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**ASSESSING PUBLIC VALUE CREATION (DESTRUCTION) AND
APPROPRIATION (MISAPPROPRIATION) IN PUBLIC-PRIVATE PARTNERSHIPS**

CLAUDIO JOSÉ OLIVEIRA DOS REIS

BRASÍLIA
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A doctoral thesis submitted to the Postgraduate Programme in Management (PPGA) at the School of Management, Accounting, Economics, and Public Management (FACE) of the University of Brasília (UnB) in partial fulfillment of the requirements for the degree of Doctor of Philosophy (Ph.D.) in Management.

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ABSTRACT

Public-private partnerships (PPPs) are long-term contractual arrangements between public authorities and private partners that place private actors in a key position to provide public goods and services. Governments worldwide have implemented PPPs as an alternative to traditional public provision to increase the performance of their public service delivery. However, considering that PPPs' performance may be controversial/mixed, public administration and management (PAM) scholars have posited that a need exists to examine the real performance advantages of PPPs, namely the understudied social-based performance. PPP studies have extensively investigated public value creation and appropriation concerning public services delivered strictly by the government and public-private interactions. Nonetheless, PPP studies often focus on value for money and economic performance criteria. In such a context, the first portion of this doctoral thesis, a conceptual paper, begins by examining how public value can be created and appropriated in PPP settings and how public value mechanisms can influence these phenomena. Considering the fact that the literature lacks an integrated and structured analytical framework to assess such phenomena, this study fills this gap by offering a public value creation and appropriation framework regarding PPP settings. The second portion of this doctoral thesis, an empirical paper, operationalizes such a conceptual framework to empirically investigate how PPP projects can achieve high or low social benefits/impacts through different configurations of conditions. It thus explores how public value creation (destruction) and appropriation (misappropriation) can occur in public-private arrangements due to such conditions. This empirical study adopts fuzzy-set qualitative comparative analysis (fsQCA) to unveil these configurations using a multiple-case comparative study of 24 Brazilian PPP projects encompassing exemplary cases with evidence of high and low public value outcomes. Our findings thus reveal how multiple logics of configurations combine different conditions for achieving high or low public value outcomes through distinct paths. Overall, this doctoral thesis makes theoretical contributions by offering a structured theoretical framework for assessing public value creation (destruction) and appropriation (misappropriation) in PPP settings while adding some nuances to the ongoing debate concerning such phenomena. Finally, as practical implications, these research findings also highlight how policymakers and public/private sector managers can successfully set up PPP arrangements by considering alternative paths associated with high public value outcomes while avoiding low public value ones.

Keywords: Public-private partnerships. Public value creation. Public value destruction. Public value appropriation. Public value misappropriation. Public value conditions.

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LIST OF ABBREVIATIONS

BFMO	Build, finance, maintain and operate
BS	Basic sanitation
CS	Citizen services
DBFMO	Design, build, finance, maintain and operate
ESG	Environment, Social, and Governance
HC	Healthcare
HPV	High public value
IMF	International Monetary Fund
IS	Information sharing
FsQCA	Fuzzy set qualitative comparative analysis
LPV	Low public value
NPG	New public governance
NPM	New public management
PAM	Public administration and management
PPPs	Public-private partnerships
PRIC	Private capabilities
PUBC	Public capabilities
QCA	Qualitative comparative analysis
PRI	Proportional reduction in inconsistency
PL	Public lighting
PT	Public transportation
PV	Public value
PVCA	Public value creation and appropriation
RG	Risk governance
RoN	Relevance of necessity
SDG	Sustainable Development Goals
SO	Stakeholder orientation
SUIN	Sufficient but unnecessary, insufficient but necessary
SW	Solid waste

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1 INTRODUCTION

Public-private partnerships (PPPs) are long-term contractual arrangements between public authorities and private partners that place private actors in a key position to provide public goods and services. In the last decades, multilateral agencies have incentivized PPP implementation worldwide as an alternative to traditional public procurement. Their main rationale is that PPPs outperform traditional public provision in terms of operational efficiency since private partners can: (i) lever private investments/capabilities; (ii) bear risk more efficiently; and (iii) assume management responsibility with economic incentives based on pay-for-performance agreements (e.g., European Commission, 2003; International Monetary Fund, 2004; World Bank, 2017). Governments have then implemented PPPs in developing and developed countries to increase the performance of their public service delivery based on such assumptions.

Notwithstanding, to date, the public administration and management (PAM) literature still lacks empirical evidence regarding the real performance of PPPs (Dos Reis & Cabral, 2022; Hodge & Greve, 2017; Koppenjan et al., 2022; Verweij & Van Meerkerk, 2020, 2021; Verweij et al., 2022). Scholars have demonstrated that PPP performance may be rhetoric (Mollinger-Sahba et al., 2020; Teisman & Klijn, 2002; Wettenhall, 2003) and controversial/mixed (Lewis, 2021; Vecchi et al., 2022). In this sense, scholars have recently discussed the future of PPPs and demonstrated, for instance, that some public authorities in developed countries (e.g., the UK and Italy) have reduced PPP implementation due to failure experiences (Vecchi et al., 2022). On the other hand, some public authorities in developing nations (e.g., Brazil and China) have increased PPP implementation to address social and infrastructure gaps (Hodge & Greve, 2018; Tan & Zhao, 2019). Scholars have then claimed that governments need to examine the real performance advantages of PPPs compared to traditional public procurement before implementing such initiatives to mitigate project failure and enhance its success (Verweij et al., 2022).

In addition, scholars have also contested PPP evaluation as it often focuses on operational efficiency and economic performance criteria, representing a narrow view of PPP performance that neglects these initiatives' social outcomes/impacts on their public service users/citizens (Guo & Ho, 2019; Quelin et al., 2017; Vecchi & Casalini, 2019). Economic performance is also relevant but cannot solely explain PPP performance broadly since these criteria neglect social outcomes/impacts. In this vein, scholars have claimed further

exploration/development regarding a more promising perspective such as public value creation and appropriation in PPP settings (Cabral et al., 2019; Lazzarini, 2020; Reynaers, 2014; Vakkuri & Johanson, 2020; Vecchi, Casalini, et al., 2022).

1.1 RESEARCH QUESTIONS

By responding to such a call, this doctoral thesis explores the phenomena of public value creation and appropriation in PPP arrangements through two stand-alone studies.

The first portion of this doctoral thesis (Chapter 2) is a theoretical study that begins by asking the following questions:

- (i) How can public value be created and appropriated in PPP settings?
- (ii) How can public value mechanisms influence these phenomena in such hybrid arrangements?

The second portion of this doctoral thesis (Chapter 3) is an empirical study that operationalizes the conceptual framework proposed in Chapter 2 by addressing the following questions:

- (i) How can PPP projects achieve high or low social public value through different configurations?
- (ii) How can public value creation and appropriation occur in PPP arrangements due to these configurations?

For doing so, the Brazilian PPP market is used as an empirical research setting to answer these questions. This empirical research then adopts fuzzy-set qualitative comparative analysis (fsQCA) to unveil these configurations using a multiple-case comparative study of 24 Brazilian PPP projects encompassing exemplary cases with evidence of high and low public value outcomes.

Finally, Chapter 4 concludes by summarizing the contributions of this doctoral thesis and outlines potential avenues for future research regarding these phenomena of public value creation (destruction) and appropriation (misappropriation) in PPP arrangements.

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2 PUBLIC VALUE CREATION AND APPROPRIATION MECHANISMS IN PUBLIC-PRIVATE PARTNERSHIPS: HOW DOES IT PLAY A ROLE?

ABSTRACT

Scholars have extensively investigated public value creation and appropriation concerning public services delivered strictly by the government and public-private arrangements, such as public-private partnerships (PPPs). However, such studies often focus on value for money and economic performance criteria. This study examines how public value can be created and appropriated in PPP settings and how public value mechanisms can influence these phenomena. Considering that the literature lacks an integrated and structured analytical framework to assess such phenomena, this conceptual article addresses four mainstream PPP topics regarding public value mechanisms (information sharing, public and private capabilities, risk governance, and stakeholder orientation), which can be associated with PPPs' public value creation (destruction) and appropriation (misappropriation). Thus, this article highlights a need to evaluate PPPs in terms of public value creation beyond the economic performance criteria and fills the literature gap by proposing a public value creation and appropriation framework.

2.1 INTRODUCTION¹

A growing number of governments in both developed and developing countries have implemented public-private partnerships (PPPs) as a response to face fiscal constraints and increase public service quality (Grimsey & Lewis, 2017; Hodge & Greve, 2019; Levitt et al., 2019). In line with the new public management (NPM), governments have often argued that PPPs outperform the traditional supply of public services to justify their implementation. Nonetheless, the public administration and management (PAM) literature lacks empirical evidence to support such an argument (O'Shea et al., 2019; Verweij & Van Meerkerk, 2020, 2021). Also, PPPs have often been evaluated in terms of value for money and economic performance criteria (Ball et al., 2007; Grimsey & Lewis, 2005; Hodge & Greve, 2017; Iossa & Martimort, 2015). Although these are relevant performance indicators, such criteria have

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been contested in the PPP literature due to neglecting the social value¹ perspective (Quelin et al., 2017; Vecchi & Casalini, 2019). The perspectives of public service users and citizens in general (Osborne, 2021) have also been neglected to appraise PPPs' delivery of public services (Guo & Ho, 2019). In this vein, some PAM and strategy scholars have argued that the evaluation of the success of PPPs' public service delivery must encompass social-based indicators (Quelin et al., 2017), consider the most vulnerable beneficiaries (Lazzarini, 2020), and achieve a balance between organizational performance and public value creation for public service users and society as a whole (Cabral et al., 2019).

In line with this, some scholars have argued a need exists in the PAM field to move beyond strict economic-based performance criteria (e.g., efficiency and efficacy), to accommodate the public value perspective as a “response to the challenges of a networked, multi-sector, no-one-wholly-in-charge world and to the shortcomings of previous public administration approaches” (Bryson et al., 2014, p. 445). In this sense, the topic of public value² has been widely discussed in the PAM literature (Huijbregts et al., 2021; Van der Wal et al., 2015). In this vein, scholars have assessed public value creation regarding the outcomes of public services delivered strictly by the government (Huijbregts et al., 2021) and public–private arrangements (Cabral et al., 2019; Lazzarini, 2020; Reynaers, 2014; Reynaers & de Graaf, 2014). Although some advancements have recently been added to the literature on public value in PPPs, the question of how PPPs can create public value needs more exploration (Cabral et al., 2019; Lazzarini, 2020; Reynaers, 2014; Reynaers & de Graaf, 2014).

Scholars have also focused on the phenomenon of public value creation by adopting different approaches (e.g., Bozeman, 2007; Meynhardt, 2009; Moore, 1995). Although relevant directions have recently been indicated to advance the comprehension of how public value can be created in public service contexts (e.g., Hartley et al., 2017, 2019; Osborne et al., 2021), the question of how multiple stakeholders (e.g., public and private actors, and public service users/citizens) in public service delivery can appropriate public value also needs further comprehension (Cabral et al., 2019; de Bruijn & Dicke, 2006; Lazzarini, 2020; Parrado & Reynaers, 2020; Reynaers, 2020). The value creation–appropriation phenomena have been widely explored in the private-sector literature by strategy scholars (Bacq & Aguilera, 2021; Garcia-Castro & Aguilera, 2015), and the adoption of insights from this discipline into PAM can add a more nuanced approach to value creation–appropriation through public service delivery. Thus, by considering the relevance of balancing public and private value in public

service delivery (Alford, 2016; Benington, 2011; Engen et al., 2020; Osborne, 2018, 2021), consideration of the public value appropriation phenomenon is also essential to understand the public value creation process in public-private interactions, where some stakeholders may appropriate more value than others in the public service delivery (Paik et al., 2019).

