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**Article — Published Version**

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Public Administration

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*Suggested Citation:* Haug, Nathalie (2023) : Actor roles in co-production—Introducing intermediaries: Findings from a systematic literature review, Public Administration, ISSN 1467-9299, Wiley, Hoboken, NJ, Vol. 102, Iss. 3, pp. 1069-1094, <https://doi.org/10.1111/padm.12965>

This Version is available at:

<https://hdl.handle.net/10419/306166>

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# Actor roles in co-production—Introducing intermediaries: Findings from a systematic literature review

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## Abstract

Public service ecosystems are used to understand how multiple actors co-produce public services and create public value. Especially interactions between public service providers and service users are essential. However, systematic examinations of these interactions and what roles the different actors play are rare. This study closes this gap by conducting a systematic literature review with three main findings. First, public service providers play an important role: they facilitate co-production by micromanaging or facilitating collaboration, empowering service users, and translating the results of the process back into the organization. Second, service users contribute to co-production by providing resources. Third, a new category of actors is proposed: the co-production intermediary. Intermediaries are formal organizations whose primary role is to support service providers in service delivery. This study comprehensively analyzes the different actors and power constellations between them.

## Zusammenfassung

Das Konzept der Ökosysteme für öffentliche Dienstleistungen kann man verwenden, um zu verstehen, wie mehrere Akteure öffentliche Dienstleistungen co-produzieren und öffentlichen Wert schaffen. Dabei sind die Interaktionen zwischen Anbietern und Nutzern öffentlicher

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Dienstleistungen ein wesentlicher Bestandteil. Systematische Untersuchungen darüber, wie diese Interaktionen aussehen und welche Rollen die verschiedenen Akteure spielen, sind jedoch selten. Die vorliegende Studie schließt diese Lücke durch eine systematische Literaturlauswertung. Es gibt drei Hauptergebnisse. Erstens spielen die Anbieter öffentlicher Dienstleistungen eine wichtige Rolle: Sie erleichtern die Co-Produktion, indem sie die Zusammenarbeit steuern oder erleichtern, die Nutzenden befähigen und die Ergebnisse des Prozesses an die Organization zurückgeben. Zweitens tragen die Nutzenden zur Co-Produktion bei, indem sie Ressourcen bereitstellen. Drittens wird eine neue Kategorie von Akteuren vorgeschlagen: Intermediäre. Intermediäre sind formelle Organisationen, deren Hauptaufgabe darin besteht, Anbieter bei der Erbringung von Dienstleistungen zu unterstützen. Das Papier analysiert umfassend die verschiedenen Akteure und die Machtkonstellationen zwischen ihnen.

## 1 | INTRODUCTION

In the last decades, public service delivery has been increasingly characterized by the involvement of different non-governmental actors due to reform efforts sparked by the introduction of New Public Management (Alford & O'Flynn, 2012; Osborne et al., 2022). Different theoretical approaches have been used to analyze these collaborative forms of public service delivery, such as collaborative governance (Ansell & Gash, 2008) or co-production (Brandsen & Pestoff, 2006). Recently, public service ecosystems have been introduced as a holistic way to analyze value creation through the collaboration of multiple actors in co-producing public services (Osborne et al., 2022). In this co-production process, several stages can be distinguished: planning, designing, delivering, and assessing public services (Nabatchi et al., 2017; Rodriguez Müller et al., 2021). Dudau et al. (2019) differentiate four waves of co-production reflecting changes regarding the inclusion of different types of users and goals in co-production. The waves move from the simplistic understanding of co-production as a voluntary collaboration between citizens and public service providers, emphasizing the role of organizations in value creation (first and second waves), to a more complex understanding, highlighting the participation of citizens in service design and the co-creation of public value (third and fourth waves).

The introduction of the public service logic represents this shift by assuming that the quality of the interaction between public servants and service users influences whether public value is created during co-production (Osborne, 2018). Based on this notion, the understanding of public service delivery as an ecosystem of different actors has evolved (Osborne et al., 2022). Here, different actor constellations and settings of public service delivery are conceptualized, emphasizing public service delivery as "networks of actors interacting in wider policy ecosystems, in recognition of the dynamic and diverse nature of contemporary public services" (Dudau et al., 2019, p. 1581). Petrescu (2019) points out that these actors can have varying roles; for example, citizens may switch between being service users or volunteers depending on their interactions with other service providers. The

interaction between these actors can be seen as dynamic in nature; thus, is paper looks at the microlevel of public service ecosystems, illustrating the different ways in which these actors can interact. Central to this interaction is user input, their participation is perceived as an asset, rendering citizens (or other service users) an active part of the service delivery process (Loeffler, 2021a). Thus, co-production requires active contributions from service users; without them, co-production would not occur (Brudney & England, 1983; Lember et al., 2019).

In co-production theory, the relationship between public service providers and service users is described as a partnership on equal terms (Alford & Yates, 2016; Nabatchi et al., 2017). This notion of an equal relationship between service users and public service providers has also been criticized because these interactions might enable politicization by more powerful actors. After all, the resources to co-produce are not distributed equally (Turnhout et al., 2020). However, there is a lack of theoretical insight into how those actors interact in those ecosystems, given that recent theoretical developments focus on how public value is created by collaboration in those ecosystems (Osborne et al., 2022; Petrescu, 2019). The goal of this study is to contribute to the theoretical understanding of co-production as an ecosystem of different actors by systematically analyzing the roles and activities of different participants in different service contexts. To do so, this study uses a systematic literature review guided by the following review questions: *What are the roles of public service providers, service users, and intermediaries in co-production? How do public service providers, service users, and intermediaries interact?*

In this study, a rather narrow view of co-production was used (Durose et al., 2022). Co-production is defined as the “relationship between a paid employee of an organization and (groups of) individual citizens that requires a direct and active contribution from these citizens to the work of the organization.” (Brandsen & Honingh, 2016, p. 431). In addition, due to the networked character of public service ecosystems, different types of actors are relevant in co-production. Table 1 provides an overview of the actors and the definitions used in this study.

Intermediaries are distinguished as distinct groups of actors because actors from the third sector are present in many service delivery arrangements and are thus part of the public service ecosystem (Brandsen & Pestoff, 2006; Mazzei et al., 2020; Osborne et al., 2022). However, these actors differ from public service providers and service users because they can have varying organizational forms, motives, and values, and they can also be organizations whose primary goal is not to deliver public services (Mazzei et al., 2020; Rodriguez Müller et al., 2021).

