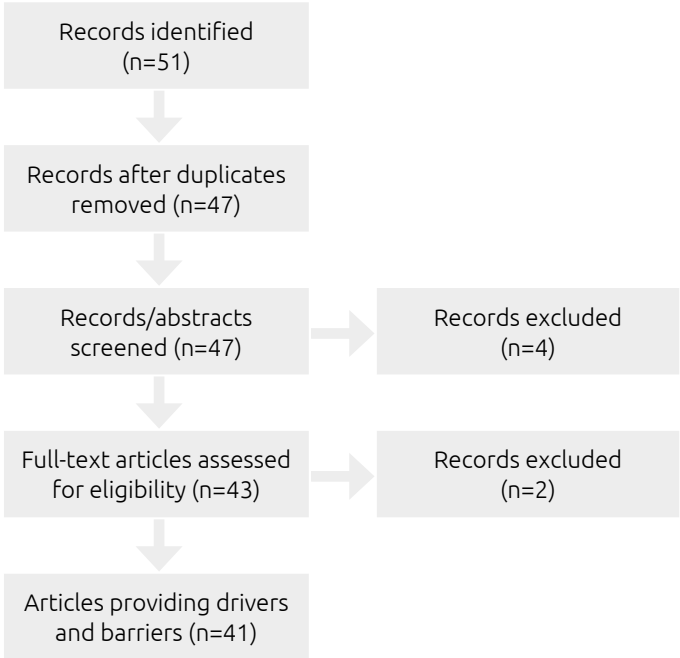
As the next step, a systematic literature review was conducted on the topic of OGD-driven co-creation to identify factors that either enable or hinder public organisations to constructively engage in this form of collaborative practice. For this part of the analysis, the review focused exclusively on articles indexed in a single scientific database—WoS. While the initial review of literature on OGD-related drivers and barriers was conducted across both WoS and Scopus to ensure comprehensive coverage of a well-established research field, the review on OGD-driven co-creation was limited to WoS. This decision was based on the relatively recent emergence and conceptual specificity of OGD-driven co-creation, which called for a more targeted search strategy focused on high-quality, peer-reviewed literature. WoS was selected for its selective indexing criteria and its emphasis on journals with recognised academic rigour and citation impact.

Given the novelty of the concept, the search string was deliberately broad to capture a wider range of studies examining the intersection between OGD and co-creation.

The article analysis was conducted using the following search string in WoS:

(All fields = "open data" OR "open government data") AND
(All fields = co-creation) AND LANGUAGE: English

Figure 2: Systematic review of the literature on OGD driven co-creation (PRISMA diagram)



Source: Authors' own.

The initial search yielded 51 articles. Four duplicates—already analysed in the context of the previous systematic literature review—were excluded. A preliminary screening led to the removal of an additional four articles, as they either focused on the private sector or were not (directly or indirectly) related to co-creation based on OGD. Following a full-text review, two more articles were deemed irrelevant and excluded from further analysis. This resulted in a final sample of 41 articles, which served as the basis for identifying the drivers and barriers of OGD-driven co-creation. Subsequently, one additional article—identified as relevant but not captured by the initial search—was included in the analysis.

As in Review 1, not all drivers and barriers identified during data extraction related to public-organisation factors affecting readiness to engage in OGD-driven co-creation. We, therefore, for methodological purposes, organised the full set of extracted drivers and barriers from Review 2 into four categories according to their referent (i.e., what the factor concerned) and retained for further analysis only those relating to our unit of analysis (public organisations):

- 1. Organisational factors
- 2. Contextual factors

3. Factors related to external actors (e.g., OGD users)

4. Factors related to the co-creation process

In addition, Review 2 focused primarily on category 1 concerning organisational factors, as these capture drivers and barriers influencing the internal readiness of public organisations to engage in OGD-based co-creation. The remaining categories were also reviewed to identify additional factors that, although not directly under organisational control, may shape organisational readiness and strategic orientation for OGD-driven co-creation. On this basis, we additionally retained the factor relating to public organisations' perceptions of external pressure to open their data and to participate in co-creation processes (from category 2, referring to contextual factors).

3 Results: Organisational Factors Enabling Public Organisations to Engage in OGD-Driven Co-Creation

This section presents an integrated synthesis of the drivers and barriers related to public organisations' readiness to co-create using OGD, drawing on the findings from the two systematic literature reviews. The results are organised into the thematic dimensions that were inductively derived and used as a shared coding frame in Reviews 1 and 2 (described in the Methodology section). These dimensions represent higher-order clusters of conceptually related organisational drivers and barriers and correspond to different aspects of organisational readiness.