Aiming to fill this gap and inspired by Cabral et al. (2019), we ask the following questions: (i) How can public value be created and appropriated in PPP settings?; and (ii) How can public value mechanisms influence these phenomena in such hybrid arrangements? To answer these questions, we consider PPPs as formal arrangements supported by bundled contracts (e.g., design, build, operate, and transfer) between public partners (government entities) and private partners (private for-profit firms and non-governmental organizations; Hart, 2003). We also consider PPPs to be hybrid governance arrangements in which public and private characteristics are combined, such as economic-based and social-based incentives (Kivleniece et al., 2017), and where administrative controls, strategic decision rights, and property rights are shared between public and private partners (Ménard, 2004). Finally, we consider that PPPs are built on public-private interactions in which public and private interests may collide so that governance mechanisms are relevant to solve the potential wicked problems or conflicts of interest that may arise among these multiple actors (Bryson et al., 2017; Sørensen & Torfing, 2009). Then, based on the public value and PPP literature, we address four mainstream topics as public value mechanisms (information sharing, public and private capabilities, risk governance, and stakeholder orientation), which can be associated with PPPs' public value. We do not suggest that these topics are more relevant or influential than others in the public value creation and appropriation process. The list of potential mechanisms which can influence these phenomena in public-private arrangements is far from comprehensive (Cabral et al., 2019). The criteria adopted to select such topics are the degree of their relevance and their potential influence on PPPs' public value, as pointed out by PAM and strategy scholars based on empirical evidence.

To do so, we adopted the definition of public value as the extent to which the PPPs generate high social benefits to public service users and citizens via high-quality public services delivery (Cabral et al., 2019; Lazzarini, 2020; Quelin et al., 2017), regarding (i) their rights, benefits, and prerogatives encompassed by state obligations and principles (Bozeman, 2007; Guo & Ho, 2019) and (ii) their individuals' needs, preferences, and expectations (Meynhardt, 2009; Osborne, 2021; Osborne et al., 2021). Thus, we argue that public value can be created

(destroyed) to the extent that PPPs arrangements achieve a high level (low level) of such public value outcomes. We then consider that such selected topics can serve as relevant mechanisms to enhance (hinder) the PPPs' public value. From this perspective, we also argue that PPPs' public value can be appropriated (misappropriated) to the extent that public value is distributed in a balanced (unbalanced) manner between PPPs' stakeholders, considering that some stakeholders can appropriate more value than others in the public service delivery (Garcia-Castro & Aguilera, 2015; Paik et al., 2019).

For instance, as to the first mechanism, scholars have considered information sharing as public value (Bozeman, 2007; Jørgensen & Bozeman, 2007) and confirmed they are necessary to enhance the public value in public initiatives (Douglas & Meijer, 2016) and PPP settings (Reynaers, 2014). The rationale is that such mechanisms contribute to holding public service providers (e.g., public and private actors) accountable for public service delivery and allowing its monitoring and evaluation by public service users/citizens, enforcing such public service providers to safeguard the PPPs' social aims. Then, information sharing can enhance PPPs' public value creation and appropriation since it facilitates (i) the effective PPPs' risk identification and balanced allocation between the partners, (ii) the analysis of PPPs' cost and benefits by the public partner and third parties regarding whether the PPPs have comparative advantages compared with alternative modes of provision, (iii) the assessment of PPPs' social benefits/impact to public service users/citizens, (iv) the exchange of reliable information between the partners to accomplish the PPPs' social aims, (v) trustful and effective cooperation between the partners to achieve PPPs' social aims, and (vi) the measurement of PPPs' social-based performance.

Concerning the second mechanism, operational capabilities have also been considered an important mechanism to create public value in public service delivery (Moore, 1995, 2000). In this sense, empirical research has shown that public and private capabilities can enhance the public value in PPP settings due to the diversity and complementarity of partners' resources/capabilities, which can lead to high-quality public service delivery and, in turn, enhance social-based performance (Alonso & Andrews, 2019; Kivleniece & Quelin, 2012; Quelin et al., 2019). Thus, public and private capabilities can enhance PPPs' public value creation and appropriation once it permits the development of (i) the public partner's contract-management capabilities to evaluate, for example, the private partner's behaviour in pursuing social outcomes, (ii) the private partner's execution management capabilities to deliver, for

instance, better-adjusted public services based on the needs of the public partners and the public service users/citizens, (iii) the partners' knowledge to achieve PPPs' social aims based on the sharing of heterogeneous and complementary capabilities, (iv) the effective partnership capabilities to achieve PPPs' social outcomes, and (v) stakeholder management capabilities to manage the needs, preferences, and expectations of multiple stakeholders (e.g., the partners and public service users/citizens).

Regarding the third mechanism, scholars have demonstrated that complex risks can emerge in the public service delivery affecting not only the public service providers but also the public service users/citizens (Brown & Osborne, 2013; Renn, 2008), which is also the case of PPPs (Flemig et al., 2016). Thus, these scholars have argued that a more promising and transparent risk governance approach should be adopted to encompass the views and needs of all these relevant stakeholders and, in turn, enhance the PPPs' social value (Brown & Osborne, 2013; Renn, 2008). In this vein, risk governance can enhance PPPs' public value creation and appropriation because it allows that (i) risks are explicitly identified regarding the public service users/citizens beyond the partners, (ii) risk-benefit is balanced among the partners and public service users/citizens, (iii) risk minimization process is based on the dialogue among the partners and public service users/citizens, (iv) risk analysis process considers the risks implication on the public service users/citizens beyond the risks implication on the partners, and (v) risks are negotiated among the partners and public service users/citizens based on their contested views and different needs, preferences, and expectations.

Finally, considering the fourth mechanism, scholars have also argued that stakeholder orientation is a necessary condition to achieve high-performance outcomes (Lazzarini et al., 2020) and create public value (Osborne & Strokosch, 2021) in public service delivery. This is because it considers the prior experiences and knowledge of public service users and citizens in its production/management (Alford, 2016; Dudau et al., 2019; Trischler et al., 2019), as well as their needs, experiences and expectations in its use/consumption (Osborne et al., 2021). Then, stakeholder orientation can enhance the PPPs' public value creation and appropriation as it enables (i) the adoption of public service users/citizens' prior experiences and knowledge as a source of the PPPs' public service design, (ii) the engagement of the public service users/citizens in the production/management of the PPPs' public service delivery, (iii) the adoption of the public service users/citizens' experience in the use/consumption of the PPPs'

public service delivery, and (iv) the PPPs to positively affect the public service users/citizens' needs, experiences and expectations in the use/consumption of public service delivery.

As can be noted, previous studies have already addressed the influence of such selected topics on public value. However, the PAM literature lacks an integrated and structured analytical framework encompassing multiple public value mechanisms to assess public value creation and appropriation phenomena in the context of PPPs' public service delivery (Cabral et al., 2019). In this sense, our study contributes to the literature by filling this literature gap and proposing a public value creation and appropriation (PVCA) framework to guide researchers and practitioners working on these hybrid arrangements. First, we briefly discuss public value conceptualizations scattered in the PAM literature and aggregate theoretical lenses from strategy, economics, and management literature. We then address these mainstream topics such as public value mechanisms. Finally, we provide some insights into how such public value mechanisms can individually and collectively influence public value creation (destruction) and appropriation (misappropriation) in PPP contexts.

2.2 PUBLIC VALUE LITERATURE BACKGROUND

2.2.1 Public value conceptualizations in PAM

Scholars have claimed a need exists to move beyond the traditional public management and NPM approaches to a new perspective, which can address the new challenges in the PAM field (Bryson et al., 2014; O'Flynn, 2007). In this sense, some new approaches have been proposed in recent decades, such as new public service (Denhardt & Denhardt, 2003), new public governance (Osborne, 2006), public value management (Stoker, 2006), and public value governance (Bryson et al., 2014). Public value then has been addressed as a new paradigm in PAM (Bryson et al., 2014; Stoker, 2006).

In such a context, public values/value literature have been developed in the PAM field. Although these conceptualizations are related, they also differ (Bozeman, 2007; Nabatchi, 2012; Witesman, 2016). For instance, the public values literature involves the inputs of public value such as the cognitive and psychological values concerning the individuals' perceptions, needs, and preferences (Meynhardt, 2009) and a myriad of values constellations (e.g., public interest, social cohesion, altruism, protection of individual rights, accountability, responsiveness, equity, justice, and fairness; Bozeman, 2007; Jørgensen & Bozeman, 2007).

On the other hand, the public value literature encompasses the outputs and outcomes of public service delivery, such as assessing government activity results (e.g., the extent to which citizens' quality of life and health are improved via high-performance public services; Moore, 1995, 2000). Thus, scholars have argued that public values contribute to the achievement of public value in the public service context (Bozeman, 2007; Nabatchi, 2012; Witesman, 2016).

From this perspective, such literature has grown in the last decades (Van der Wal et al., 2015). The public value approach (e.g., Moore, 1995, 2000) and the public values conceptualizations (e.g., Bozeman, 2007; Meynhardt, 2009) have been widely adopted in the literature (Bryson et al., 2015). Moore's (1995, 2000) public value approach is normative because he focuses on what public managers should do and how they should implement strategies to create public value. He claims that public value is encompassed by public bureaucracies and public organizations oriented by high performance and that seek to achieve social outcomes with efficiency, efficacy, justness, and fairness in their operation. His approach focuses on public managers and organizational performance as the core elements to achieve public value. Bozeman's (2007) public values approach is also normative. However, he argues that public values is a “normative consensus about (a) the rights, benefits, and prerogatives to which citizens should (and should not) be entitled; (b) the obligations of citizens to society, the state, and one another; and (c) the principles on which governments and policies should be based” (p. 17). Unlike Moore's approach, Bozeman focuses his theory on public policy and society as the core dimensions to achieve public value. In this view, Bozeman considers that public value is created when these public values criteria are met. Then, he argues that the public policy-making process should be built on such criteria to safeguard public value creation to public service users/citizens in the public service delivery. On the other hand, Meynhardt (2009) offers a non-normative approach because he proposes a non-prescriptive concept of public values built on psychological theory of basic needs. He considers that building public values is based on “values characterizing the relationship between an individual and ‘society’, defining the quality of the relationship” (p. 206). In this sense, Meynhardt focuses on individuals' experience as the mean driver to achieve public value.

As can be noted, such concepts of public values/value differ, and there is no consensus about these topics. Despite the contributions of Moore, Bozeman, and Meynhardt, their conceptualizations of public values/value are subject to some criticisms in the literature (see Alford & O'Flynn, 2009). For example, PAM scholars have criticized such public values/value

approaches by considering they are: (i) normative and lack empirical evidence (Hartley et al., 2017); (ii) vague, ambiguous, and subject to broad interpretations (Bryson et al., 2014; Reynaers & de Graaf, 2014; Rhodes & Wanna, 2007); and (iii) focused excessively on the role of public managers and public organizations (Rhodes & Wanna, 2007). In this sense, recently PAM and strategy scholars have argued that more nuances can be added to advance and move beyond public values/value conceptualizations in the PAM field. We now highlight some of these nuances that underpin our conceptual framework.

First, these three approaches have not been integrated in the PAM literature as a conceptual framework (Bryson et al., 2015). For instance, scholars have adopted Bozeman's approach (e.g., Reynaers, 2014; Reynaers & de Graaf, 2014) or Moore's approach (e.g., Douglas & Meijer, 2016) as an analytical model to conduct theoretical and empirical research on public value. Thus, Bryson et al. (2015) argue that the integration of Moore's, Bozeman's, and Meynhardt's conceptualizations contributes to mitigating the above criticisms. In this sense, they propose an integrated framework that encompasses these three conceptualizations into a holistic perspective (Bryson et al., 2015).

Second, Fukumoto and Bozeman (2019, pp. 641–643) argue that three major problems (identification, motivation, and instrument problems) must be considered in public value studies. They posit that the identification problem “entails knowing a public value when we see it,” which is relevant because there is no consensus about what constitutes public value in the literature. The motivation problem is related to the fact that “we never can be sure whether the public value-based policies and designs are truly motivated by good intent with and benevolent motives,” so that public and private interests can collide. Finally, these authors show that the instrument problem is a relevant issue because “the achievement and realization of public values require the appropriate and effective instrumentation and implementation,” since these three problems are interrelated. Otherwise, public value can be lost or destroyed (Bozeman, 2002; Jørgensen & Bozeman, 2002).