The main contributions of this study are threefold. First, a more precise definition of the intermediary can be provided through an empirical analysis of the interactions between actors. Intermediaries are organizations characterized by a formal organizational structure, they support service users or public service providers in service delivery and empower service users to co-produce. Second, the analysis reveals that public service providers either micro-manage or facilitate co-production processes. These roles can be differentiated by the level of control public service providers exert or how much power they are willing to share. Third, the power constellations between actors have

**TABLE 1** Overview of actors relevant in co-production.

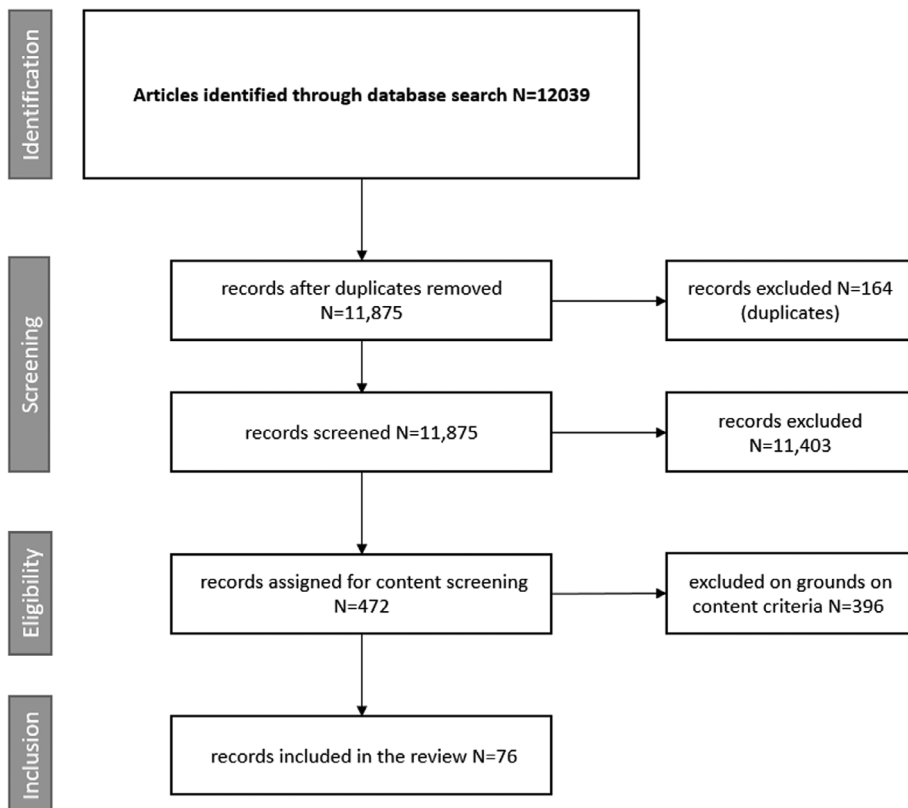
Label	Definition
Public service provider	State actors are “[...] (direct or indirect) agents of government serving in a professional capacity (i.e., the ‘regular producers’)” (Nabatchi et al., 2017, p. 769)
Service users	Lay actors who are “[...] members of the public serving voluntarily as citizens, clients, and/or customers (i.e., the ‘citizen producers’)” (Nabatchi et al., 2017, p. 769)
Intermediary	They are defined as nongovernmental actors who have professional knowledge and participate in public service delivery. They can be from the third or private sector (Brandsen & Pestoff, 2006, Pestoff, 2012)

been identified as an additional theme of collaboration processes, which influence the roles and relations between actors. Public service providers are the most powerful actors because they determine the extent to which co-production is possible, but intermediaries are also powerful because they enhance the capacity of public service providers by providing additional resources.

The paper is structured as follows. The research design explains the selection and analysis of the literature. The findings are divided into two parts: in the first part, common themes in the collaboration between public service providers, intermediaries, and service users are described. In the second part, the relationships between each actor are analyzed in-depth. In the discussion, I explain how the findings relate to existing co-production frameworks and where new themes can be added to the theory. Finally, areas for further research were identified based on the findings of this systematic literature review.

## 2 | RESEARCH DESIGN: THE PRISMA METHOD

The goal of this study is to gain a comprehensive overview on the actors, roles and their relationships to improve the theoretical understanding by summarizing and interpreting the existing empirical evidence and theoretical conclusions on the subject. To achieve this goal a systematic literature review was chosen. This approach is used in public administration research to systematically summarize and synthesize existing research on a topic, to derive directions for future empirical research and advance the theoretical understanding of a topic (De Vries et al., 2016; Voorberg et al., 2015). The literature review followed the guidelines of the preferred reporting items for systematic literature



**FIGURE 1** The PRISMA flowchart.

reviews and meta-analysis (PRISMA) approach (Moher et al., 2009; Page et al., 2021). The literature selection process is depicted in Figure 1, the PRISMA flowchart.

# 2.1 | Identification of the literature

The goal of the study is to provide a comprehensive overview of the present literature on co-production. Therefore, a broad selection of keywords was derived from existing theoretical frameworks on co-production (Table 2).

The query used in the study is the following: ((*co-production OR co-creation OR co-design OR co-assessment OR co-evaluation OR co-initiation OR co-planning OR co-commissioning OR co-delivery OR co-destruction OR co-contamination*) AND “*public sector*” OR “*public administration*”). A similar query was conducted with another spelling of the concepts (coproduction instead of co-production) to account for variations in spelling. The terms “public sector” and “public administration” were used to limit the results to the public sector. This is necessary because the concept of co-creation is used in service research to describe and explain value co-creation (Grönroos, 2019). However, these processes are out of scope of the research question.

The query described above has been applied to two literature databases: the social science citation index and EBSCO business source premier. Those two databases include relevant public management journals and therefore were selected for the systematic review. The application of the queries in both databases resulted in 12,039 references.

# 2.2 | Selection of the literature

The PRISMA flowchart depicts the selection process of the literature (Figure 1). One advantage of using systematic approaches for literature reviews is that selection criteria are determined before the literature selection (Page et al., 2021). In this study, only those references were included that met all the criteria described below (Moher et al., 2009; Voorberg et al., 2015).

The formal inclusion criteria of this study include:

- *Language.* All papers selected for this study are written in English. It is possible, that there is research conducted in other languages that are relevant to the study. However, English is the main language in which research is conducted; therefore, it is likely that most of the literature needed to answer the research question is published in English.

**TABLE 2** Overview of keywords used in the literature search.

Keyword	Definition
Co-production	Citizens participate in the design and delivery of public services (Bovaird, 2007; Nabatchi et al., 2017).
Co-creation	Sometimes used synonymously with co-production (Voorberg et al., 2015). In addition, the focus is on collaborative problem-solving (Gago & Rubalcaba, 2020; Leino & Puumala, 2021).
Co-initiation, co-planning, co-commissioning, co-design, co-implementation, co-delivery, co-assessment, co-evaluation	These terms refer to different stages in the co-production process (Brandsen & Honingh, 2016; Loeffler & Bovaird, 2019; Nabatchi et al., 2017; Osborne et al., 2016).
Co-destruction Co-contamination	Refers to the failure of co-production (Engen et al., 2020; Plé & Chumpitaz Cáceres, 2010; Williams et al., 2016).
Public administration, public sector	Limits the results to research on public administration.

- *Publication status.* Only papers from peer-reviewed journals are included because they have generally higher quality than publications that are not peer-reviewed. Reports or other kinds of gray literature are excluded.
- *Study type.* Only empirical papers are included. Empirical studies are studies that advance a theoretical argument by testing hypotheses with quantitative data or expand theoretical ideas by collecting and analyzing qualitative data. Those studies are included because they yield valuable insights into how co-production processes and actor roles manifest empirically.
- *Relevance.* The references that featured the keywords in the title or abstract were included.
- *Sector.* Studies that analyze co-production processes within public sector organizations were included.

Then, 11,403 references were excluded based on the selection criteria language, publication status, study type, relevance, and sector. This was done by assessing the bibliographic information as well as reading the title and abstract of the publications. The remaining 472 references were assessed by reading either the abstract, the methods section, the findings section, or the full article to determine if the study presents evidence about actor roles and interactions in co-production processes. Here, each reference that described the interaction between service users, public service providers, and intermediaries in-depth was included. This step led to the exclusion of 396 articles. Seventy-six articles were left for in-depth analysis. The PRISMA checklist (Table A1) provides a detailed overview of how the method was used.