"Strategic orientation" captures normative commitment and institutional positioning; "external context" reflects environmental pressures shaping organisational behaviour; "predominant attitude" concerns internal perceptions of benefits and risks; "systemic framework" refers to formal structures, procedures, and resource configurations; "organisational culture" reflects shared norms and openness to change; "cooperation with external stakeholders" captures relational capacity for engagement; "employees" concern individual competences and behavioural readiness; and "value of open data" refers to technical and data-management capability.

While presented separately for analytical clarity, these dimensions are inter-related and mutually reinforcing. For each dimension, we therefore discuss (a) overlapping factors identified across both bodies of work (general OGD and OGD-driven co-creation), and (b) additional factors that emerge specifically in the context of OGD-driven co-creation.

3.1 Strategic Orientation of the Organisation

A strategic commitment to both publishing OGD and co-creation emerges as a foundational enabler for public organisations to engage in OGD-driven innovation and public value creation (Scheibein et al., 2022; Wiedenhöft et al., 2023). Such commitment must extend beyond declarative support articulated in strategic documents. In this context, leadership is critical, as leaders

must actively—not merely declaratively—provide sustained organisational commitment and prioritisation of OGD practices, including co-creation, by ensuring legitimacy, authority, and adequate resources (Cubuk et al., 2019; Gebetsroither-Geringer et al., 2018; Kawashita et al., 2022; Khayyat and Bannister, 2017; Kim and Eom, 2019; McBride et al., 2018a, 2018b; Taylor, 2014; Wibowo et al., 2023).

This requires a fundamental rethinking of the relationship between efficiency and democratic engagement, prioritising the latter (Cubuk et al., 2019). Furthermore, binding legal and political mandates support sustained organisational commitment to open data (Cahlikova and Mabillard, 2020) and provide a basis for public organisations to co-create new public services. Public organisations subject to clear and enforceable obligations to release data demonstrate a more systematic and consistent approach to OGD implementation, including co-creation (McBride et al., 2020).

The issue of data ownership is also highlighted in both literatures, particularly as a relevant consideration when public organisations are considering participation in large-scale collaborative projects that generate data (Ma and Lam, 2019; Mutambik et al., 2023; Saxena, 2018; Toli et al., 2022; Zhang et al., 2022). Consequently, establishing transparent ownership and licensing frameworks at the outset of co-creation processes is crucial. Such frameworks support responsible data stewardship, enable open reuse, and foster the continuity and sustainability of data-driven public service innovation (Toli et al., 2022). Thus, public organisations need a clear understanding of data ownership and usage rights for the datasets they generate and/or manage, as well as an explicit position on how ownership and licensing will be addressed before entering future collaborative practices.

In addition to these issues, which are present in both bodies of literature, a further specific factor affecting readiness for OGD-driven co-creation is the adoption of a service-dominant logic (SDL) by public organisations. Unlike traditional state-centric models—where public services are perceived as products delivered unilaterally by government institutions—SDL reframes service provision as a dynamic and participatory process. This logic positions citizens and other non-state actors not as passive recipients, but as active co-creators of public value (McBride et al., 2018c; Potra et al., 2015). Embracing this logic necessitates an organisation-wide strategic shift at the highest level, which involves recognising citizens as legitimate partners and “prosumers” in service ecosystems (Nikiforova and McBride, 2021; Toots et al., 2017a).

Such a shift inevitably requires not only supportive but also innovative leadership (McBride et al., 2018a, 2019a; Mergel et al., 2018). Leaders who are open to experimentation and novel approaches—particularly under conditions of uncertainty—play a crucial role in fostering organisational learning, adaptability, and co-creation. By modelling openness, calculated risk-taking, and support for iterative development, such leaders can legitimise and institutionalise co-creation, helping to ensure that it becomes embedded in routine organisational practice rather than remaining a peripheral activity.

3.2 External Context

External pressure from citizens and the private sector emerges as a pivotal driver motivating public organisations not only to publish open data (Mutambik et al., 2023; Paige and Freund, 2019; Safarov, 2020; Wibowo et al., 2023), but also to engage in co-creation processes based on its (re)use (McBride et al., 2019a). In particular, citizen demand is reported as a critical driver of greater data availability and of shifts towards participatory and collaborative approaches to data (re)use, including co-creation (Toots et al., 2017a).