Third, scholars have claimed that a need exists to engage a myriad of stakeholders (namely public service users and citizens) via a co-production approach (Alford, 2016; Engen et al., 2020; Osborne, 2018, 2021), which can be conceptualized as “regular, long-term relationships between state agencies and organized groups of citizens, where both make substantial resource contributions” (Bovaird, 2007, p. 847). This is relevant because stakeholders' preferences can be diffuse and contradictory (Bovaird, 2005; Gomes et al., 2010;

Hartley et al., 2019), so that the public value view can be contested, since public value creation from some stakeholders' perspective may be public value destruction from others' outlook (Benington, 2015; Bryson et al., 2014). Then, scholars have posited that the adoption (lack) of a co-production approach can generate co-creation (co-destruction) of value in the delivery of public services (Engen et al., 2020). However, moving beyond the co-production approach, Osborne et al. (2021) argue that the public value creation assessment should consider not only the production of public services (co-production and co-design approaches), but also individuals' experience in the use or consumption of public services (co-experience and co-construction approaches) by public service users and citizens. In this vein, other scholars have also argued that adopting these stakeholder orientations contributes to enhancing public service performance provided either strictly by the government (Lazzarini et al., 2020) or by PPP arrangements (Guo & Ho, 2019), in turn determining their public value (Bozeman, 2019).

Finally, despite the relevance of Bozeman's,³ Moore's and Meynhardt's public values/value conceptualizations, their theory is focused on public value creation, and neglects the phenomenon of public value appropriation by multiple stakeholders, as well as the role of public-private arrangements (e.g., PPPs) in such phenomena. In this sense, a need exists to comprehend not only the value creation process, but also value appropriation by multiple stakeholders, since “value creation-appropriation” is an interactive process (Garcia-Castro & Aguilera, 2015), as we explore in the next section.

2.2.2 Public value creation and appropriation in PPPs: The role of public-private interactions

The interdependence of private and public interests in public-private arrangements has been considered a value creation criterion in public services delivery (Mahoney et al., 2009). Scholars have thus argued that such interdependence generates value-based relationships due to the multiple sources of public value creation. For instance, the complementarity between public and private resources can generate novel resource combinations, enabling efficiency enhancement due to innovation and quality improvements and, in turn, social benefits maximization (Kivleniece & Quelin, 2012). In this sense, positive implications stem from public involvement (Boyer et al., 2016) and private scope (Quelin et al., 2019) in such hybrid arrangements. For instance, public partners involvement can enhance the tailoring of PPP projects based on the public service users/citizens' needs and public interests (Boyer et al., 2016). On the other hand, the private partners engagement can benefit the PPPs' public service delivery by increasing their scope that “covers a set of sequential value-creating activities in

the partnership, such as asset design, building, leasing, and subsequent operations, all of which may require specific abilities to enable value creation” (Quelin et al., 2019, p. 833).

However, scholars have shown that public and private value should be balanced in PPPs' public service delivery. Cabral et al. (2019), for instance, argue that public value can be generated when such value is appropriated by multiple stakeholders indirectly affected by such public services (e.g., the increase of health quality of certain groups benefits the entire community, as well as public and private organizations as a consequence of lower employee absenteeism). They also show that private value can be created for stakeholders directly involved in public-private arrangements (e.g., public service users, private managers, and public managers) when such stakeholders appropriate benefits (e.g., better public services, economic rewards, and political capital) stemming from public service delivery (Cabral et al., 2019). However, some stakeholders can appropriate more value than others, so that public and private interests can collide if stakeholders are not properly managed in public-private interactions (Garcia-Castro & Aguilera, 2015; Paik et al., 2019).

In this context, Cabral et al. (2019) summarize some theoretical advances concerning the creation and appropriation of public value in public-private settings. They show that such phenomena are complex because: (i) “public value creation evolves endogenously” since the public value is a mutable/contestable construct that stems from a broad process in which multiple stakeholders (e.g., public/private actors and public services users/citizens) can benefit from public service delivery, even though its conceptualizations rarely represent a consensus; (ii) “public value can be discovered and created at multiple, interacting levels and horizons” once public and private organizations can align their interests and jointly interact to deliver better and effective public services, for example, overcoming market failure and benefiting the public services users and citizens as a whole; (iii) “some actors in private institutions pursue public value” because private actors may seek to achieve social legitimacy in a sense that is not directly related to economic-based incentives; (iv) “contractual arrangements can create novel value in public-private interactions” as it is possible to design governance arrangements in which resources and capabilities can be shared, and the decisions rights can be partitioned between public and private organizations so that the public and private interests can be conciliated, mitigating conflict of interests and enhancing mutual gain; (v) “resources must be governed effectively to generate value” since public and private organizations' resources and capabilities may vary and, in turn, one may be more effective than other in deploying their

resources; (vi) “the design of governance arrangements for deploying resources is a critical matter of strategy” as it encompasses collaboration, incentive schemes, decision rights allocation, and information exchange in the public–private arrangements; (vii) “complex governance arrangements such as PPPs carry substantial potential for value creation” because it creates incentives for the participating stakeholders to deploy their resources and capabilities in the public service delivery, generating both private and public value; (viii) “value appropriation resolves contention between private interests” once, for example, one stakeholder (e.g., a for-profit organization) may appropriate economic returns but also at the same time create public value via high-quality public service delivery whose benefits can be appropriated by other stakeholders (e.g., the improvement of social conditions by public service users and the community as a whole); and (ix) “value creation arises from collaboration, and is in that sense public” because collaborative arrangements can induce cooperation between public and private organizations whose participating stakeholders can benefit from the value creation process stemmed from the collaboration efforts (e.g., “enhanced social cohesion and improved capabilities of the parties”; Cabral et al., 2019, pp. 467–471).

Similarly, Lazzarini (2020) demonstrates that multiple stakeholders (e.g., beneficiaries, governments, supervisors, investors, and managers) can pursue the achievement of social value (e.g., broad social benefits) in public-private arrangements and at the same time appropriate either economic or social benefits. He claims that social value can be created by improving a certain target population's well-being via high-quality public service delivery, including non-vulnerable groups and the most vulnerable ones. Lazzarini provides a framework to operationalize social value creation as a function of broad social benefits minus their consequent costs and social value appropriation by such stakeholders (see Lazzarini, 2020). Lazzarini's framework goes beyond the strict economic perspective, since social value is its central indicator. In line with this, Quelin et al. (2017) place the social value perspective as the core dimension in public-private arrangements, but they also argue that the incurrence of costs to generate such a social value should be weighed against the expected benefits.

In this sense, scholars have argued that private actors (e.g., socially oriented investors) can pursue both economic and social performance by addressing social needs (Barnett & Salomon, 2006; Zahra & Wright, 2016). In line with this, recently Lazzarini et al. (2021) demonstrate that the pursuit of blended economic and social value creation in PPP settings can occur since the private partner can engage with the public partner to explore their

organizational complementarities and generate social benefits/impact in sectors where there are marketability constraints. However, by considering it is possible to arise some tensions between public and private actors (e.g., the possibility of conflict between social and economic objectives), these authors argue that PPPs can adopt “contractual mechanisms with explicit clauses linking payments to indicators of social value creation” (p. 117), mitigating such an issue and compensating the private partner according to the concrete evidence of social benefits generation to public service users and society (Lazzarini et al., 2021).

Hence, built on such public value and PPP literature, our conceptual framework is encompassed by public value outcomes to be considered by researchers and practitioners in PPP settings, which can individually or combined lead to public value creation (destruction) and appropriation (misappropriation; see Table 2.1).

Table 2.1. Public value outcome dimensions

Public Value Outcomes	Conceptualisations
<i>Broad social benefits</i>	The extent to which the PPPs generate high (low) social benefits to public service users and citizens via high-quality (low-quality) public services delivery, regarding (disregarding) the efficiency, efficacy, justness and fairness in its operation, which in turn can lead to public value creation (destruction) and appropriation (misappropriation).
<i>Citizens’ perspectives</i>	The extent to which the PPPs’ public service is delivered to public service users and citizens, regarding (disregarding) their rights, benefits, and prerogatives encompassed by state obligations and principles, which in turn can lead to public value creation (destruction) and appropriation (misappropriation).
<i>Individuals’ experience</i>	The extent to which the PPPs’ public service is delivered to public service users and citizens, regarding (disregarding) their individuals’ needs, preferences, and expectations, which in turn can lead to public value creation (destruction) and appropriation (misappropriation).

Based on Table 2.1, we argue that public value can be created (destroyed) to the extent that PPP arrangements achieve a high level (low level) of such public value outcomes. We also

argue that PPPs' public value creation can be diminished whenever public value appropriation is misbalanced between their multiple stakeholders. Our argument is built on the premise that some stakeholders can appropriate more value than others in the public service delivery (Garcia-Castro & Aguilera, 2015; Paik et al., 2019) and that the value creation from some stakeholders' view can be the value destruction from others' perspective (Benington, 2015; Bryson et al., 2014). For instance, the private partner may focus on appropriate economic returns (private value) in the public service delivery by reducing the public service's cost and quality (e.g., Hart et al., 1997), diminishing the creation of social benefits/public value to public service users/citizens. In such a case, it will represent an imbalance in the allocation/distribution of economic and social value among such participating stakeholders (Bacq & Aguilera, 2021). We then argue that public value can be appropriated (misappropriated⁴) to the extent that public value is distributed in a balanced (unbalanced) manner between PPPs' stakeholders. This is relevant because the balance between public and private value among the multiple stakeholders involved directly or indirectly in the public service delivery is a vital issue for PAM (Alford, 2016; Engen et al., 2020; Osborne, 2018, 2021). The following section discusses how some public value mechanisms can enhance public value creation and appropriation in PPP settings.

2.3 PUBLIC VALUE MECHANISMS IN PPPS

2.3.1 Information sharing as a public value mechanism in PPPs

The topic of information sharing has been treated as relevant in the public sector since it is associated with public accountability that encompasses the idea of transparency, fairness, democracy, responsiveness, and responsibility (Mulgan, 2000). Information sharing can be considered as a mechanism related to public institutional arrangements (Bovens, 2010), so that it can facilitate governmental control (Romzek & Dubnick, 1987), stakeholder monitoring (Grimmelikhuisen & Meijer, 2014), and stakeholder engagement in the delivery of public services (Douglas & Meijer, 2016). Thus, information sharing is considered a vital public value source (Bozeman, 2007; Douglas & Meijer, 2016; Jørgensen & Bozeman, 2007; Moore, 1995). However, although the role of information sharing has been addressed in the PPP literature (Forrer et al., 2010; Reynaers & Grimmelikhuisen, 2015; Shaoul et al., 2012; Stafford & Stapleton, 2017; Willems, 2014), the question of how such a phenomenon influences the PPPs' public value needs further exploration (Reynaers, 2014; Reynaers & de Graaf, 2014).

Some scholars have argued that information sharing can be facilitated in PPP settings by enhancing (i) internal transparency (i.e., the extent to which the PPP partners exchange information between them concerning the public partner's expectation and the private partner's outcome performance), (ii) external transparency (i.e., the extent to which the information about the PPP arrangements is available for public oversight and scrutiny by third parties, such as public service users, citizens, and external control agencies; Reig et al., 2021; Reynaers & Grimmelikhuijsen, 2015), and in turn (iii) democratic accountability (Page et al., 2015; Willems, 2014). On the other hand, other authors argue that PPPs have not often adopted good practices in information sharing (Shaoul et al., 2012; Stafford & Stapleton, 2017) and achieved internal and external transparency (Hodge, 2004; Reig et al., 2021), which can undermine their public value. Thus, according to Reynaers (2014, p. 48), information sharing practices should be “designed, implemented, and managed adequately during the entire contract period” to be an effective public value mechanism in PPP settings. In this sense, achieving information sharing requires effective internal and external transparency (Reig et al., 2021; Reynaers & Grimmelikhuijsen, 2015).