## 2.3 | Data analysis

For the data analysis, the remaining literature references were treated as qualitative textual data (Bowen, 2009). To answer the research questions that are descriptive in nature and aim toward enhancing the theoretical understanding of the subject, the literature was analyzed with a narrative approach (Xiao & Watson, 2019), that is less concerned with assessing the quality of the evidence of each study in question but focuses more on extracting information relevant to answering the research question. To add rigor and transparency, I analyzed the data using a two-step coding process, as proposed by Miles et al. (2014). To ensure that the data analysis process is replicable, a codebook was created containing the central concepts of the study (see Table A2). Those codes served as holistic codes to structure the literature (Saldaña, 2016a). In the second step, the parts of the text that were extracted in the first step were coded inductively with descriptive and in vivo codes (Saldaña, 2016a). After the inductive coding, similar codes were summarized using so-called pattern codes (Saldaña, 2016b).

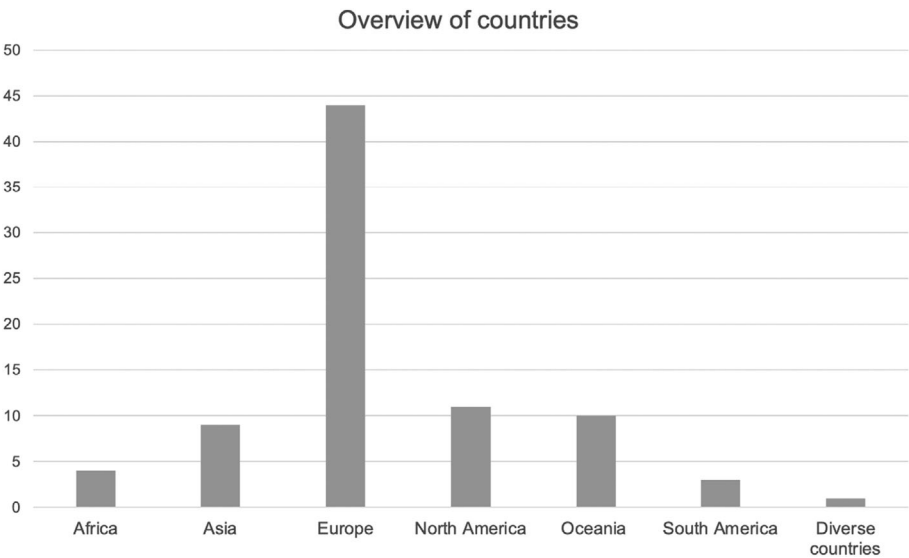
## 3 | FINDINGS

This section is structured as follows. First, I describe the general characteristics of the literature. In the second part, I analyze the empirical findings on actors' roles and interactions.

### 3.1 | Overview of the research field

The empirical literature is geographically diverse. Figure 2 shows that the majority of the research is done in Europe, followed by the North America and Oceania. Countries from the Global South are less represented.

Out of 76 studies in the sample, 58 use a qualitative approach. In these studies, case studies are the dominant method of inquiry to analyze either single or multiple co-production cases. In addition, 17 studies use quantitative methods to test co-production theories; here, six studies were experimental in nature. Table 3 shows a summary of the methods applied.



**FIGURE 2** Overview of countries studied.

**TABLE 3** Overview of methods used to study co-production.

Method	Number
Qualitative	58
Quantitative	17
Mixed-method	1

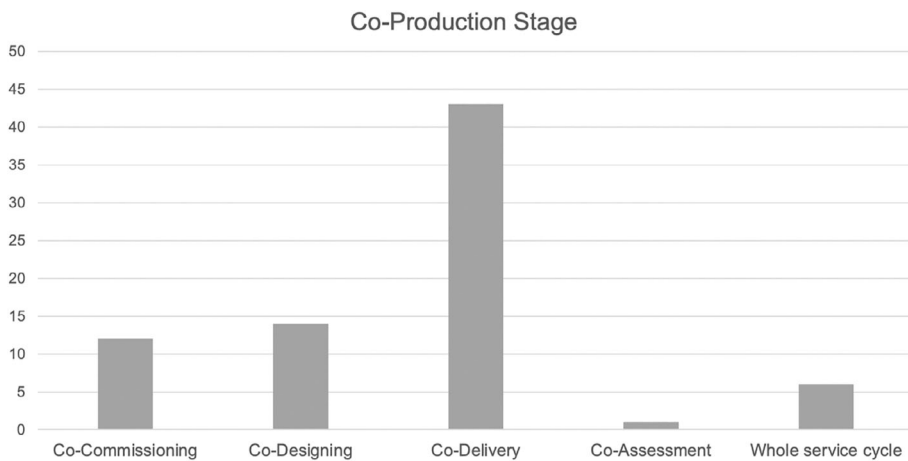
Theoretical frameworks on co-production propose that co-production has multiple stages. Nabatchi et al. (2017) propose a four-stage framework that includes co-commissioning, co-designing, co-delivery, and co-assessment of services. This framework was used to categorize the empirical literature (Figure 3). The analysis shows that co-delivery has been studied the most, followed by co-commissioning and co-designing. Co-assessment is not covered by the majority of research; however, six studies analyze the whole service cycle, which includes the evaluation stage of a co-production project.

### 3.2 | Actor roles and interactions in co-production

The following section includes an analysis of the three actors present in co-production: intermediaries, public service providers, and service users. This section is split into two parts. In the first part, five themes of the co-production process are described: power imbalances, maintaining trust, incorporating user needs, developing a shared agenda, and contributing resources. The second part of the findings section discusses the differences in the relationship between each actor, forming three dyads: service user–public service provider, public service provider–intermediary, and intermediary–service user.

#### 3.2.1 | Themes of the collaboration between public service providers, service users, and intermediaries

The first theme of the interaction and main facet of co-production is the power constellations between the public service provider, service users, and intermediaries. Power constellations are described as a theme in co-production



**FIGURE 3** Overview of co-production stages.

rather than a barrier because co-production is possible even though power and authority are distributed unequally. Rather, the distribution of power affects the roles of the different actors. In theory, there is an expectation that actors collaborating to deliver public services aspire to reach a mutual relationship (Bovaird, 2007; van Eijk et al., 2019); however, the analysis of the empirical literature shows a more diverse picture. First, it is the service provider's task to ensure that service users are equally represented and that the service is accessible to all users (Leino & Puumala, 2021). Second, service users are empowered by the administration, which requires that public servants actively share their power and resources, for example, information (Eseonu, 2022; Howlett et al., 2017; Kleinhans, 2017; Mazzei et al., 2020; Ottmann et al., 2011). If they do so, citizens or other service users are able to control the co-production process to varying extents, for example, Mangai and De Vries (2018) describe how public service providers commissioned citizens to manage their water facilities, which increased the ownership of the citizens to care about the infrastructure. Empowering service users has other positive effects: service users learn more about the government and the delivery of public services, which enables them to make decisions about using other public services (Jo & Nabatchi, 2019; Lindsay et al., 2018). In addition, their self-efficacy is increased (Jakobsen, 2013; Ottmann et al., 2011).