3.3 Predominant Attitude Towards OGD

In this category, both identified factors overlap with findings from the general OGD literature. The first concerns the level of awareness within public organisations regarding the potential benefits of OGD (McBride et al., 2019a; Toots et al., 2017b; Wiedenhöft et al., 2023). When these benefits—particularly non-economic ones—are unclear or insufficiently recognised, public organisations' motivation to engage in OGD initiatives (both data publication and co-creative re/use) remains limited (Attard et al., 2015; Hogan et al., 2017; Mustapa et al., 2019; Mutambik et al., 2021, 2023; Scarano et al., 2019; Shepherd et al., 2019; Yang et al., 2015). Specifically in the context of OGD-driven co-creation, Khayyat and Bannister (2017) highlight the problematic perception among some public organisations that such initiatives are only justified when the primary benefits are realised by government actors. This suggests a need to strengthen awareness of the broader societal value that can be generated through open-data-based co-creation beyond the public sector.

The second factor relates to perceived risks associated with OGD (Cahlikova and Mabillard, 2020; Hitz-Gamper et al., 2019; Hogan et al., 2017; Jamieson et al., 2019; Khurshid et al., 2019; Mutambik et al., 2021; Natvig et al., 2021; Ruijter et al., 2020a; Ruijter and Meijer, 2020; Safarov, 2020; Wang et al., 2019; Yang et al., 2015), particularly concerns about confidentiality and privacy. In particular, the risk of re-identification when datasets are combined can restrict the extent to which data can be openly shared, reused, or linked (Dall-Orsoletta et al., 2022; Scheibein et al., 2022; Toots et al., 2017b). Moreover, compliance with data protection regulations, such as the General Data Protection Regulation (GDPR), may introduce administrative burdens and reduce design flexibility in co-creation processes (Kavouras et al., 2023), which may discourage public organisations from entering such engagements. In addition, reluctance to sharing data due to concerns about potential misuse can further impede open collaboration and reduce the innovative potential of OGD initiatives (Taylor, 2014; Toli et al., 2022).

3.4 Systemic Framework

With regard to the systemic framework established within public organisations to support OGD-driven co-creation, we identify an overlap with four factors that are also relevant for the opening of data: an established system of

incentives and rewards (Dawes et al., 2016; Ma and Lam, 2019; McBride et al., 2020; Zhang et al., 2022); the provision of adequate resources (Attard et al., 2015; Cho and Lee, 2022; Kawashita et al., 2022; Kim and Eom, 2019; Wang et al., 2019; Wibowo et al., 2023; Wiedenhöft et al., 2023; Yang et al., 2015; Yang and Wu, 2016); clearly defined open data processes (i.e., process standardisation) (McBride et al., 2019a; Toots et al., 2017a; Wiedenhöft et al., 2023; Zuiderwijk et al., 2014); and reliable open data publication schedules (Dawes et al., 2016; Taylor, 2014; Zuiderwijk et al., 2014).

A clear system of incentives is essential for motivating public organisations and their employees to prioritise open data and to participate meaningfully in co-creation processes. In the absence of such incentives, open data initiatives are often deprioritised or overlooked within routine administrative agendas (McBride et al., 2020). The second factor concerns the availability of resources—encompassing human capital, financial support, technical expertise, time and information technology (IT) infrastructure—which plays a critical role in enabling effective OGD value co-creation. Adequately resourced public organisations are better positioned to manage data infrastructures, involve stakeholders in co-creation activities, and support innovation in service delivery (Wiedenhöft et al., 2023).

The third factor is the presence of clearly defined organisational processes for opening data. Transparent and consistently applied internal procedures are essential for allocating responsibilities, clarifying data-related rights and obligations, and ensuring data quality and publication standards. In their absence, ambiguities in data preparation, processing, and dissemination may discourage both internal data providers and external users, undermining efforts for OGD-driven co-creation (McBride, et al., 2019a; Wiedenhöft et al., 2023).

The fourth factor relates to establishing reliable and transparent open data publication schedules. Timely and predictable data release, guided by predefined schedules, increases data usability and thus supports the co-creation of data-driven services (Taylor, 2014).