In line with this, Forrer et al. (2010) argue that information sharing has an idiosyncratic dynamic in PPPs to the extent that private partners are involved in government decision-making, so there is a possibility of conflicting interests between public and private partners. In this view, “PPP require controls and oversight both ex ante and ex post contract formation” (Forrer et al., 2010, p. 478) so that internal and external transparency play a relevant role in all PPPs' stages such as initial feasibility, procurement, and operating. They hence argue that information sharing facilitates oversight and creates safeguards to ensure public services' proper delivery in such hybrid arrangements, through the continuous monitoring of six PPP dimensions (i.e., risk; cost-benefit analysis; social and political impact; expertise; collaboration; and social-based performance), which can be enhanced via effective internal and external transparency. In this vein, a PPP's risk should be identified and allocated in a balanced way between public and private partners, which can be facilitated through the exchange of information between the partners. Otherwise, one partner may assume more risk than the other due to the partners' lack of reliable information about the PPP arrangements. The cost-benefit analysis should take into account the monetary expenditures and gains stemming from the partnership. Then, internal and external transparency is vital to allow the public partner and third parties to evaluate whether the PPPs have comparative advantages compared with alternative modes of provision (e.g., traditional public procurement), ensuring the public

interest. The social and political impact should be considered as a relevant dimension because the partnership affects social and environmental systems. In this sense, internal and external transparency is necessary to allow the evaluation of the PPPs regarding their generation of high (low) social benefits/impact to the public service users/citizens, which can enhance (undermine) political support for maintaining the PPP projects since politicians must follow the public interests. Expertise is another crucial dimension since public and private capabilities can influence the partnership's performance. Thus, the exchange of reliable information between the partners plays an essential role in enhancing both partners' capabilities to accomplish the PPPs' social aims. Collaboration should be considered in terms of effective leadership, communication between stakeholders, project management, and trust between the partners. In this view, sharing information can also enhance the cooperative efforts between the partners, improving the PPPs' public service delivery. Finally, they posit that the social-based performance should be monitored to promote PPP outcomes' continuous improvement. Thus, transparency is vital to enable public oversight and scrutiny by third parties regarding the public partner's expectation and the private partner's outcome performance to guarantee the PPPs' public interest and social aims (Forrer et al., 2010).

From this standpoint, Douglas and Meijer (2016) show that transparency is associated with public value since the higher the transparency is (completeness, coloring, and usability of information), the higher the public value achieved by public organizations. In their transparency framework, information completeness refers to quantitative and qualitative data's details and consistency. The coloring of information reflects the bias in which the information is presented (e.g., public entities may highlight good performance and omit bad performance). Finally, the usability of information concerns aspects such as accessible formatting and timeliness of data. Nonetheless, as shown by Reeves (2013), public accountability in excess may hinder public and private agents' flexibility in public-private interactions, so that an adequate level of public accountability must be considered.

Built on such conceptualizations, we thus argue that the presence (lack) of information sharing mechanisms can enable (hinder) the public value in PPPs when the above information sharing conditions are met (not met) individually or together (see Table 2.2).

Table 2.2. Information sharing conditions

Information Sharing Conditions	Conceptualisations
<i>Risk identification and allocation</i>	The extent to which complete, unbiased and useful information is available (unavailable) about the PPPs' risks, enabling (disabling) their effective identification and balanced allocation between the partners to safeguard the PPPs' social aims.
<i>Cost and benefit analysis</i>	The extent to which complete, unbiased and useful information is available (unavailable) about the PPPs' cost and benefits analysis, enabling (disabling) the assessment by the public partner and third parties regarding whether the PPPs have comparative advantages compared to alternative modes of provision (e.g., traditional public procurement) to guarantee the PPPs' social aims.
<i>Social and political impact</i>	The extent to which complete, unbiased and useful information is available (unavailable) about the PPPs regarding their generation of high (low) social benefits/impact to public service users/citizens, enabling (disabling) the political support for maintaining the execution of the PPP projects to ensure the PPPs' social aims.
<i>Expertise</i>	The extent to which complete, unbiased and useful information is available (unavailable) about the PPP arrangements, enabling (disabling) the exchange of reliable information between the partners, which can enhance (hinder) the partners' capabilities to accomplish the PPPs' social aims.
<i>Partnership collaboration</i>	The extent to which complete, unbiased and useful information is available (unavailable) about the PPP arrangements, enabling (disabling) trustful and effective cooperation between the partners, which can enhance (hinder) the PPPs' social aims.
<i>Social-based performance measurement</i>	The extent to which complete, unbiased and useful information is available (unavailable) about the PPPs' social-based performance measurement, enabling (disabling) the public oversight and scrutiny by third parties regarding the public partner's expectation and the private partner's outcome performance, which can enhance (hinder) the PPPs' social aims.

In sum, we argue that PVCA can be affected to the extent to which PPPs achieve such information sharing conditions. This expectation is summarized in Proposition 1:

Proposition 1. The better the information sharing in public-private arrangements is, the more likely it will be that public value creation and appropriation are enhanced by PPPs.

2.3.2 Public and private capabilities as a public value mechanism in PPPs

Many governments have involved the private sector in providing public services to benefit from private capabilities, since these capabilities can enhance public organizations' performance (Lazzarini et al., 2020; Mahoney et al., 2009; Moore, 1995). However, little is known about the factors that enable private capabilities in public-private interactions (Quelin et al., 2019). In this sense, some PAM and strategy scholars have investigated the role of public and private managers' capabilities in public-private arrangements' outcomes (e.g., Alonso & Andrews, 2019; Bruce et al., 2019; Cabral, 2017; Kivleniece & Quelin, 2012; Klein et al., 2013; Quelin et al., 2019). This is because individual skills are considered building blocks of organizational capability (Dosi et al., 2000; Winter, 2003). In this context, scholars have argued that private partners' capabilities complement the existing public partners' capabilities, and in turn, this facilitates the creation of novel public-private resource configurations (Kivleniece & Quelin, 2012; Klein et al., 2013; Rangan et al., 2006).

Some researchers have also shown that public managers' contract-management capabilities and private managers' execution capabilities can influence public-private arrangements' performance. This is because such capabilities can attenuate the negative contractual aspects (e.g., opportunism stemming from contractual incompleteness) and enhance the positive contractual aspects (e.g., trust and reconciliation of conflicting goals; Argyres & Mayer, 2007; Brown & Potoski, 2003; Cabral, 2017). Other scholars have argued that knowledge sharing of capabilities enhances public-private collaborations' performance outcomes due to the heterogeneous and complementary knowledge sharing between public and private partners (Alonso & Andrews, 2019; Piening, 2013). Public and private capabilities can then mitigate the lack of high-quality institutions and increase private investment in public-private collaboration (Quelin et al., 2019). Partnership capabilities are also deemed vital because they can increase relational and collaborative skills between public and private partners. The rationale is that such capabilities reduce the transactional costs and facilitate the achievement of aligned goals (public and private interests) in delivering the public service (Klein et al., 2013; Mahoney et al., 2009). Thus, stakeholder management capabilities are crucial to deal with multiple stakeholders' different needs and preferences (Cabral et al., 2019;

Gomes et al., 2010; Paik et al., 2019) and prevent principal-agent conflicts in public-private interactions (Smith et al., 2018) aiming to safeguard the social outcomes.

In this vein, we argue that the presence (lack) of public and private capabilities can enable (hinder) the public value in PPPs when the mentioned public and private capabilities are present (absent), individually or combined (see Table 2.3).

Table 2.3. Public and private capabilities conditions

Public and Private Capabilities Conditions	Conceptualisations
<i>Contract-management capabilities of public managers</i>	The extent to which the PPPs' public partner holds (does not hold) contract-management capabilities (e.g., the abilities to conduct tender, select appropriate suppliers, negotiate contracts, manage the relationships with multiple suppliers, and evaluate the private partner's behaviour in pursuing the public interest), enhancing (hindering) the PPPs' social outcomes.
<i>Execution management capabilities of private managers</i>	The extent to which the PPPs' private partner holds (does not hold) execution management capabilities (e.g., the abilities to deliver better-adjusted public services based on the needs of the public partners and the target beneficiaries, and effectively manage public-private collaboration by following the public interest), enhancing (hindering) the PPPs' social outcomes.
<i>Knowledge sharing capabilities</i>	The extent to which the PPPs' knowledge is shared (unshared) between the public and private partners, enabling (disabling) their heterogeneous and complementary capabilities, which in turn can enhance (hinder) the PPPs' social outcomes.
<i>Partnership capabilities</i>	The extent to which the PPPs' partners hold (do not hold) the effective partnership capabilities, enabling (disabling) the development of their relational and collaborative/cooperative skills, which can enhance (hinder) the PPPs' social outcomes.
<i>Stakeholder management capabilities</i>	The extent to which the public and private partners hold (do not hold) stakeholder management capabilities in the PPP arrangements, enabling (disabling) the management of the needs, preferences, and expectations of multiple stakeholders, which can enhance (hinder) the PPPs' social outcomes.

From this perspective, we also argue that PVCA can be influenced to the extent to which PPPs achieve such public and private capabilities. This expectation is summarized in Proposition 2:

Proposition 2. The better the public and private capabilities in public-private arrangements are, the more likely it will be that public value creation and appropriation are enhanced in PPPs.

2.3.3 Risk governance as a public value mechanism in PPPs

The risk allocation process is one of the most explored topics in the PPP literature, and this phenomenon has been treated especially in terms of risk identification and allocation strategies (Grimsey & Lewis, 2002; Hodge, 2004; Wang et al., 2018). On the other hand, scholars have shown that risk allocation alone is not sufficient to guarantee good performance of PPPs since such a contractual aspect should be complemented with other relational aspects (e.g., trust and conflict management; Warsen et al., 2019). The risk allocation between public and private partners poses some challenges in balancing cost and benefits in PPPs (Iossa & Martimort, 2012) since they often have long-term contracts subject to many types of risks (Bing et al., 2005). These, in turn, can have implications for public finance (Engel et al., 2013). PPPs also involve multiple types of risks due to their complex and incomplete contracts (Hart, 2003) and the possibility of contractual renegotiation (Guasch, 2018). In this vein, the demand risk has been considered one of the most critical risks in PPP projects (Athias, 2013), so that many governments have offered minimum revenue guarantees to the private partners (Engel et al., 2013; Vällilä, 2005). Scholars have argued that PPP partners should take risks according to their capabilities (Ng & Loosemore, 2007). Otherwise, in case of misallocation of risk, the public partner can assume an overly high-risk burden, leading to unforeseen financial expenses (Engel et al., 2013) and PPP failure (Ke et al., 2013). Thus, scholars have argued that risk management capabilities are necessary to minimize risk costs and generate value for money (Bloomfield, 2006; Grimsey & Lewis, 2005; Iossa & Martimort, 2012).

Nonetheless, scholars have deemed such risk management-dominant approach as linear and unsuitable to address the risk complexity that can emerge in the public service context, so that a need exists to move toward a more promising risk governance framework that can deal with the contested views of multiple stakeholders (Brown & Osborne, 2013; Renn, 2008). This is also the case of PPPs (Flemig et al., 2016), where risk transfer tends to be asymmetric

between public and private partners and other relevant stakeholders such as public service users and citizens (Ball et al., 2007). Scholars have often focused the PPPs' risk management concerning the economic sustainability of the partners (internal arrangements) and neglected the public service users and citizens perspectives (external environment; e.g., Engel et al., 2013; Grimsey & Lewis, 2002, 2017; Iossa & Martimort, 2012; Välilä, 2005), which can generate risk–benefit imbalance between public service providers and users/citizens, hindering the PPPs' social value. In this vein, Renn (2008) and Brown and Osborne (2013) claim that the risks must be explicitly identified by considering not only the sustainability of the public service providers (organizational level), but also the public service users (individual level) and the community as a whole (behavioral level), aspects that are directly and indirectly affected by the public service delivery. Second, according to these authors, the risk allocation must effectively consider not only who is more prepared to bear each type of risk, but also who will assume what level of risk for what type of potential benefits. Third, they claim that the public service risks must be seen not only as a negative condition to be eliminated, reduced, or avoided. Instead, they argue that it must be socially constructed via dialogue between the multiple stakeholders involved in public service delivery. Fourth, these authors contend that the risk analysis process must be considered in a nonlinear and multidirectional way to shift uncertainty into manageable risks by addressing possible solutions to each type of risk, instead of taking a linear and unidirectional approach. Finally, they urge a more transparent risk negotiation approach. The risks of public services and their consequent benefits must be negotiated among the multiple stakeholders directly and indirectly affected by public service delivery (Brown & Osborne, 2013; Renn, 2008). Thus, adopting such a transparent risk negotiation approach in PPP settings can balance risk-benefit among public service providers and users/citizens, enhancing the PPPs' social value.

In this sense, we argue that the presence (lack) of risk governance can enable (hinder) the public value in PPPs when the above risk governance conditions are met (not met), individually or collectively (see Table 2.4).