The evidence on power relationships, therefore, suggests that the behavior of the public service provider is crucial because they have significant control over the process and outcomes of co-production. However, research has found that public service providers are reluctant to share control over the outcomes of the process (Barbera et al., 2016; Frederiksen & Grubb, 2023; Mazzei et al., 2020), or dominate discussions with service users (Radnor et al., 2014). Beyond direct collaboration, there is also an institutional component. Rosen and Painter (2019) show that sharing power in co-production is a long-term process, that requires institutional changes. Brown and Head (2019) adds to this and highlights, by analyzing service provision for indigenous communities, that service providers are reluctant to include indigenous communities in the first place because they have not been part of decision-making before.

The power constellations are also part of the second theme identified: co-production requires mutual trust between the actors. High levels of trust influence the quality of the interaction because they enable open relationships, which in turn increases service quality (Buntaine et al., 2021; Casula et al., 2020; Surva et al., 2016). Therefore, especially public service providers need to commit to the collaboration process and the implementation of the results (Frieling et al., 2014; Mangai & De Vries, 2018; Trischler et al., 2019). Maintaining trust also facilitates discussions and the exchange of knowledge, for example, by providing feedback. This process can be moderated by intermediaries because they can act as neutral process facilitators (Frieling et al., 2014). However, it depends on the set-up, actor constellations, and activities if and to what extent intermediaries can be seen as neutral actors.

Third, the needs of users are uncovered during the collaboration. During the collaboration between different actors, the different needs and interests that each actor pursues need to be addressed to foster the collaboration. This requires service users to open up and share their experiences, which is closely linked to the maintenance of trust and the active management of power, as described above. For example, Barbera et al. (2016) describe for a participatory budgeting process how the collaboration process benefitted from the consideration of users' needs. In addition, service users' requests can be integrated into the co-production process early (Jacobs et al., 2019). Another positive effect of uncovering the needs of service users and intermediaries is the increased ownership of each actor regarding the outcomes (Lindsay et al., 2018).

The fourth theme is the development of a shared agenda and common goals of the co-production process. Aligning common goals means reaching a consensus on the issues to be solved or the specifications of how the service can be delivered. (Frederiksen & Grubb, 2023; Lino et al., 2019; Poocharoen & Ting, 2015). Sorrentino et al. (2017) point out that this process is easier if the different participants share common values. In turn, sharing goals stimulates creativity because "the pursuit of a common objective [...] promoted the search of multiple ways to share information [...]" (Martini et al., 2017, p. 595).

The fifth theme is the contribution of resources to the co-production process. These resources can first be time and effort, especially from the service users' side as they are collaborating voluntarily with the public service provider and intermediaries (Jakobsen, 2013; Jaspers & Tuurnas, 2023; Leino & Puumala, 2021; Mangai & De Vries, 2018; van Eijk & Steen, 2014). Second, information is provided in the form of knowledge, skills, and experiences that stem from actors' unique perspectives as users or providers of the service (Lino et al., 2019; Ottmann et al., 2011; Szkuta et al., 2014; Tu, 2016). In addition, intermediaries support public service providers through resource contributions, for example, funding (Broccardo & Mazzuca, 2019; Cheng, 2019) or infrastructure (Meijer, 2011). For public service providers, sharing resources also means sharing power and control over the co-production process with service users and intermediaries, Radnor et al. (2014) show that this requires redesigning institutional arrangements of service delivery.

### 3.2.2 | The roles of public service providers in co-production

Public service providers are an essential part of co-production. Due to the control they exert, there have two central roles vis-à-vis both service users and intermediaries: micromanaging and facilitating the co-production process. In addition, public service providers empower service users. Mostly, public service providers are conceptualized as professionals; they received formal education and are paid. There are different ways how public service providers are operationalized, dependent on the type of service that is delivered. For example, the professionals are front-line workers of municipalities, healthcare workers, or teachers (Galli et al., 2014; Mangai & De Vries, 2019; van Eijk et al., 2019). Sometimes, the public service provider is not interacting directly with the service user or intermediary in the co-production process. This is the case when services can be co-produced independently, for example, in waste management or doing homework, here the public service provider provides the infrastructure, but no direct interaction is required (Jakobsen, 2013).

Overall, there are two main roles of public service providers: they act as micromanagers or facilitators. In both roles, public service providers provide resources for the co-production process (Jakobsen, 2013; Zuniga et al., 2020) and they select the participants with whom they co-produce (Broccardo & Mazzuca, 2019; Mangai & De Vries, 2019). These two roles differ in the level of control public service providers exercise when interacting with service users and intermediaries (Lindsay et al., 2018; Rantamaki, 2017).

First, public service providers micromanage the collaboration with intermediaries and service users (Tuurnas, 2016). To perform this role, public service providers exercise high levels of control. They steer the co-production process as well as its outcomes and leave service users little room for making their own decisions. For example, they share information and knowledge (Lindsay et al., 2018), develop formal support plans, define

rules to structure the co-production process (Buntaine et al., 2021; Frederiksen & Grubb, 2023; Frieling et al., 2014; Stewart, 2021; Tu, 2016) or set as well as implement goals for the co-production process (Leino & Puumala, 2021).

The second role of the public service provider is a facilitating role. Here, decisions are made collaboratively, which requires the public service provider to share decision-making power with service users and intermediaries. To do so, the public service provider needs to be open and responsive toward service user participation in general, and to the input service users and intermediaries provide (e.g., knowledge or experiences from using the service) in particular. This openness enables collective decision-making in the first place (Dhirathiti, 2019; Radnor et al., 2014; van Eijk et al., 2019). For example, Lino et al. (2019, p. 285) analyze co-production processes in Brazilian municipal health councils and found that the public servants were open toward co-production: “They listen, discuss, and execute citizen's ideas which [...] encourages them to intensify their engagement over time.”

#### *Public service provider to intermediary relation*

A standalone feature of the collaboration of public service providers with intermediaries is that public service providers mandate intermediaries to provide services for governments. Thus, public service providers share power and control over the process and outcome. Surva et al. (2016) elaborate in a study on prison services that public service providers created a network of different actors to improve the resocialization of prisoners. Here, professional mentors worked with the prisoners, commissioned by the public service provider. Co-production occurred between the mentors and was dependent on the successful establishment of a good relationship between mentors and prisoners. Such co-production arrangements create dependencies between intermediaries and public service providers. Even though intermediaries can interact with service users directly and without public servants, a significant amount of power still lies with the public service provider because they enable this type of co-production. For example, Poocharoen and Ting (2015) point out that an NGO that provided health care services in collaboration with public health service providers depended on public funding to be able to provide these services. In addition to the funding issue, Surva et al. (2016) also report that intermediaries delivered the service differently to the rules and regulations originally provided by the government, creating tensions. Service providers sometimes deal with those tensions by adopting what Frederiksen and Grubb (2023, p. 512) describe as a “selection strategy.” In an analysis of welfare services co-produced with intermediaries, the authors show that public service providers deliberately select intermediaries who have not criticized the actions of local government.