As an additional factor specific to OGD-driven co-creation, we identify a shift toward demand-led open data. Rather than releasing data based solely on internal priorities and convenience, public organisations should adopt a data release approach that prioritises high-quality datasets in the highest demand among stakeholders (Köster and Suarez, 2016). This shift from supply-led to demand-driven models strengthens the usability and societal value of open data, thereby fostering service innovation, citizen empowerment, and the development of user-centred digital solutions (Taylor, 2014). In practice, this approach implies establishing feedback mechanisms—such as interactive platforms, participatory workshops, or embedded digital tools—that enable administrations to understand user needs and adapt their data offerings accordingly (Khayyat and Bannister, 2017; Toots et al., 2017a). Such an approach helps create an enabling environment for OGD-driven co-creation.

3.5 Organisational Culture

Organisational openness to new ideas and practices is a key enabler of value co-creation based on OGD (Cahlikova and Mabillard, 2020; Kawashita et al., 2022; Mergel et al., 2018; Toots et al., 2017a; Wibowo et al., 2023; Yang and Wu, 2016). However, innovation in the public sector often faces significant barriers, particularly institutional resistance to change and rigid administrative structures (Dawes et al., 2016; Hossain et al., 2016; McBride et al., 2018c; Wang et al., 2019; Wiedenhöft et al., 2023; Yang et al., 2015; Zhang et al., 2022; Zuiderwijk and de Reuver, 2021). These constraints limit adaptive capacity and the development of mechanisms necessary for value co-creation, such as cross-sector collaboration and stakeholder feedback (Wiedenhöft et al., 2023). Political resistance, risk-averse culture, and conservative governance further inhibit openness and experimentation (Seo and Myeong, 2021; Toots et al., 2017a). In addition, regulatory rigidity and systemic inertia characteristic of traditional bureaucracies restrict the adoption and scaling of OGD strategies (Seo and Myeong, 2021). In many public organisations, fear of failure discourages engagement with new approaches and external stakeholders (Seo and Myeong, 2021), in part due to a desire to maintain institutional authority (Potra et al., 2015). Consequently, OGD use may be perceived as irrelevant or even threatening (McBride et al., 2020). Addressing these obstacles may require a shift towards more open and collaborative governance models (Callinan et al., 2018). These issues are also widely discussed in relation to open data publication and therefore overlap with drivers and barriers identified in the broader OGD literature.

Additional factors emphasised specifically in the context of OGD-driven co-creation include knowledge and practice of agile development, organisational capacity for co-creation, prior experience with (OGD-driven) co-creation, and the ability to overcome organisational silos. Agile development can enable public-sector innovation by promoting iterative learning, early testing, and adaptability. By replacing linear models with flexible development cycles and tools such as minimum viable products (MVPs), public organisations may respond more effectively to stakeholder needs and support continuous improvement in co-creative settings (McBride et al., 2019b; Toots et al., 2017a). Equally important is capacity for co-creation, which involves the capacity to use participatory methods (e.g., “data walks” and policy canvases) to engage diverse stakeholders and design socially responsive services (Cubuk et al., 2019; Jarke, 2019). Open-access tools and international knowledge exchange can further enhance inclusivity and innovation (Atenas et al., 2019; Khayyat and Bannister, 2017). Prior experience with co-creation, particularly in OGD initiatives, may strengthen organisational readiness and stakeholder engagement by building long-term trust and demonstrating tangible outcomes (McBride et al., 2020; Mergel et al., 2018). However, ensuring scalability and evaluating social impact remain challenges (Jussila et al., 2019; Scarano et al., 2019). Overcoming internal and cross-organisational silos is also crucial, as these hinder collaboration and data integration. Reducing these barriers sup-

ports more coordinated and innovative forms of public service development, including co-creation (Jussila et al., 2019; Potra et al., 2015).

3.6 Cooperation with External Stakeholders

A tendency to cooperate with external stakeholders is important for both open data publication and the co-creative use of data. The overlapping factors in this context include: systematic efforts to understand citizens—specifically their profiles and needs as users of open data (Susha et al., 2015; Wiedenhöft et al., 2023); the organisation of open-data-related events aimed at fostering collaborative innovation (Emaldi et al., 2017; Khayyat and Bannister, 2017; Morelli et al., 2017; Mustapa et al., 2019; Wiedenhöft et al., 2023); data-driven learning and reflexivity based on feedback from external stakeholders (Concilio et al., 2019; Dawes et al., 2016; McBride et al., 2020; Scarano et al., 2019); and investment in the skills and capacities of both internal and external stakeholders (e.g., through training programmes or mentoring) (Atenas et al., 2019; Toots et al., 2017a; Wiedenhöft et al., 2023).