Table 2.4. Risk governance conditions

Risk Governance Conditions	Conceptualisations
<i>Explicit risk identification by concerning multiple stakeholders</i>	The extent to which the PPPs' risk is explicitly identified (unidentified) regarding the public service users/citizens beyond the economic sustainability of the public and private partners, which can enhance (hinder) the PPPs' social value.
<i>Balanced risk allocation amongst multiple stakeholders</i>	The extent to which the PPPs' risk-benefit is balanced (unbalanced) amongst public service providers and users/citizens, which can enhance (hinder) the PPPs' social value.
<i>Risk minimisation as an element of risk governance rather than focused orientation</i>	The extent to which the PPPs' risk minimisation process is not only seen (only seen) as a narrowed approach to minimise the risks and their consequent costs, enabling (disabling) the dialogue amongst the partners and public service users/citizens, which can enhance (hinder) the PPPs' social value.
<i>Risk analysis as an element of risk governance rather than focused orientation</i>	The extent to which the PPPs' risk analysis process is not only seen (only seen) as a narrowed way to shift uncertainty into manageable internal risks (e.g., the risks implication on the partners), enabling (disabling) the PPPs to consider its external risks (e.g., the risks implication on the public service users/citizens), which can enhance (hinder) the PPPs' social value.
<i>Transparent risk negotiation amongst multiple stakeholders</i>	The extent to which the PPPs' risks are negotiated (unnegotiated) amongst their partners and public service users/citizens, enabling (disabling) the agreement of possible resolution concerning their contested views and different needs, preferences, and expectations, which can enhance (hinder) the PPPs' social value.

In such a context, we argue that PVCA can be shaped to the extent to which PPPs achieve such risk governance conditions. This expectation is summarized in Proposition 3:

Proposition 3. The better the risk governance among the partners and other relevant stakeholders involved in public-private arrangements is, the more likely it will be that public value creation and appropriation are enhanced in PPPs.

2.3.4 Stakeholder orientation as a public value mechanism in PPPs

Scholars have shown that stakeholder orientation (i.e., the extent to which public initiatives consider the views of both public service providers and users/citizens) is a necessary condition for achieving high-performance outcomes (Lazzarini et al., 2020) and the effectiveness of public service delivery (Osborne & Strokosch, 2021). Scholars have also claimed that the views, ideas, and suggestions of public service users/citizens are relevant inputs so that their engagement in the public service delivery can generate public value co-creation (i.e., the extent to which public service providers and users/citizens and other relevant stakeholders integrate resources to co-create value) or otherwise co-destruction (i.e., when such stakeholders fail to integrate resources in a mutually beneficial way; Alford, 2016; Brandsen et al., 2018; Echeverri & Skålén, 2011; Engen et al., 2020; Osborne, 2018, 2021). In this sense, public value co-creation arises when service providers and users/citizens interact in the public service delivery (Grönroos, 2017).

Thus, scholars have drawn attention to the need for adopting a holistic framework to evaluate the value creation in the public service delivery regarding not only its production process (i.e., co-design and co-production) but also its use/consumption process (i.e., co-experience and co-construction) regarding the public service users/citizens' needs, preferences, and expectations (Osborne et al., 2021). In this vein, the co-design approach concerns the public service users/citizens' prior experiences and knowledge as a source to improve the performance and innovation of public service delivery (Donetto et al., 2015; Dudau et al., 2019; Trischler et al., 2019). The co-production approach regards the active involvement of public service users/citizens in the production/management of public service delivery as a cornerstone to enhance its outcomes (Alford, 2016; Osborne et al., 2018; Steen et al., 2018). The co-experience approach encompasses the “value-in-use” and the extent to which the public service delivery generates positive (negative) experience and, in turn, creation (destruction) of public value concerning the public service users/citizens' satisfaction (Osborne et al., 2021, p. 9). Finally, the co-construction approach contemplates the “value-in-context” and how public service provision affects the public service users/citizens' lives regarding their present and future social and economic needs (Osborne et al., 2021, pp. 9–10).

However, when it comes to PPP projects, scholars have shown that the engagement of stakeholders (e.g., public service users/citizens) in such public-private arrangements is often hindered due to (i) the multiple rules that restrict the involvement of such stakeholders in PPPs'

tendering process (Willems, 2014), (ii) the PPPs' tendering and negotiating process focus often on the interaction between public authority and private bidders (Savas, 2000), and (iii) the participation of such stakeholders in PPPs' operational phase can often only imply in minor changes since the structure of PPP projects is often deeply determined after its tendering process (Weihe, 2008). Notwithstanding, recently scholars have revealed that it is possible to involve citizens and societal groups in PPPs' decision-making process, which in turn can enhance its project innovation, mainly when the PPP contracts are flexible enough to allow the involvement of other stakeholders beyond the partners, and there is a trustful relationship among all of them (Nederhand & Klijn, 2019). In such a scenario, scholars have demonstrated that public service users/citizens' perspectives can influence the support for and legitimize of PPP projects (Guo & Ho, 2019) and highlighted “the lack of internal and external stakeholder involvement and alignment as the main cause for problems across PPPs” (Roehrich et al., 2014, p. 115). Scholars have also shown that PPPs are often subject to agency problems (e.g., conflicts of interest and opportunistic behavior) during their stages (e.g., initial feasibility, procurement, and operating) in case of misalignment of preferences/interests and lack of common identity among the partners and public service users/citizens (Smith et al., 2018). Thus, although involving public service users/citizens in PPP arrangements can be challenging⁵ (Guo & Ho, 2019; Nederhand & Klijn, 2019; Willems, 2014), the adoption of co-design and coproduction approaches in PPP settings can improve their contract design/execution and, in turn, meet the needs of their target beneficiaries (co-experience and co-construction). In this view, by considering that the needs/interests of public service providers and users/citizens may conflict (Bovaird, 2005; Gomes et al., 2010; Hartley et al., 2019), we argue that the effective adoption of stakeholder orientation in PPP settings can balance their needs/interests and, in turn, enhance the PPPs' public value creation and appropriation.

Then, we argue that the presence (lack) of stakeholder orientation can enable (hinder) the public value in PPPs when the above conditions are present (absent), individually or combined (see Table 2.5).

Table 2.5. Stakeholder orientation conditions

Stakeholder Orientation Conditions	Conceptualisations
<i>Co-design</i>	The extent to which the PPPs adopt (neglect) the public service users/citizens' prior experiences and knowledge as a source in its public service design, which can enhance (hinder) the PPPs' social benefits delivery.
<i>Co-production</i>	The extent to which the PPPs engage (disengage) the public service users/citizens in the production/management of its public service delivery, which can enhance (hinder) the PPPs' social benefits delivery.
<i>Co-experience</i>	The extent to which the PPPs consider (neglect) the public service users/citizens' experience in the use/consumption of its public service delivery, enabling (disabling) their positive experiences and satisfaction, which can enhance (hinder) the PPPs' social benefits delivery.
<i>Co-construction</i>	The extent to which the PPPs positively (negatively) affect the public service users/citizens' needs, experiences and expectations in the use/consumption of public service delivery, which can enhance (hinder) the PPPs' social benefits delivery.

Thus, we also argue that PVCA can be affected to the extent to which PPPs achieve such stakeholder orientation. This expectation is summarized in Proposition 4:

Proposition 4. The better the stakeholder orientation in public-private arrangements is, the more likely it will be that public value creation and appropriation are enhanced in PPPs.

2.3.5 The interplay of public value mechanisms in PPPs

This section briefly addresses some of the potential moderating and enabling roles of the above public value mechanisms on each other. For that, we consider some of PPPs' premises, as follows. PPPs often have incomplete contracts (Hart, 2003) and complex contractual arrangements (Brown et al., 2010), which challenge their public service delivery. PPPs then can present asymmetric information among the public and private partners and other stakeholders, which can lead to conflicts of interest and opportunistic behaviour (Smith et al., 2018). PPPs are also built on public-private interactions in which the needs, preferences, and

expectations of these multiple actors should be adequately managed to ensure the PPPs' public value (Cabral et al., 2019; Lazzarini, 2020; Reynaers, 2014).

Thus, we first address the potential influence of PPPs' information sharing on their risk governance. Scholars have argued that the lack of transparency negatively influences PPPs' risk management (Hood et al., 2006) and asymmetric information between PPPs' stakeholders can lead to a misbalance in risk allocation and increase its costs (Ball et al., 2007; Grimsey & Lewis, 2002; Iossa & Martimort, 2012; Väililä, 2005). Considering that information sharing increases information's completeness, coloring, and usability (Douglas & Meijer, 2016), we argue that PPP risks can be effectively identified and allocated with more balance among the public and private partners and other relevant stakeholders (e.g., public service users/citizens) in case of the PPPs adopt adequate information sharing mechanisms. This is because information sharing can protect PPPs' stakeholders from asymmetric information (Reynaers, 2014; Reynaers & Grimmelikhuijsen, 2015; Willems, 2014) and from assuming a burden of risks beyond what they can support (Iossa & Martimort, 2012). Thus, transparent risk negotiation among all relevant stakeholders (Brown & Osborne, 2013; Renn, 2008) can be facilitated in PPPs, allowing the risk–benefit balancing among the partners and public service users/citizens. We hence argue that the presence (lack) of information sharing in adequate proportion can enhance (hinder) the risk governance, and in turn, enhance (hinder) PPPs' public value. This expectation is summarized in Proposition 5:

Proposition 5. The better the information sharing in public-private arrangements is, the better will be their risk governance, which in turn will enhance the public value of PPPs.

Second, we address the role of PPPs' information sharing in their public and private capabilities. Asymmetric information due to the lack of transparency and reliable information exchange between PPPs' stakeholders can also lead to imbalance between public and private capabilities, which can hinder the achievement of PPP aims (Alonso & Andrews, 2019; Quelin et al., 2019). In this vein, balancing public and private capabilities is vital since it can be directly associated with the high-performance outcomes of public initiatives (Lazzarini et al., 2020). Thus, the availability of more complete, reliable and useful information (Douglas & Meijer, 2016) about all PPP phases (Reynaers, 2014; Reynaers & Grimmelikhuijsen, 2015; Willems, 2014), can facilitate the achievement of more balanced PPP capabilities between public and private partners. This is relevant, since a balance between public and private capabilities can

mitigate opportunistic behaviour provoked by the lack of knowledge of PPPs' arrangements (Smith et al., 2018). For instance, if one partner has more knowledge about the PPP arrangements than the other, the former may act in their own interest by exploring the incompleteness of PPP contracts, which can undermine the PPPs' public value. Thus, we argue that the presence (lack) of information sharing in adequate proportion can enhance (hinder) public and private capabilities and in turn enhance (hinder) PPPs' public value. This expectation is summarized in Proposition 6:

Proposition 6. The better the information sharing in public-private arrangements is, the better balanced their public and private capabilities will be, which in turn will enhance the public value of PPPs.

Third, we address the potential impact of PPPs' public and private capabilities on their risk governance. PPPs' risk transfer tends to be asymmetric between public and private partners and other relevant stakeholders (e.g., public service users/citizens) due to a lack of knowledge about PPPs' risks (Ball et al., 2007). Thus, by achieving effective public and private capabilities in public-private arrangements (Argyres & Mayer, 2007; Brown & Potoski, 2003; Cabral, 2017) related to risks (Grimsey & Lewis, 2002), we argue that PPP risks can also be effectively identified and more evenly allocated among their stakeholders. This is relevant because such capabilities can also protect stakeholders from asymmetric information and in turn opportunistic behavior (Smith et al., 2018), which can undermine the PPPs' public value, as previously discussed. Thus, transparent risk negotiation among all relevant stakeholders (Brown & Osborne, 2013; Renn, 2008) can be facilitated by balanced capabilities in PPP settings. We thus argue that the presence (lack) of balanced public and private capabilities can enhance (hinder) the risk governance and in turn enhance (hinder) PPPs' public value. This expectation is summarized in Proposition 7:

Proposition 7. The more balanced public and private capabilities in public-private arrangements are, the better will be their risk governance, which in turn will enhance the public value of PPPs.