#### *Public service provider to service user relation*

When interacting with service users, public service providers can empower service users, for example, by enhancing the service users' capabilities to co-produce. Research on service users' motivation to co-produce has shown that their self-efficacy is an important factor that influences their participation in co-production (Alonso et al., 2019; Thomsen et al., 2020). Public service providers can increase service users' self-efficacy by facilitating an open and trusted relationship, providing information about a service, or sharing decision-making power with them (Eseonu, 2022; Mangai & De Vries, 2018; Ngo et al., 2019; Sorensen & Torfing, 2018).

#### *Public service provider to government relation*

A special element of the public service providers' role is their relation to the rest of the organization. Here they need to enable co-production processes within the organization that is responsible for providing the service. For example, public service providers enable organizational learning by communicating the results or lessons learned back to the organization (Ma & Wu, 2020; Magno & Cassia, 2015). Rolandsson (2017) find that collaboration between different agencies is important for delivering services in a co-production setting, and public service providers can provide adequate resources to get involved in co-production (Rantamaki, 2017). However, empirical findings on this role are scarce and need to be expanded by further research.

### 3.2.3 | The roles of service users in co-production

Most of the studies in the sample study citizens as the main group of service users (see, e.g., Barbera et al., 2016; Clark et al., 2013; Jaspers & Steen, 2019). However, some studies analyze other types of service users, for example, patients in hospitals (Jo & Nabatchi, 2019), the elderly (Dhirathiti, 2019), students (Trischler et al., 2019), children, or parents (Jakobsen & Andersen, 2013). Following the typology by Brudney and England (1983), mostly individual co-production is studied, analyzing the participation of individual service users, patients, or students in specific services, for example, waste management, social, or health services (Jo & Nabatchi, 2019). Only a few studies analyze group or collective co-production. Here, communities (Meijer, 2011) and associations (e.g., client councils, van Eijk et al. (2019)) are the main focus of the research.

#### *Service user to intermediary relation*

Besides the active participation and contribution of resources described in the first section of the findings, service users also manage actively the collaboration process between public service providers, intermediaries, and themselves (Broccardo & Mazzuca, 2019; Galli et al., 2014). However, when analyzing the available evidence, no clear-cut role of service users emerged; rather, different elements of a facilitator-like role were identified. For example, service users facilitate collaboration between user groups by supporting each other (Dhirathiti, 2019; Jaspers & Tuurnas, 2023) or by mediating between different actors and their interests (Sorensen & Torfing, 2018).

#### *Service user to public service provider relation*

When interacting with public service providers, the available evidence demonstrates again the power imbalances inherent in co-production. Overall, service users can be conceptualized as the weakest part of co-production because of the lack of resources and specific, professional knowledge of public services, even though the theoretical literature on co-production emphasizes the inclusion of users as a resource for co-production success (Loeffler, 2021b). For example, Leino and Puumala (2021) point out that service users invest time and patience when delays occur beyond their control. A second facet of this imbalance is that service users must trust the public service provider because they are dependent on the goodwill and accountability of the public service provider. In a comparative case study on the co-production of local development policies, Duquette-Rury (2016) shows that corruption of public service providers endangers the success of co-production in the long term. In this example, some citizens collected money for infrastructure renovations. This money was then diverted by local government actors to other projects. However, Jaspers and Steen (2019) show that service users may perceive co-production as an opportunity to hold public service providers accountable because service users can observe the decision-making of the public service provider, and the transparency of the service delivery process is increased (see, also Duquette-Rury, 2016).

### 3.2.4 | The roles of co-production intermediaries

There are several types of organizations acting as intermediaries, the most common type being non-profit organizations, for example, NGOs or professional associations (Casula et al., 2020; Dhirathiti, 2019; Tuurnas, 2016), followed by private sector organizations (Gago & Rubalcaba, 2020; Sorensen & Torfing, 2018), such as professional service designers (Surva et al., 2016), and the media (Gao, 2018; Stewart, 2021). Two studies describe them as stakeholders without specifying to which organization they belong (Ottmann et al., 2011; Whicher & Crick, 2019). The service sector where intermediaries are involved the most are the social services (mentioned by 12 studies), for example, in providing childcare (Casula et al., 2020) or employment services (Martini et al., 2017). In addition, intermediaries also collaborate with public service providers to provide infrastructure (Duquette-Rury, 2016; Wiewiora et al., 2016), manage public parks (Gazley et al., 2020) or provide government information services such as 311-services in the United States (Gao, 2018). Surprisingly only four studies describe the involvement of intermediaries in the provision

of health services (see, e.g., Stewart, 2021). Generally, co-production intermediaries are characterized by overlapping roles when they interact with service users and public service providers simultaneously, depending on the service delivered and the specific actor constellation.

#### *Intermediary to public service provider interaction*

The literature analysis reveals that the intermediaries are interacting predominantly with public service providers rather than with service users. When collaborating with public service providers, the role of intermediaries is two-fold. First, they support the public service provider in co-production, providing additional capacity for public service delivery (Eseonu, 2022; Martini et al., 2017; Moran et al., 2022). Intermediaries provide funding for governments, e.g. public schools or parks (Gazley et al., 2020; Paarlberg & Gen, 2009). In addition, a study by McGann et al. (2021) on living labs shows that infrastructure for co-production can be provided by intermediaries because living labs provide a physical space for service users and public service providers to engage in the (re-) design of public services (see also Whicher & Crick, 2019). Another example of the supporting role is that intermediaries, such as NGOs or private sector organizations, act as advisors to support decision-making by the public service provider (Ngo et al., 2019; Wiewiora et al., 2016). Howlett et al. (2017) describe how public service providers actively request the knowledge of intermediaries when co-designing programs specifically targeted to NGOs or other third-sector actors. Here, balancing different interests is key; otherwise, the partnership might be jeopardized (Ottmann et al., 2011), given that the interests and values of public and private sector actors differ (Rodriguez Müller & Steen, 2019). Research has shown that if media actors act as intermediaries, they act as amplifiers. For example, Gao (2018) shows that Twitter accounts related to media stations distributed information about 311 services in the United States.

Second, intermediaries can substitute public service providers and deliver services on behalf of the public service provider (Cheng, 2019; Moran et al., 2022; Tu, 2016); thereby, enhancing the public service provider's capacity to deliver services (Surva et al., 2016). In the majority of the literature on intermediaries, they are commissioned by the public service provider to deliver services. It is also the case that public service providers only commission some tasks to intermediaries (Cheng, 2019). Only in rare cases, intermediaries act independently if the public service provider lacks the capacity to do so, or in emergencies. For example, Tu (2016) describes how an NGO delivers different types of immigrant services on its own, substituting for government services. Thus, the evidence indicates that the power constellation between the government actor and intermediary differs depending on the role and activities of the intermediary. If the intermediary has a supporting role, some of the power might be shared because of collaboration in decision-making processes. If intermediaries receive more power/discretion, they can also act as leaders of the co-production process. For example, one NGO coordinates an entire network of different organizations (Mazzei et al., 2020; Poocharoen & Ting, 2015), thus effectively controlling the service delivery process, partially or as a whole (Sorensen & Torfing, 2018). However, the majority of power still lies with the service provider, and several studies report that the co-production processes led by or supported by private service providers or NGOs are still dependent on government funding.