In addition to these general factors, a couple of factors specifically pertain to OGD-driven co-creation. Notably, the use of IT tools plays a central role in facilitating citizen participation. The effective and regular use of digital technologies by public organisations is considered fundamental to enabling meaningful engagement in OGD-based co-creation initiatives. Digital instruments such as social media, collaborative platforms, and open-source applications present new avenues for stakeholder involvement in the design, testing, and implementation of public services (Cubuk et al., 2019; Emaldi et al., 2017; Gebetsroither-Geringer et al., 2018; Huang et al., 2021). These platforms can also support participatory innovation by providing accessible resources, including data repositories, curated toolkits, and structured feedback mechanisms (Jussila et al., 2019; Morelli et al., 2017). Advanced approaches, such as 3D visualisations of OGD may further stimulate and deepen external engagement (Atenas et al., 2019; Dambruch, 2018; Gebetsroither-Geringer et al., 2018).

Moreover, public trust is particularly important for initiating and sustaining OGD-driven co-creation. The credibility and reputation of a public organisation may attract and increase citizens' willingness to engage in co-creation processes. High levels of trust promote sustained engagement, reduce scepticism, and contribute to the perceived legitimacy of collaborative efforts (Wiedenhöft et al., 2023).

3.7 Employees

Employee-related factors that overlap with those identified in the broader OGD literature include: the formal integration of open-data-related tasks into employees' regular job responsibilities (Khayyat and Bannister, 2017; Mutambik et al., 2021; S. Park and Gil-Garcia, 2022; Yang et al., 2015); the presence of open data champions or ambassadors who actively advocate for the OGD agenda (Ahmad and Warriach, 2020; Khayyat and Bannister, 2017; Park and

Gil-Garcia, 2022; Taylor, 2014); employees' IT and data competencies (McBride et al., 2018a, 2018b), including the capacity to manage, analyse, and interpret data, which are essential prerequisites for the effective use of data in collaborative innovation processes.

The OGD-driven co-creation literature further highlights the importance of public servants' willingness to rely on data in decision-making and to engage in co-creation processes (McBride et al., 2018a).

3.8 Value of Open Data

A fundamental driver of OGD-driven co-creation is public organisations' capacity to manage and publish high-quality, sustainable data—an aspect consistently emphasised in the broader OGD literature on data publication (Attard et al., 2015; Dall-Orsoletta et al., 2022; Dambruch, 2018; Emaldi et al., 2017; Gebetsroither-Geringer et al., 2018; Izdebski et al., 2021; Jetzek, 2016; Kavouras et al., 2023; Kawashita et al., 2022; Mahajan et al., 2021; Maione et al., 2022; McBride et al., 2018b, 2018c, 2019a, 2020; Mutambik et al., 2021; Stasiewicz et al., 2018; Susha et al., 2015; Toli et al., 2022; Toots et al., 2017a; Wiedenhöft et al., 2023). Public organisations must possess a comprehensive understanding of the data lifecycle, from collection and processing to publication and reuse (Wiedenhöft et al., 2023). This includes technical proficiency and an understanding of the data value chain, encompassing tasks such as collation, cleaning, transformation, and standardisation (McBride et al., 2018c). These capabilities help ensure that data are accurate, interoperable, and fit for reuse, making them actionable in diverse co-creation settings. Critically, the ability to combine heterogeneous datasets and align them with societal and user needs is key to co-creating meaningful value (Wiedenhöft et al., 2023).

4 Discussion and Conclusion

Drawing on the findings of the two systematic literature reviews, this paper provides the first comprehensive and systematic consolidation of knowledge on organisational factors that shape public organisations' readiness to engage in OGD-driven co-creation. While both the OGD and OGD-driven co-creation literatures have extensively examined drivers and barriers related to data publication and reuse, they have largely done so without a meso-level perspective that focuses on the organisational preconditions enabling public organisations to participate effectively in OGD-driven co-creation. The existing scholarship captures a mix of diverse sets of factors affecting various actors and aspects of the co-creative process, yet lacks an integrated synthesis centred on public organisations as key institutional actors. Hence, the primary contribution of this paper lies in filtering and structuring this dispersed body of knowledge into an organised set of dimensions and factors describing the organisational features and capacities that enable public organisations to participate effectively in OGD-driven co-creation.