Fourth, we address the potential influence of PPPs' stakeholder orientation on their risk governance. We argue that adopting stakeholder orientation (i.e., co-design, co-production, co-experience, and co-construction approach; e.g., Alford, 2016; Dudau et al., 2019; Osborne et al., 2021; Trischler et al., 2019) can mitigate the PPPs' risks regarding the production and

use/consumption of the PPPs' public service delivery. This is because all relevant stakeholders' needs, preferences, and expectations (e.g., regarding not only the public services providers but also the public service users/citizens) will be considered in the PPPs' risk allocation and management. From this perspective, we claim that a more promising risk governance approach (Brown & Osborne, 2013; Renn, 2008) can be strengthened in PPP settings. We then argue that the presence (lack) of effectively stakeholder orientation can enable (disable) the risk governance, and in turn, enhance (hinder) PPPs' public value. This expectation is summarized in Proposition 8:

Proposition 8. The better the stakeholder orientation in public-private arrangements is, the better their risk governance will be, which in turn will enhance the public value of PPPs.

Finally, built on this conceptual framework, we summarize a PVCA framework regarding PPP contexts, as shown in Figure 2.1.

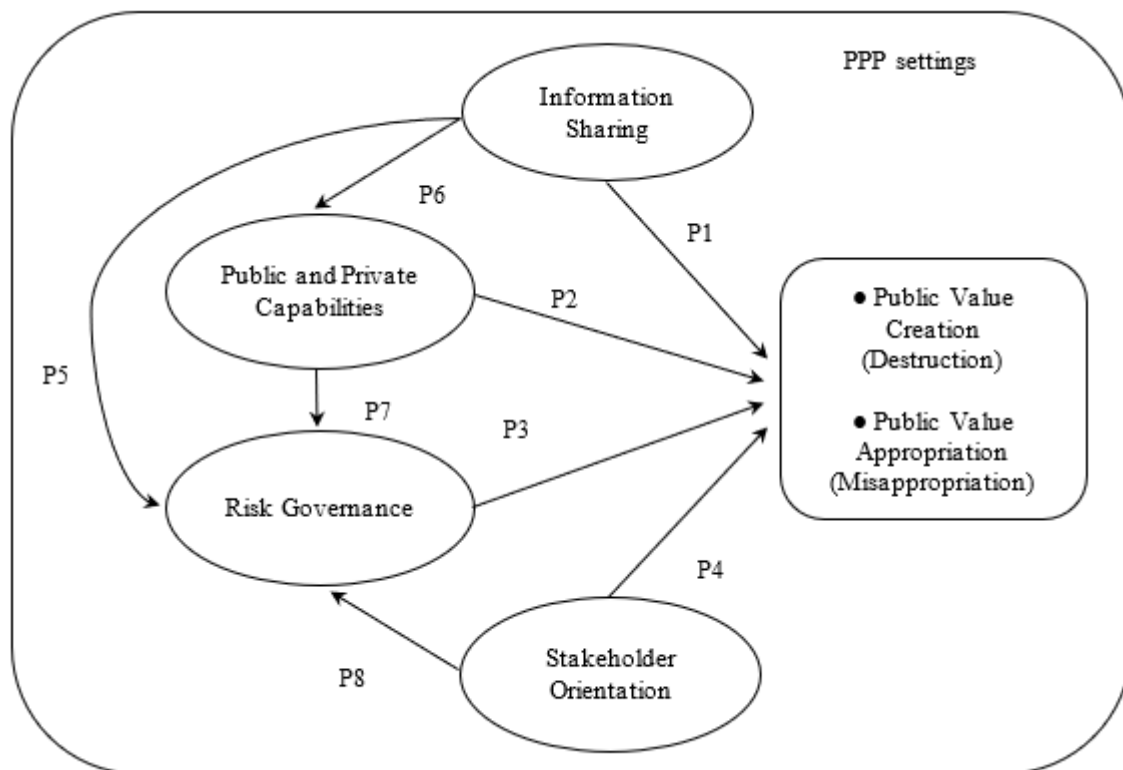


Figure 2.1. Public value creation and appropriation (PVCA) framework regarding PPP settings

2.4 CONCLUSION

Our study contributes to the ongoing debate on public value creation and appropriation in public-private arrangements (Cabral et al., 2019; Lazzarini, 2020; Reynaers, 2014; Reynaers & De Graaf, 2014) by presenting a novel conceptual framework concerning public value creation (destruction) and appropriation (misappropriation) in public-private arrangements. We highlight a need to evaluate PPPs in terms of public value creation to public service users/citizens beyond the economic performance-dominant approach. The balance between economic and social value creation in public-private arrangements is possible since the former can serve as compensation/incentive to achieve the latter (Barnett & Salomon, 2006; Lazzarini et al., 2021; Zahra & Wright, 2016). Notwithstanding, the social perspective must be considered a core dimension in PPP settings where public-private interactions play a relevant role, and conflicting goals/interests may arise among their multiple stakeholders (Guo & Ho, 2019; Quelin et al., 2017). Thus, it is necessary to safeguard the PPPs' public interest and social aims, which can be ensured by adopting several public value mechanisms, as we discussed. Consistent with a plural approach (Osborne, 2006), our framework presents some insights on how the presence (absence) of different public value mechanisms conditions can enhance (hinder) the PPPs' public value outcomes.

Our study underscores some opportunities for further research. Scholars can measure the degree of such public value mechanisms conditions (e.g., the intensity of each information sharing condition) and public value outcomes (e.g., the intensity of social benefits generation) is present in PPP settings. From this perspective, scholars can evaluate the degree in which public service users and citizens may benefit or not from PPPs' public service delivery. For that, scholars can adopt customized scales (e.g., rubrics) whose points in the scale represent different levels of each analyzed construct (see Lazzarini et al., 2020; Oakleaf, 2009). In this sense, scholars can collect qualitative data (e.g., through in-depth interviews with relevant stakeholders and official reports analysis) and quantitative data about the PPP arrangements (e.g., differences-in-differences estimation about social benefits generation/impact) so that triangulation can be applied to increase data reliability (Jick, 1979). By considering that such rubrics allow the comparability across distinct responses regarding the same scale, scholars can empirically investigate how different configurations (Fiss, 2007, 2011) of these public value mechanisms conditions (e.g., individually and combined) can lead to the same and different outcomes (i.e., high and low public value). To do so, scholars can adopt fuzzy-set qualitative

comparative analysis (fsQCA), particularly when small-N and intermediate-N research design is only available (see Ragin, 2000, 2008). Additionally, as to the practical implications of our study, we contend that practitioners working with these hybrid arrangements can adopt our framework as a guideline to improve the PPPs' design, implementation, and evaluation and, in turn, ensure its social-based performance.

However, our framework has some limits because it does not address all possible public value mechanisms embedded in PPPs. In this respect, based on the proposed set of empirically testable propositions, scholars can explore other public value mechanisms. Although our approach does not exhaust all methodological possibilities, it is a potential starting point for further empirical research to test, refine, and develop our conceptual framework.

ENDNOTES

¹ In the PAM literature, social value is also used as a synonym of public value (see Huijbregts et al., 2021).

² In Section 2.2.1, we briefly discuss the difference between public values/value conceptualizations in the PAM field and how they are related. However, it is worth highlighting that our framework focuses on the concept of public value since it relates to the outputs and outcomes of public service delivery.

³ Although Jørgensen and Bozeman (2007) claim that the government sphere is not the only source of public value, they do not discuss the private sector's role in creating and appropriating public value.

⁴ We also use this term to refer to the possibility of misappropriation of public resources (see Hartley et al., 2019).

⁵ The participation of public service users/citizens can also be challenging in traditional public service provision (Strokosch & Osborne, 2020).

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3 THE DRIVERS OF PUBLIC VALUE CREATION AND APPROPRIATION IN PUBLIC-PRIVATE PARTNERSHIPS: A FUZZY-SET APPROACH

ABSTRACT

Governments around the world have implemented public-private partnerships (PPPs) to increase the performance of their public services. However, the outcomes of PPPs are controversial or mixed, giving rise to the need to examine their real performance advantages, namely public value outcomes. We investigate the outcome of PPP arrangements in different configurations (i.e., information sharing, public and private capabilities, risk governance, and stakeholder orientation), and how public value may be created and appropriated. We adopt fuzzy-set qualitative comparative analysis (fsQCA), using a multiple-case comparative study of 24 Brazilian PPP projects. Our findings reveal that different configurations can lead to positive public value outcomes through two distinct paths: facilitating public value creation and mitigating the misappropriation of public value. Public capabilities are enhanced by information sharing with the private partner, while private capabilities, risk governance, and stakeholder orientation all contribute. In contrast, in the absence of public capabilities, private capabilities can be supported by information sharing with the public partner, and risk governance or stakeholder orientation exert a positive influence. Our findings contribute to the literature by operationalizing a framework for public value creation and appropriation and showing how PPP arrangements can be successful if they employ paths associated with high public value outcomes.

3.1 INTRODUCTION

Governments around the world have implemented public-private partnerships (PPPs) as an alternative to traditional public procurement, in an effort to increase the performance of their public services. However, public administration and management (PAM) scholars have recently demonstrated that the performance of PPPs may be illusory (Mollinger-Sahba et al., 2020) and mixed (Vecchi, Tanese, et al., 2022). Recently, scholars have discussed the future of PPPs because of the equivocal experiences of some governments (Vecchi, Tanese, et al., 2022). Scholars have also argued that governments should examine the real performance of PPPs before implementing such initiatives, to mitigate project failure (see Verweij et al., 2022). PPPs can outperform traditional public procurement (Dos Reis & Cabral, 2022; Verweij & van Meerkerk, 2020), but may deliver poor performance if arrangements are not effectively

implemented (e.g., O'Shea et al., 2019). PAM scholars have shown how many determinants can lead to outstanding economic-based performance in PPPs, or lead to their failure (e.g., Grimsey & Lewis, 2017; Hodge & Greve, 2017; Koppenjan et al., 2022; Vecchi, Cusumano, et al., 2022; Warsen et al., 2019).

The PAM literature lacks empirical evidence regarding the social performance of PPPs. Scholars have argued that the evaluation of PPPs often focuses on operational efficiency and economic performance criteria, representing a narrow view of PPP performance that neglects social outcomes (Guo & Ho, 2019; Quelin et al., 2017; Vecchi & Casalini, 2019). Economic performance is important but only indicates one aspect of PPP performance. Scholars have recently argued that PPPs must incorporate new approaches such as ESG (environment, social, governance), SDG (sustainable development goals), and impact investment, "contribute to solving wicked problems while generating societal value" (Vecchi, Tanese, et al., 2022, p. 337). Other scholars have identified the need for further exploration of a perspective encompassing public value creation and appropriation in PPPs (Cabral et al., 2019; Dos Reis & Gomes, 2022; Lazzarini, 2020; Reynaers, 2014; Vakkuri & Johanson, 2020; Vecchi, Casalini, et al., 2022).

This topic is important because PPPs may perform well economically, but not necessarily generate public value and social benefits (Guo & Ho, 2019). Public value creation for public service users "is not the purview of public service organizations solely but occurs within dynamic public service ecosystems" and "occurs across the institutional/societal, organizational, local milieu, individual, and belief levels of these ecosystems" (Osborne et al., 2022, p. 1). Tensions between public and private values can destroy public value, and some stakeholders may seek to achieve private value at the cost of public value (Cui & Osborne, 2022). Some stakeholders may appropriate more value than others in public-private interactions (Bacq & Aguilera, 2021; Garcia-Castro & Aguilera, 2015; Paik et al., 2019).

To fill this empirical gap in the research literature, we address the following research questions: (i) How can PPP projects achieve high or low social public value through different configurations?; and (ii) How can public value creation and appropriation occur in PPP arrangements due to these configurations? We examine the phenomena empirically by operationalizing the conceptual framework of Dos Reis and Gomes (2022). We investigate PPP configurations in five public value conditions (i.e., information sharing, public and private capabilities, risk governance, and stakeholder orientation).

We use the Brazilian PPP market as an example for empirical research into these questions. We adopt fuzzy-set qualitative comparative analysis (fsQCA) to study these configurations using a multiple-case comparative study of 24 Brazilian PPP projects. Our findings reveal how some configurations can lead to positive public value outcomes through two distinct paths: facilitating public value creation and mitigating public value misappropriation. Public capabilities may be supported by information sharing with the private partner, while private capabilities, risk governance, and stakeholder orientation also contribute. In contrast, in the absence of public capabilities, private capabilities can be supported by information with the public partner, and risk governance or stakeholder orientation exert a positive influence. Our findings contribute to the literature by operationalizing a framework for public value creation and appropriation, and showing how PPP arrangements can be successful.