#### *Intermediary to service user interaction*

Intermediaries play a supporting and empowering role when interacting with service users. First, they provide information to service users about the service or about different public service providers, enabling service users to make informed decisions (Gao, 2018; Martini et al., 2017; Tuurnas, 2016). Second, they represent service users' interests when interacting with public service providers (Eseonu, 2022). Mazzei et al. (2020) provide a comprehensive study on the interaction between third-sector organizations and users in co-production, and they extract four different kinds of scenarios: sometimes NGOs or other third-party actors represent citizens and offer genuine help. They also point out that NGOs can push citizens out of the co-production process, leading to a lack of representation of individual citizens. Here, power lies more with the intermediary and one possible reason for this might be the lack of professional knowledge or resources of service users. Overall, compared with evidence on the interaction between

public service providers and intermediaries, there is a lack of research on the interaction between intermediaries and service users.

To conclude, Table 4 summarizes the different roles of public service providers, intermediaries, and service users differentiated by the distribution of power between the actors.

## 4 | THEORETICAL IMPLICATIONS AND FUTURE RESEARCH AGENDA

The goal of this study is to provide a holistic view of different actors, their roles, and their interactions in co-producing public services. The main results of the systematic literature review are twofold. First, this systematic literature review describes three distinct actors: public service providers, service users, and intermediaries; however, it emphasizes the importance of public service providers in co-production. On the one hand, they enable future co-production processes by motivating service users through the provision of resources. On the other hand, they contribute to the success of co-production by actively sharing control with service users and intermediaries. Public service providers can act either as facilitators or micromanagers, depending on how much control they are willing to share during the co-production process. Due to this power imbalance inherent in co-production, the public service provider's role in co-production is more influential than assumed by the existing literature that almost exclusively focuses on the contributions and actions of service users.

Second, this study contributes to the co-production theory by conceptualizing how intermediaries contribute to the co-production of public services as an additional category of actors. These multi-actor constellations add complexity to the co-production process which requires in-depth collaboration to balance the interests of the different groups of public service providers, service users, and intermediaries because they are interdependent and therefore resemble collaborative governance arrangements (Chaebo & Medeiros, 2017; Chatfield et al., 2013; Galli et al., 2014; Loeffler & Bovaird, 2019; Ottmann et al., 2011). The findings are summarized in Figure 4.

**TABLE 4** The relation between actor roles and power in co-production.

	Service provider	Intermediary	Service user
Level of power: high	Micromanager: Controls co-production process and outcome	Substitute: Independent service provision by the intermediary is possible. Intermediaries might also lead collaboration processes for public service delivery.	Initiator: Drives bottom-up co-production initiatives and invites public service providers and intermediaries. <sup>a</sup>
Level of power: medium	Facilitator: Mutual trust and shared decision-making, shares control with intermediaries and service users.	Supporter: The intermediary provides additional knowledge and resources to service users or public service providers and has own decision-making power. The intermediary acts as an advisor or amplifier.	Facilitator: Mediates between the different actors or supports other users.
Level of power: low	Facilitator: Mutual trust and shared decision-making, gives up control over the co-production process.	Commissioned: The state needs knowledge or resources from the intermediary but the intermediary is dependent on funding.	Contributor: Dependent on the service provider's and/or intermediary's resources and knowledge.

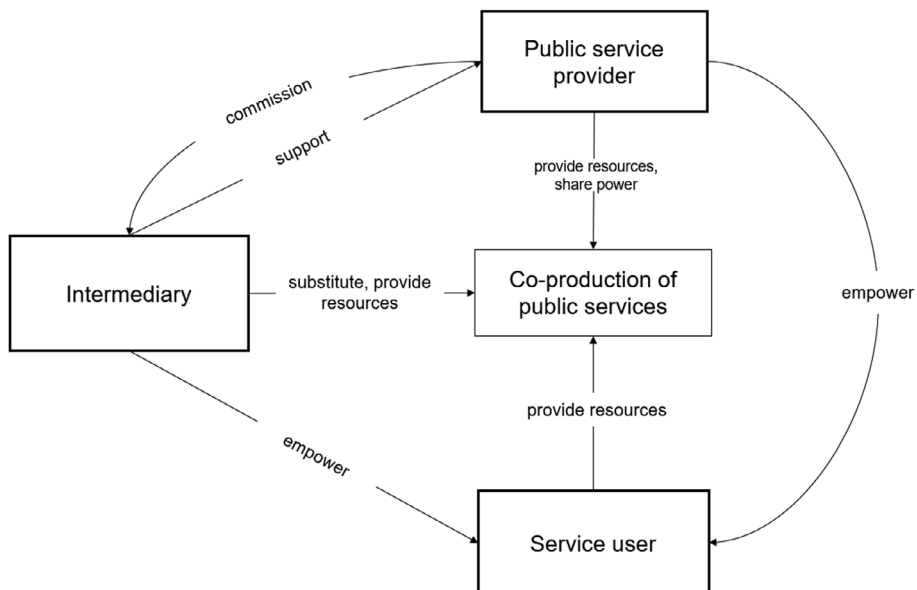
<sup>a</sup>In the literature analyzed for this study, no paper analyzed this form of service users driving bottom-up co-production. Thus, this role was added based on theoretical considerations, described in the discussion section of the paper.

## 4.1 | Theoretical implications

This systematic literature review has four theoretical implications for co-production in public service ecosystems. First, co-production intermediaries are distinct actors who substantially differ from public service providers and service users, as identified by previous theoretical and empirical studies on co-production (see, e.g., Bovaird, 2007; Nabatchi et al., 2017). The literature on public service ecosystems suggests that public services are delivered by multiple actors, creating a “service-for-service cooperation” (Petrescu, 2019, p. 1743). This systematic review contributes more conceptual clarity to how these different service providers look like. Intermediaries are formal organizations and provide knowledge expertise (Casula et al., 2020; Dhirathiti, 2019; Ottmann et al., 2011; Surva et al., 2016). Because they are actors outside the government, they have different goals and motivations to co-produce, which do not necessarily have to converge with the interests of the public sector organization.

The intermediary as a concept is also an umbrella term: there are many different forms of intermediaries, for example, NGOs or for-profit companies (Petrescu, 2019). Even though they differ in their characteristics, their actions are quite similar: they support service users and public service providers in delivering public services, they sometimes substitute a public service provider in delivering public services (partly or as a whole), and they empower service users to co-produce. Thus, the following definition of the co-production intermediary is provided: *co-production intermediaries are formal, non-state organizations that participate in public service delivery by supporting or substituting the public service provider or empowering service users.*

This definition contributes to the conceptualization of co-production in public service ecosystems at two levels. First, it provides a more nuanced view of actor constellations and the power relations between the actors. It is also clear enough to operationalize the intermediary for future studies on co-production. Second, this definition is also sufficiently broad to distinguish between different types of intermediaries. The findings show that there are intermediaries from for-profit or non-profit sectors that have a professional background (e.g., hire professionals) and substitute state actors in delivering public services, resembling a top-down relationship between intermediaries, service users, and public service providers. However, there can also be grassroots organizations, for example, citizen associations that act independently from the state and have no professional knowledge but are still part of the



**FIGURE 4** Summary of the results.

service ecosystem, resembling a bottom-up relationship. In addition, there is also evidence that shows that service users adopt professional roles during co-production processes (Jaspers & Tuurnas, 2023), and the same can be assumed for intermediaries, so intermediaries might emerge bottom-up during co-production processes. Besides the level of professionalism, in public service ecosystems, the roles and interactions of intermediaries (as well as other actors in co-production) can also be dependent on the context, for example, the service itself or the overarching values pursued by delivering public services (Osborne et al., 2022). This is also reflected by the findings of this literature review because most of the intermediaries were involved in providing social services and general public services—thus, the findings regarding the role of the intermediaries and interactions with the other participants should be interpreted with caution because they might look different in other service contexts.