In addressing the research question “What organisational features and capacities enable public organisations to participate effectively in OGD-driven co-creation?”, the analysis reveals a significant degree of overlap between factors discussed in the general OGD literature and those identified in the context of OGD-driven co-creation. Although the opening of data and its co-creative use are conceptually distinct processes, the findings suggest that, for public organisations, the capacity to open and manage high-quality OGD constitutes a critical precondition for meaningful participation in co-creation initiatives. Unlike private or civil society actors, which may rely primarily on access to externally published data, public organisations occupy a dual role as both data providers and co-creators. Consequently, the establishment of robust institutional infrastructures for data governance and publication is not peripheral but foundational to their ability to engage in OGD-driven co-creation.

This conclusion supports McBride et al.’s (2019a, p. 91) observation that barriers related to OGD and co-creation are interdependent and mutually reinforcing. Organisational weaknesses in data governance, strategic alignment, or institutional commitment may simultaneously constrain both data openness and collaborative innovation on its basis. Conversely, strategically embedding OGD within organisational processes appears to increase the likelihood that public organisations will engage in co-creation to improve service delivery and policymaking.

However, the analysis also shows that while the capacity to publish open data is a necessary condition, it is not sufficient on its own to support OGD-based co-creation. Public organisations must also address entrenched, state-centric conceptions of their role and undertake organisational changes that enable more agile, responsive, and citizen-centred ways of working. In other words, organisational readiness for OGD-driven co-creation entails requirements that extend beyond those associated with OGD publication alone. Table 1 provides an overview of these factors by source literature and thematic dimension, illustrating both areas of overlap and requirements specific to OGD-driven co-creation.

Table 1: Organisational factors for OGD-driven co-creation according to the source of literature

	Thematic dimension	Organisational factors for OGD-driven co-creation	Source literature Review 1 (R1) Review 2 (R2)
1	Strategic orientation	Organisation's mandate	Shared (R1 and R2)
		Strategic commitment to open data	Shared (R1 and R2)
		Strategic commitment to co-creation	Specific (R2)
		Clear data ownership	Shared (R1 and R2)
		Leadership support	Shared (R1 and R2)
		Innovative leadership	Specific (R2)
		Service-dominant logic	Specific (R2)
2	External context	External pressures from citizens and the private sector	Shared (R1 and R2)
3	Dominant attitudes towards OGD	Awareness of benefits of OGD	Shared (R1 and R2)
		Perceived risks/concerns related to OGD	Shared (R1 and R2)
4	OGD systemic framework	Incentive and reward system	Shared (R1 and R2)
		Shift towards demand-led open data	Specific (R2)
		Human capital, financial support, technical knowledge, time, energy, IT infrastructure	Shared (R1 and R2)
		Clearly defined organisational processes for opening data	Shared (R1 and R2)
		Reliable publication schedules of open data	Shared (R1 and R2)
5	Organisational culture	Suitable organisational setting / openness to innovation	Shared (R1 and R2)
		Knowledge and practice of agile development	Specific (R2)
		Capacity for co-creation	Specific (R2)
		Experience with co-creation and OGD-driven co-creation	Specific (R2)
		Overcoming silos	Specific (R2)

	Thematic dimension	Organisational factors for OGD-driven co-creation	Source literature Review 1 (R1) Review 2 (R2)
6	Cooperation with external stakeholders	Profile of potential open data users	Shared (R1 and R2)
		Open-data events (e.g., awareness-raising campaigns, workshops, hackathons)	Shared (R1 and R2)
		Data-driven learning and reflexivity	Shared (R1 and R2)
		Training / investment in skills and capacity building	Shared (R1 and R2)
		Technological tools to facilitate citizen participation	Specific (R2)
		Public trust	Specific (R2)
7	Employees	Open-data-related tasks integrated into jobs	Shared (R1 and R2)
		OGD ambassadors/champions	Shared (R1 and R2)
		IT skills and capacity	Shared (R1 and R2)
		Readiness for data-driven decision-making and co-creation	Specific (R2)
8	Value of open data	Capacity to publish high-quality OGD	Shared (R1 and R2)

Source: Authors' own.

The additional requirements identified in the OGD-driven co-creation literature (Table 1, “Specific (R2)”) indicate that readiness extends beyond the organisational capacity to publish open data and involves broader shifts in orientation and ways of working. First, public organisations need to move from supply-led data publication based on internal convenience towards a demand-driven approach in which dataset prioritisation is informed by societal and citizen needs. This requires proactive engagement with users and mechanisms for feedback and learning to identify which datasets are most relevant for service innovation.