3.2 CONCEPTUAL FRAMEWORK: CREATION AND APPROPRIATION OF PUBLIC VALUE IN DIFFERENT CONDITIONS

This section briefly discusses how key conditions (i.e., information sharing, public and private capabilities, risk governance, and stakeholder orientation) can influence public value creation and appropriation in PPPs. We first conceptualize these phenomena and the conditions drawing on the literature of public administration and management, strategy, and economics.

3.2.1 Public value outcomes in PPP settings

Public value (PV) studies have been widely undertaken as a response to New Public Management (NPM) and to deal with the new challenges in the PAM field (Bryson et al., 2014; Huijbregts et al., 2021). NPM has a narrow focus on the efficiency and efficacy of public bureaucracies. In contrast, PV is embedded in the New Public Governance (NPG) approach (Osborne, 2006, 2010). It has a broad emphasis on how public value is created for public service users and citizens, beyond the internal performance of public bureaucracies (Alford & O'Flynn, 2009; Bryson et al., 2014; O'Flynn, 2007; Osborne, 2006, 2021; Stoker, 2006). Osborne et al. (2021) argue that the assessment of public value creation must take into account the experiences of public service users. Osborne et al. (2022) claim that creating public value is not the purview of public organizations alone, since it occurs in dynamic public service ecosystems that involve institutional/societal, organizational, local milieu, individual, and belief levels. Scholars have argued for a redefinition of PPPs in NPG, to capture "the

increasingly fragmented and uncertain nature of public management in the 21st century" (Casady et al., 2020, p. 162).

Scholars have argued that PPPs create public value through the interdependence of public and private interests (J. T. Mahoney et al., 2009) and the complementary effect between public and private capabilities generating novel resource combinations (Kivleniece & Quelin, 2012). For example, public partners tailor PPP projects to meet the needs and expectations of public service users (Boyer et al., 2016), while private partners can enhance specific skills, such as asset design, building, leasing and operating (Quelin et al., 2019). Scholars have demonstrated that PPPs combine economic and social incentives (Kivleniece et al., 2017), and that private actors (e.g., socially oriented investors) can simultaneously pursue blended economic and social goals in PPP settings (Barnett & Salomon, 2006; Lazzarini et al., 2021; Zahra & Wright, 2016). However, tensions between public and private values may emerge, and some actors may seek to achieve private value at the expense of public value (Cui & Osborne, 2022). PPP stakeholders may also seek to appropriate more value than others (Bacq & Aguilera, 2021; Garcia-Castro & Aguilera, 2015; Paik et al., 2019), which can lead to public value destruction.

We adopt the conceptual framework of Dos Reis and Gomes (2022) in which public value creation (destruction) occurs to the extent that PPP projects deliver a high (low) degree of social benefit (Cabral et al., 2019; Lazzarini, 2020; Quelin et al., 2017). We also consider that public value appropriation (misappropriation) occurs when social benefits are allocated/distributed in a balanced (unbalanced) between PPP stakeholders (Bacq & Aguilera, 2021; Garcia-Castro & Aguilera, 2015; Paik et al., 2019). Public value outcomes (i.e., creation/destruction and appropriation/misappropriation) can be impacted by different public value conditions (i.e., information sharing, public and private capabilities, risk governance, and stakeholder orientation).

3.2.2 Information sharing

Information sharing is an important source of public value (Bozeman, 2007; Douglas & Meijer, 2016; Moore, 1995) and a necessary condition to achieve high performance and public value in PPPs (Karaba et al., 2022; Reynaers, 2014). Public and private interests may conflict in public-private interactions (Bryson et al., 2017). Scholars have argued that information sharing is crucial to ensure internal transparency so that public partners can monitor private partners'

behavior. In addition, scholars have posited that information sharing can enhance external transparency and safeguard public oversight by public service users and external auditors (Reig et al., 2021; Reynaers & Grimmelikhuijsen, 2015).

Information-sharing conditions related to risk, cost-benefit analysis, social and political impacts, expertise, collaboration, and social outcomes (Forrer et al., 2010) combined with complete, unbiased, and useful information (Douglas & Meijer, 2016) can lead to public value creation and suitable appropriation in PPP settings (Dos Reis & Gomes, 2022). Information sharing allows the allocation of risk between public and private partners in a balanced manner, since it prevents one partner from assuming more risk than the other due to asymmetric information. Information sharing also facilitates the cost-benefit analysis of PPP projects, and their evaluation against traditional public procurement. The social and political impact can be enhanced by information sharing as it allows the assessment of outcomes, enabling political support for projects with high social benefits. Information sharing allows the exchange of reliable information between public and private partners to guarantee the achievement of social goals. It also enhances trust and effective cooperation between public and private partners. Finally, information sharing facilitates the evaluation of social benefits (Forrer et al., 2010).

3.2.3 Public and private capabilities

Public capabilities are necessary to generate high performance and public value in public initiatives (Avellaneda, 2022; Lazzarini et al., 2020; Moore, 1995). Private capabilities must be complementary to public capabilities, to ensure high-quality public service delivery in PPPs (Alonso & Andrews, 2019; Kivleniece & Quelin, 2012). Governments implement PPP projects to benefit from private capabilities in public service delivery (Klein et al., 2013; Quelin et al., 2019). As individual skills are the building blocks of organizational capability (Winter, 2003), scholars have also argued that the capabilities of public and private managers are sources of value creation in developing constructive partnerships in PPPs (Rangan et al., 2006).

Scholars have argued that the presence of public and private capabilities in contract management, execution management, knowledge sharing, partnership, and stakeholder management (Alonso & Andrews, 2019; Argyres & Mayer, 2007; Brown & Potoski, 2003; Cabral, 2017; Cabral et al., 2019; Gomes et al., 2010; Klein et al., 2013; J. T. Mahoney et al., 2009; Paik et al., 2019; Piening, 2013; Quelin et al., 2019) can lead to public value creation and appropriation in PPP arrangements (Dos Reis & Gomes, 2022). Public managers' contract-

management capabilities (Argyres & Mayer, 2007; Brown & Potoski, 2003; Cabral, 2017) can facilitate the reconciliation of conflicting goals in public-private interactions and guide the private partner to achieve social outcomes. On the other hand, the private managers' execution management capabilities (Argyres & Mayer, 2007; Brown & Potoski, 2003; Cabral, 2017) are also important to ensure that the public services will be delivered in the public interest, meeting the needs of public service users. Knowledge-sharing capabilities (Alonso & Andrews, 2019; Piening, 2013) allow the exchange of heterogeneous and complementary skills between public and private partners. Partnership capabilities (Klein et al., 2013; J. T. Mahoney et al., 2009; Quelin et al., 2019) can foster relational and collaborative alliances between public and private partners, aligning public and private interests in service delivery. Stakeholder management capabilities (Cabral et al., 2019; Gomes et al., 2010; Paik et al., 2019) are vital to managing the needs, preferences, and expectations of multiple actors, mitigating principal-agent conflicts, and safeguarding the social outcomes of PPP projects.

3.2.4 Risk governance

Risk governance is a more promising approach than risk management. The latter is linear, focused on the organization's internal aspects, and unable to deal with the risk complexity involved in public service delivery (Brown & Osborne, 2013; Renn, 2008). The PAM literature treats risk allocation and management as one of the most important PPP dimensions (Wang et al., 2018) since public-private arrangements may have incomplete contracts (Hart, 2003) and are subject to a long-term contract involving many types of risk (Bing et al., 2005). However, PPP risk-related studies have emphasized internal arrangements (i.e., the risk implications for partners) and neglected the external environment (i.e., the risk implications for public service users) (Engel et al., 2013; Grimsey & Lewis, 2002; Iossa & Martimort, 2012). The risk governance approach takes into account the views of public service users to go beyond the contested views of public service providers (Brown & Osborne, 2013; Renn, 2008). Scholars have suggested adopting the risk governance approach in PPP settings (Dos Reis & Gomes, 2022), mainly because PPP risks tend to be asymmetric among their stakeholders (Ball et al., 2007).

From this perspective, scholars have contended that risk governance (i.e., explicit risk identification, balanced risk allocation, risk minimization and analysis, and transparent risk negotiation; Brown & Osborne, 2013; Renn, 2008) can lead to public value creation and appropriation in PPP projects (Dos Reis & Gomes, 2022). Explicit risk identification is vital to

achieving the social aims of PPPs. Balanced risk allocation can be accomplished in PPPs, sharing the risks and benefits among the partners and public service users. Risk minimization allows dialogue among the partners and public service users, enhancing social value. Risk analysis is based on a nonlinear and multi-directional method, incorporating both internal arrangements and the external environment. Finally, transparent risk negotiation among the partners and public service users permits the reconciliation of their contested views and different needs (Brown & Osborne, 2013; Renn, 2008).

3.2.5 Stakeholder orientation

Stakeholder orientation is a key condition for effective creation of public value in public service delivery, where the needs of public service users must be considered (Osborne, 2021; Osborne & Strokosch, 2021, 2022). Stakeholder orientation facilitates the interaction and integration of resources between public service users and providers, enabling value co-creation. Otherwise, co-destruction of value can occur (Alford, 2016; Brandsen et al., 2018; Echeverri & Skålén, 2011; Engen et al., 2020; Osborne, 2018, 2021). By recognizing that the needs of public service providers and users may conflict (Bovaird, 2005; Gomes et al., 2010; Hartley et al., 2019), a stakeholder orientation is crucial in the PPP context (Guo & Ho, 2019). However, engaging public service users can be challenging in PPPs, where the interactions between public and private partners are often the focus (Weihe, 2008; Willems, 2014). Scholars have argued that it is possible when there are flexible contracts and trusting relationships between the partners and public service users (Nederhand & Klijn, 2019).

Scholars have claimed that stakeholder orientation (i.e., co-design, co-production, co-experience, co-construction; Alford, 2016; Donetto et al., 2015; Dudau et al., 2019; Osborne et al., 2021; Osborne et al., 2018; Steen et al., 2018; Trischler et al., 2019) can lead to public value creation and appropriation in PPP initiatives (Dos Reis & Gomes, 2022). The rationale is that the views of public service users must be considered in the production (co-design and co-production) and use/consumption process (co-experience and co-construction) of public service delivery (Osborne et al., 2021). The co-design approach (Donetto et al., 2015; Dudau et al., 2019; Trischler et al., 2019) can benefit PPP arrangements with prior experiences and knowledge of its public service users. Co-production (Alford, 2016; Osborne et al., 2018; Steen et al., 2018) can support PPP projects when public service users are involved in the production and management of public service delivery. Co-experience (Osborne et al., 2021) allows PPP initiatives to manage the positive and negative experiences of public service users in the

consumption of public services, enhancing social impacts. Finally, co-construction (Osborne et al., 2021) develops an understanding of how the social and economic needs of the public service users are affected, enriching social impact.

3.3 RESEARCH DESIGN

3.3.1 Methodology

In this study, we adopt fuzzy-set qualitative comparative analysis (fsQCA; Ragin, 2008) to examine the influence of the public value conditions on the public value outcomes of PPPs. We chose fsQCA because it allows us to apply a systematic cross-case comparison with a small-N research design and investigate how combinations of theoretical conditions can lead to a particular outcome (Schneider & Wagemann, 2012). FsQCA is suitable to "address so-called causes-of-effects type of research questions that ask for the reasons why certain phenomena occur" instead of addressing "so-called effects-of-causes question asking for the effect of a specific variable" (Oana et al., 2021, pp. 5-6). FsQCA does not estimate the average effect of independent variables on a dependent variable. Rather, it focuses on causal complexity in which different configurations of conditions can be associated with a given outcome, defined as equifinality (Schneider & Wagemann, 2012). FsQCA is a set-theoretical approach with its foundations in fuzzy-set algebra. It allows us to identify the extent to which a condition is present or absent in a set of cases sharing a particular characteristic, which can explain the occurrence of a certain phenomenon (Ragin, 2008). Following good practice guidelines for fsQCAs taken from recent PAM literature (e.g., Casady, 2020; Klijn et al., 2021; Lazzarini et al., 2020; Oana et al., 2021; Thomann & Ege, 2020), we describe below our case selection, data measurement and calibration, and analytical procedures.