A co-production intermediary is not necessary to make public service delivery count as co-production; there still can be co-production without intermediaries—it is enough if there is voluntary participation between service users and public service providers (Bovaird, 2007; Brandsen & Honingh, 2016; Nabatchi et al., 2017). However, if the public service delivery arrangement in question is characterized by a multi-actor constellation, the co-production intermediary is an additional way to appropriately identify the different collaboration processes.

The second theoretical implication is that the main function of public service providers is to enable co-production, which occurs through two distinct roles: micromanaging or facilitating. The similarities between these two roles are that active management of the interaction with service users and intermediaries is necessary (depending on the service that is delivered) by addressing power imbalances, having an open mind toward the input of other actors, or providing resources (Thomsen & Jakobsen, 2015). Additionally, the public service providers are responsible for facilitating co-production within their organization. They ensure that the organization itself is designed to enable co-production, for example, by facilitating interagency collaboration (Ma & Wu, 2020; Rolandsson, 2017). Therefore, the theoretical concept of the professional in co-production can be expanded from rather passive public service providers or professionals that are “[...] serving in professional capacities.” (Nabatchi et al., 2017, p. 769) or “[...] paid employees of an organization [...]” (Brandsen & Honingh, 2016, p. 431) to active participants in co-production. These roles partly reflect the managerial lessons proposed by Sicilia et al. (2019) but emphasize the direct interaction between service users and public service providers to ensure successful co-production.

The empowering role of the public service provider (and partly also intermediaries) is a positive feedback loop between the behavior of the public servant and service user participation in co-production. Public service providers empower service users by providing additional information about the service or by sharing control over the co-production process (Jakobsen & Andersen, 2013; van Eijk et al., 2019). In addition, research on service users' motivation showed that self-efficacy and knowledge motivate service users to co-produce (Chaebo & Medeiros, 2017) as well as the framing of co-production initiatives provided by public servants (Wang & Zhang, 2024); therefore, the role of public service providers becomes even more crucial in ensuring future co-production processes. Taken together, the facilitating and micromanaging role as well as the potential to empower service users are a manifestation of the public service provider's power (Chauhan et al., 2022). The service user's influence is limited to the interaction with the public service provider, whereas the public service provider is also able to shape future service delivery processes by motivating service users to co-produce and by delegating service delivery to intermediaries.

Third, the empirical insights on the role of service users show that power is distributed in favor of established formal organizations, such as public service providers or intermediaries. This is in contrast to theoretical approaches that highlight the importance of users in co-production and the assets they bring to the table in the form of knowledge and manpower (Loeffler, 2021b). However, there were no clear examples in the sample of the analyzed literature showing that users take control over the co-production process. This might be a result of selection bias, as the literature was primarily selected based on descriptions of interactions between different actors, which might have excluded articles that focused on single actors. Thus, it is possible that users can be more powerful, as the results of

the article suggest based on the assets they provide in co-production. So, citizens might act as initiators, driving bottom-up co-production processes.

Fourth, in public service ecosystems, the context of public service delivery plays a significant role because it shapes the interactions between actors (Eriksson, 2019). Petrescu (2019) describes that in public service ecosystems, these relationships are partnerships, this view can be expanded by analyzing the different power relationships underlying the different service delivery arrangements, as this review has shown (Table 4). Thus, power relationships are an additional theme of co-production processes to these that already have been described by other authors (Lember et al., 2019; Loeffler & Bovaird, 2016; Voorberg et al., 2015). The inclusion of power enables more systematic research because it can affect these interactions and the context as well. As shown in the analysis, public service providers are the most powerful actors in co-production processes (Lino et al., 2019; Rosen & Painter, 2019; van Eijk et al., 2019; Williams et al., 2016). Hence, successful co-production requires awareness of the underlying power structures of all actors, especially the public service provider (Ryan, 2012). The literature on co-contamination and co-destruction describes the consequences of power imbalances that are not addressed in co-production (Williams et al., 2016). In the worst case, value is not created but destroyed, especially if public servants cannot be held accountable if resources are misused or other accountability issues occur (Duquette-Rury, 2016).

## 4.2 | Directions for future research

From the analysis, four areas for future research emerge. First, this literature review shows that public service providers play an important role in co-production, they empower service users and enable them to participate in future co-production activities. Furthermore, they are responsible for the implementation of co-production results, especially in the co-commissioning and co-designing stages of the co-production process. However, research on the public service provider's motivation to co-produce is scarce. A reason for this might be the implicit assumption that for public service providers, participation in co-production processes is mandatory by design. Recent evidence shows that this is not the case: there are variations in engagement, even if co-production is mandatory (van Eijk et al., 2019). The issue of power imbalances inherent in co-production processes shows that the success of co-production hinges on the behavior of service providers and their motivation to share power. Here, future research is needed on those topics: when do public service providers share power? What are the components of equal co-production processes? What is the influence of process equality on the success of co-production and public value creation?

Second, the introduction of the co-production intermediary requires further research, systematically analyzing the role of different types of intermediaries and their motivations to participate in co-production. Here, areas for future research include differences in the interaction between users and intermediaries, and how these interactions influence the outcomes of co-production. In addition, in this literature review intermediaries were mostly described as actors with a genuine interest in co-production. However, it might also be possible that intermediaries contribute to the failure of co-production processes, for example, by acting on behalf of service users or by being unwilling to share professional knowledge or resources with other actors. Systematic analysis of this destructive behavior in the context of co-production is thus needed. Furthermore, intermediaries can be organizations from the third or private sector. While the role of third sector organizations has been addressed by a plethora of research in the past (Cheng, 2019; Mazzei et al., 2020; McMullin, 2021), the role of private sector organizations and how their actions differ from intermediaries from the third sector could be an area for future research. Last, in the research that was analyzed for this review the intermediaries were mostly involved in the co-production of social services and less in other sectors, for example, health services. This is a puzzling finding because in both sectors third sector organizations are typically involved when providing these services due to the privatization and outsourcing efforts in the past. This has implications for the study of intermediaries in public service ecosystems as well because their roles might differ from sector to sector depending on the characteristics of the service in question. This tension can be addressed by future research.

Third, public service ecosystems are characterized as multi-actor constellations and this literature review introduces intermediaries as group-level actors collaborating with individual citizens and professionals from public service organizations (Osborne et al., 2022; Petrescu, 2019). This points to an interesting research gap because the literature focuses more on the individual citizen/service user and less on group-level service users as client associations (see, e.g., van Eijk et al., 2019), as described in the findings of this literature review. Thus, future research can evaluate to what extent the power relations and interactions differ in different actor constellations and which type of public value is subsequently created (McMullin, 2023; Nabatchi et al., 2017; Osborne et al., 2022).

Last, power relationships underlying public service delivery processes have to be systematically integrated into the research on co-production in public service ecosystems. As described above, they are a central component in the interaction process because they might determine the roles and activities of each actor. But there is a lack of research that analyzes how these power constellations affect the outcomes of co-production (e.g., public value creation/destruction), if and how they differ between types of services and between public service providers, intermediaries, and service users.