Second, OGD-driven co-creation entails a paradigmatic shift in the perception of the role of public organisations, including the adoption of a service-dominant logic in which citizens and other stakeholders are recognised as legitimate partners in creating public value. In operational terms, this shift is closely linked to the mainstreaming of agile development practices as part of routine service design and delivery. Because agile approaches rely on experimentation, iterative improvement, and tolerance for early-stage imperfections, they challenge traditional understandings of efficiency and require greater flexibility in resource allocation. They may also create tensions with political and managerial expectations for immediate, visible results and low tolerance for early mistakes. Therefore, a different type of leadership is needed—leaders

who understand OGD-based co-creation approaches and their implications within the wider administrative context and actively promote experimentation and collaboration as a standard way of doing things.

Third, the findings point to the need for a behavioural and cognitive shift among public servants towards using data and external input as routine sources for decision-making. This includes organisational practices that support data-driven learning and reflexivity, as well as the accumulation and institutionalisation of experience with co-creation over time, which can strengthen sustained engagement within collaborative ecosystems. Finally, the analysis underscores the relevance of established co-creation enablers (Baptista et al., 2020; Jukić et al., 2022; Rodriguez Müller et al., 2021; Rösler et al., 2021; Voorberg et al., 2015), including access to appropriate skills, methods, and tools (particularly digital participation tools), and the role of public trust in initiating and sustaining engagement.

Although the dimensions identified in this study are closely interrelated and mutually reinforcing, the reviewed literature does not provide sufficient empirical evidence to establish a definitive hierarchy or causal ordering among them. Nevertheless, the findings suggest that certain factors may play a more foundational enabling role. In particular, strategic orientation and leadership appear important for legitimising and institutionalising OGD-driven co-creation within public organisations, while the systemic framework and the capacity to publish high-quality OGD constitute key operational preconditions for effective collaboration. These organisational conditions may in turn shape employee readiness, organisational culture, and the development of relational capacity for engaging external stakeholders. Future empirical research should therefore further examine how these dimensions interact and reinforce one another in practice.

Hence, the contribution of this paper lies primarily in the systematic identification and organisation of factors associated with organisational readiness for OGD-driven co-creation. Rather than proposing a new theoretical model, the study consolidates and structures dispersed insights from two strands of literature into a coherent set of dimensions and factors focused specifically on public organisations. In doing so, it clarifies the multidimensional nature of organisational readiness, encompassing strategic orientation, institutional infrastructure, cultural openness, relational capacity, individual competences, and technical data-management capability. Conceptually, this synthesis provides a starting point for future research to validate, refine, and adapt these factors across different administrative, national, and local contexts. Practically, it offers an analytical basis for developing assessment tools that can help public organisations identify gaps, prioritise improvements, and strengthen their capacity for collaborative, data-driven innovation.

However, several limitations should be acknowledged. First, a methodological limitation concerns the scope of the literature review. Although the two systematic reviews together encompass over 110 fully analysed studies, the review focusing specifically on OGD-driven co-creation relies on a single scientific database (WoS). While this ensured consistency and quality control,

relevant studies indexed elsewhere may not have been captured. Second, the identified factors were derived from literature spanning diverse countries and administrative contexts. Although this enhances the breadth of the synthesis, it also limits the direct transferability of the findings. The relevance and relative importance of specific factors may vary across national, regional, or local settings. Future research should therefore empirically examine and validate these factors within specific administrative contexts. Such studies could refine the dimensions identified here and assess their explanatory power in relation to concrete cases. Third, the thematic organisation of factors into dimensions was inductively derived from the coding process rather than from a single established organisational theory. Future research could strengthen theoretical anchoring by aligning and testing these factors within established frameworks such as the Technology–Organisation–Environment (TOE) framework (Tornatzky and Fleischer, 1990) or the Leavitt diamond model (Leavitt, 1965; Nograšek and Vintar, 2014).

In sum, this paper contributes to a clearer understanding of the organisational preconditions associated with public organisations' capacity for engagement in OGD-driven co-creation. By bridging two strands of literature and highlighting the multidimensional character of organisational readiness, it provides a structured basis for further empirical and comparative research aimed at refining and contextualising research on OGD-driven co-creation.

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