### 4.3 | Limitations

There are several limitations of this literature review. The first is a possible selection bias due to the eligibility criteria applied during the selection of the literature, which limits the comprehensiveness of the evidence presented. The focus on journals as primary sources led to the exclusion of books and book chapters as well as gray literature. Thus, recent contributions on co-production in books (e.g., see Brandsen et al., 2018; Loeffler, 2021a; Loeffler & Bovaird, 2021) have not been analyzed. The studies analyzed in this article offer only a glimpse of the vast body of evidence that has been produced over the last few decades. Second, during the selection, many studies using quantitative methods were excluded because of the lack of in-depth descriptions and analysis of the interaction process in question. Finally, the quality of the evidence of the literature in the sample was not assessed separately; the only criterion concerning the evidence in the study was the selection of peer-reviewed journal articles. This means that statements about the validity of the empirical conclusions made by the studies summarized in this study cannot be made and are also out of the scope of this literature review. In sum, the selection of literature was partly based on subjective interpretations of the evidence by the author, which limits the replicability of the literature selection process. However, a transparent description of how the different steps of the analysis were performed and the PRISMA checklist ensured that most parts of the selection process could be replicated. Second, the data analysis was subject to interpretation by the author. A codebook (Table A2) was developed that includes predefined codes and decision rules; thus, the transparency of the data analysis process is increased. In conclusion, the framework presented in this study can be a helpful heuristic for considering different actors and interactions between public service providers, service users, and intermediaries in co-production.

### ACKNOWLEDGMENTS

The author received no funding for this research. The author thanks Prof Dr Ines Mergel and Prof Dr Trui Steen for their thoughtful comments on previous drafts of this article. Open Access funding enabled and organized by Projekt DEAL.

### CONFLICT OF INTEREST

The author reports no conflict of interest.

### PEER REVIEW

The peer review history for this article is available at <https://www.webofscience.com/api/gateway/wos/peer-review/10.1111/padm.12965>.

## DATA AVAILABILITY STATEMENT

Data sharing is not applicable—no new data are generated.

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**How to cite this article:** Haug, N. (2024). Actor roles in co-production—Introducing intermediaries: Findings from a systematic literature review. *Public Administration*, 102(3), 1069–1094. <https://doi.org/10.1111/padm.12965>

**TABLE A1** PRISMA checklist.

			Page
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis or both.	NA
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	NA
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	3–6
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	NA
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address) and, if available, provide registration information including registration number.	NA
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	6–8
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	7
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	7
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	7
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	7–8
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	NA
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias in individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	NA
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	NA
Synthesis of results	14	Describe the methods for handling data and combining results of studies, if done, including measures of consistency (e.g., I) for each meta-analysis.	7–8
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	28–29
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were prespecified.	NA

(Continues)

TABLE A1 (Continued)

			Page
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	8
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	7–8 Table A2
Risk of bias within studies	19	Present data on risk of bias for each study and, if available, any outcome level assessment (see item 12).	NA
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group and (b) effect estimates and confidence intervals, ideally with a forest plot.	NA
Synthesis of results	21	Present the main results of the review. If meta-analyses are done, include for each, confidence intervals and measures of consistency	9–20
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see item 15).	NA
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see item 16]).	NA
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	NA
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	28–29
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	21–28
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	See funding note

**TABLE A2** Codebook.

Main code	Subcode	Description
General information		
Country		Each information provided on the country the study is set in is coded with this code.
Methods	Qualitative	Each section describing a qualitative method is coded with this code.
	Quantitative	Each section describing a quantitative method is coded with this code. (e.g., regression analysis)
	Experimental	Each section describing an experimental method is coded with this code.
	Mixed-methods	Each section describing a mixed- method approach is coded with this code.
	<i>Qualitative Comparative Analysis</i>	Each section describing a qualitative comparative approach is coded with this code.
Stage in the service cycle		The codes co-commissioning, co-design, co-delivery, and co-assessment are used, according to the definition of Nabatchi et al. (2017)
	Co-commissioning	Studies that analyzed the co-commissioning phase. This stage is defined as “[...] activities aimed at strategically identifying and prioritizing needed public services, outcomes, and users. (Nabatchi et al., 2017, p. 771)
	Co-designing	Studies that analyzed the co-designing phase. This stage is defined as: “[...] activities that incorporate ‘the experience of users and their communities’ (Loeffler & Bovaird, 2016, p. 9) into the creation, planning, or arrangements of public services (Nabatchi et al., 2017, p. 772)
	Co-delivery	Studies that analyzed the co-delivery phase. This stage is defined as: “joint activities between state and lay actors that are used to directly provide public services and/or to improve the provision of public services” (Nabatchi et al., 2017, p. 772)
	Co-assessment	Studies that analyzed the co-assessment phase. This stage is defined as: “Co-assessment focuses on monitoring and evaluating public services.” (Nabatchi et al., 2017, p.772)
	<i>Whole Service Cycle</i>	Studies that analyzed all phases of co-production.
Participant's background	Government actor	Each section that describes background information on the government actor studied is coded with this code. Background information can be the organization they belong to, their position, and so forth
	Lay actor	Each section that describes background information on the lay actor studied is coded with this code. Background information can be their age, affiliation, and so forth
	Intermediary	Each section that describes background information on the intermediary studied is coded with this code. Background information can be the organization they belong to, their position, and so forth
Service user's role		In this code, each section is coded that describes the role of lay actors during co-production
	<i>Active participation</i>	Each section that describes the active participation of lay actors in co-production is coded with this code. This means they set goals, provide feedback and express their ideas.
	<i>Contribution of resources</i>	Each section that describes the contribution of resources is coded with this code. Resources can be time, knowledge, and so forth
	<i>Facilitating the interaction</i>	Each section that describes the facilitation of the collaboration between intermediaries, state actors, and lay actors, this means being responsive and open toward the input of other actors.

(Continues)

TABLE A2 (Continued)

Main code	Subcode	Description
Public servant's roles		In this code, each section is coded that describes the roles and activities of state actors during co-production.
	<i>Micromanage</i>	In this code, each section is coded that describes the micromanaging role of state actors, this means they set the goals and closely monitor the collaboration process.
	<i>Facilitate</i>	In this code, each section is coded that describes the facilitating role of state actors. This means that they empower other actors to collaborate by providing information and resources.
	<i>Translate</i>	In this code, each section is coded that describes the translating role of state actors, where state actors translate the results of the co-production process back to the organization.
Intermediary		In this code, each section is coded that describes the roles and activities of intermediaries, and non-state actors that collaborate with lay actors and state actors.
	<i>Support government in service delivery</i>	In this code, each section is coded that describes the intermediary collaborating with state actors when engaging in co-production.
	<i>Support lay actors in service delivery</i>	In this code, each section is coded that describes the intermediary collaborating with lay actors when engaging in co-production.
	<i>Participate in service delivery</i>	In this code each section is coded that describes how intermediaries participate in service delivery.
Relationship	<i>Collaborate</i>	In this code, each section is coded that describes collaboration processes. This can be about creating a meaningful, trusting relationship and being open about each experience and the needs voiced throughout the process.
	<i>Power relationships</i>	In this code, each section is coded that describes power relationships in co-production. Those can be who is in charge, who controls goal setting, and who sets rules about the collaboration process.

Note: The codes in italics mark codes that have been added inductively through the analysis of the literature.