3.3.2 Case selection

We use the Brazilian PPP market as our empirical research. We built a multiple-case sample of 24 Brazilian PPP projects¹ in six different sectors (Healthcare, Public Transportation, Citizen Services, Public Lighting, Solid Waste, and Basic Sanitation), encompassing exemplary cases with evidence of high public value outcomes (n=12, that is, two PPP cases per sector) and low public value outcomes (n=12, that is, two PPP cases per sector), which are suitable to answer our research questions (see Supplementary Table A1 for more information about PPP cases and their public value outcomes).

Brazil is a large emerging economy with multiple public management challenges and a flourishing PPP agenda to address social and infrastructure gaps (Hodge & Greve, 2018), which can inform our understanding of developing and developed nations (Bertelli et al., 2020). We first created a database of 163 PPP projects, including all Brazilian PPPs implemented between 2006 and 2020 in multiple sectors. However, as PPP projects may differ across sectors (O'Shea et al., 2019), we selected cases from only six different sectors, so that it was possible to compare PPPs with different outcomes but sharing significant background characteristics (Rihoux & Ragin, 2009). We chose four PPP cases per sector: two cases with qualitative or quantitative evidence of good social outcomes and two cases with qualitative or quantitative evidence of poor social outcomes.

Our selections were possible because all PPP cases have outcome-based contracts with well-established social aims² so that we can compare the social performance of PPPs. In our dataset, the private partners have economic and social incentives to achieve the PPPs' social goals (Kivleniece et al., 2017; Lazzarini et al., 2021; Quelin et al., 2017) since the PPP contracts combine fixed with variable public payment for performance based on social outcomes. Although social outcomes of our cases are not assessed using counterfactual techniques³, our PPPs are evaluated by external independent audit firms⁴ to prevent the private partner from being rewarded for social outcomes they did not achieve. In our selection of cases, we first performed a broad documentary analysis of PPP documents⁵ (e.g., contracts; bidding records; operational performance reports; independent audit reports; external control agency reports; data encompassing the entire lifecycle of each PPP⁶; and press reports) using NVivo software to facilitate data collection and analysis. We then interviewed two independent PPP specialists⁷ to explore other potential cases and validate our final selection of cases. We measured and calibrated the PPP data, as we explain below.

3.3.3 Data measurement and calibration

Our data measurement and calibration procedures are summarized in Supplementary Table A3. We draw our public value outcomes and conditions from the previous theory section, taking them to be conceptually meaningful, as the fsQCA method recommends (Schneider, 2018). Following Lazzarini et al. (2020), we adopted rubrics ranging from 1 to 5 to measure each PPPs' public value outcomes and conditions (see Supplementary Table A2). For instance, the highest score (5) indicates clear evidence of the presence of a particular outcome or condition. The lowest score (1) indicates clear evidence of the absence of such an outcome or condition.

The intermediate score (3) indicates some evidence of the presence of a given outcome or condition. Lazzarini et al. (2020) argue that the use of rubrics is better than agreement scales (e.g., Likert scales) to measure case outcomes/conditions and ensure comparability across them (Oakleaf, 2009). We then measured the public value outcomes/conditions of PPPs and built a raw data matrix of the average score of the composite conditions (See Supplementary Table A4). To measure the PPPs' public value outcomes, we scored the social-based performance of each case using information from the secondary data and in-depth interviews with the two independent PPP specialists. To measure the PPPs' public value conditions, we interviewed 26 public and private managers⁸ involved in PPP implementation, because they have in-depth knowledge of the design, implementation, and operational phases of the PPPs. We then scored the public value of the PPP using information from such interviews triangulated with the secondary data to increase the reliability of our data measurement (Eisenhardt, 1989).

After data collection, we converted the raw data matrix into a calibrated data matrix (see Supplementary Table A5). The calibration allows us to code whether a particular outcome or condition is present or absent in a specific case based on set membership. We adopted the indirect method of calibration as our baseline method to calibrate the scores of each outcome and condition, applying the following four-value fuzzy scale: 1 = "fully in"; 0.67 = "more in than out"; 0.33 = "more out than in"; and 0 = "fully out" (Ragin, 2008). For example, the scale "fully in" means that a particular outcome or condition has a strong intensity/membership in the case. On the other hand, the scale "fully out" represents a weak intensity/membership of such an outcome or condition. This fine-grained fuzzy set "is especially useful in situations where researchers have a substantial amount of information about cases, but the nature of evidence is not identical across cases" (Ragin, 2009, p. 90).

3.3.4 Analytical procedures

To perform our analysis, we used the software R with the packages QCA and SetMethods (Dusa, 2019; Oana & Schneider, 2018). As usual in the operationalization of fsQCA, we analyzed necessity and sufficiency (Oana et al., 2021). For instance, a condition is necessary if the outcome cannot be achieved without it. On the other hand, a condition is sufficient if it can generate the outcome by itself regardless of the presence of other conditions (Ragin, 2008). From this perspective, we first examined the individual necessity of each public value condition to the occurrence of high or low public value outcomes. We also analyzed whether or not the presence of any combinations of conditions was necessary, that is, the so-called SUIN

conditions⁹ (J. Mahoney et al., 2009). We adopted a necessity consistency score > 0.9 and a relevance of necessity (RoN) score > 0.55 , complying with the criteria of empirical consistency and relevance of necessity (Klijn et al., 2021; Ragin, 2008; Schneider & Wagemann, 2012).

We then performed the truth table analysis (Supplementary Table A6 and A7) to assess whether a condition (alone or in combination) is sufficient to lead to high or low public value outcomes in our PPP cases. We adopted the following rationale regarding consistency and frequency thresholds. The former denotes the degree to which a case presents a condition associated with a particular outcome of interest. The latter is the minimum number of cases representing a given configuration of conditions. We thus conservatively adopted the consistency threshold equal to 0.8 and the frequency threshold of at least one representative case concerning the sample of cases (Ragin, 2008; Schneider & Wagemann, 2012). In addition, we analyzed the parameter of fit called coverage, which allows us to examine the extent to which the sufficient condition is empirically important and can explain a given outcome. Then, the higher the coverage, the better the explanation of the sufficient condition of the outcome of interest (Oana et al., 2021). We also adopted the indicator called proportional reduction in inconsistency (PRI > 0.6), which indicates that a configuration is not simultaneously sufficient for both the occurrence and the non-occurrence of a particular outcome (Oana et al., 2021; Schneider & Wagemann, 2012). Following Klijn et al. (2021), we considered the conservative solution of fsQCA.

Following good practice in configurational analysis (Fiss, 2011; Greckhamer, 2016; Lazzarini et al., 2020; Misangyi & Acharya, 2014), we adopt symbols to interpret the configurations of conditions. The presence of necessary central conditions is represented by "■" and their absence by "⊠." The presence of central conditions is represented by "●" and their absence by "⊗." The presence of contributing conditions is represented by "●" and their absence by "⊙." In our analysis, we consider that "core conditions are those that are part of both parsimonious and intermediate solutions, and peripheral conditions are those that are eliminated in the parsimonious solution and thus only appear in the intermediate solution" (Fiss, 2011, p. 403). Blank spaces indicate that the condition is not relevant to a particular configuration.

Finally, we conducted two robustness checks to improve our data analysis quality. We performed the direct calibration method (Ragin, 2008) to analyze whether there were any significant differences in our research findings (see Supplementary Table A8, A9, and A10).

This test is important because different calibration methods may affect the fsQCA results (Emmenegger et al., 2014). Lastly, considering that PPPs may differ across sectors (O'Shea et al., 2019), we explored whether any project or sector idiosyncrasy may affect the PPPs' public value outcomes.

3.4 RESULTS

3.4.1 Configurations leading to high public value outcomes

We first examined whether or not the presence of our five theoretical conditions (alone or in combination) is necessary for achieving high public value (HPV) in our PPP dataset (Table 3.1). Our findings show that information sharing (IS) and private capabilities (PRIC) are necessary conditions individually and combined (IS*PRIC). In addition, another combination of conditions is necessary (PUBC+RG+SO), complying with the criteria of empirical consistency and relevance of necessity (RoN). Although the other three conditions – public capabilities (PUBC), risk governance (RG), and stakeholder orientation (SO) – did not meet all parameters of fit for individual necessity, they play an important role depending on the configuration.

Table 3.1. The necessity of conditions for high public value outcomes

	Consistency*	Coverage	Relevance of Necessity (RoN)**
Information sharing (IS)	0.952	0.929	0.910
Public capabilities (PUBC)	0.804	0.717	0.667
Private capabilities (PRIC)	0.976	0.817	0.720
Risk governance (RG)	0.708	0.880	0.908
Stakeholder orientation (SO)	0.733	0.883	0.906
IS * PRIC	0.952	0.929	0.910
PUBC + RG + SO	0.903	0.740	0.628

* Necessary conditions: consistency score > 0.9

** RoN score > 0.55

We then analyze the sufficiency of configurations for achieving high public value outcomes (Table 3.2). Our findings reveal two possible paths. Path 1 underscores the important role of public capabilities (Configuration 1H). Path 2 highlights the important role of private capabilities (Configurations 2H and 3H) for achieving high public value.

Table 3.2. Configurations consistent with high public value outcomes

Conditions	Configuration 1H	Configuration 2H	Configuration 3H
	IS * PUBC * PRIC * RG * SO	IS * ~PUBC * PRIC * RG * ~SO	IS * ~PUBC * PRIC * ~RG * SO
Information sharing (IS)	■	■	■
Public capabilities (PUBC)	●	⊗	⊗
Private capabilities (PRIC)	●	■	■
Risk governance (RG)	●	●	⊗
Stakeholder orientation (SO)	●	⊗	●
Consistency	0.929	0.834	0.847
Solution PRI	0.917	0.752	0.752
Raw coverage	0.634	0.243	0.267
Unique coverage	0.441	0.050	0.074
Number of PPP cases	8	2	2
Codes of PPP cases	HC1H, HC2H, PT1H, PT2H, CS1H, CS2H, PL1H, PL2H	SW2H, BS1H	SW1H, BS2H
Overall solution consistency		0.940	
Overall solution PRI		0.929	
Overall solution coverage		0.758	

Configuration 1H confirms our initial expectation that all five public value conditions are sufficient for reaching the high public value in PPP settings (IS*PUBC*PRIC*RG*SO → HPV). IS represents a necessary core condition, PUBC is a central condition, while PRIC, RG, and SO act as contributing conditions. Our data analysis suggests that the presence of all five public value conditions is associated with the public partners' consolidated PPP units (e.g., PPP cases: HC1H, HC2H, PT1H, PT2H, CS1H, CS2H, PL1H, PL2H). PPP units enhance the role of public partners in designing, implementing, and managing PPP projects (Casady et al., 2018; Quelin et al., 2019). Our findings also suggest that PPP units allow the public partners to accumulate and maintain project knowledge/capabilities throughout PPP lifecycles, ensuring the presence of all five public value conditions. Due to strong PUBC based on previous PPP experiences, the public partners can better (i) select suitable private partners with enough PRIC to address social aims, (ii) ensure IS with the private partners, and (iii) safeguard an adequate level of RG and SO to meet the needs, preferences, and expectations of public service users.

[...] Due to our PPP unit, we have increased our learning curve regarding our PPP projects' design, implementation, and management. So, we have improved our capacity as we have learned from our mistakes and successes in the execution of such projects in partnerships with private concessionaires since we share information about the PPP arrangements with each other [...] (Public manager of PPP unit, pers. comm.).

[...] Thanks to our PPP unit, we have accumulated sufficient knowledge to coordinate an effective public-private collaboration and ensure social benefits to our public service users by focusing on their needs to achieve PPP success [...] (Public contract manager, pers. comm.).

[...] The PPP unit of our public partner helped us a lot in the design and implementation of our project. [...] They have guided us in monitoring the PPP risks, especially those that may affect the public service users, and the risks related to us and the public partner [...] (CEO of the concessionaire, pers. comm.).

Configuration 2H demonstrates that, in the absence of PUBC and SO, the presence of IS combined with PRIC and RG can guarantee high public value outcomes in PPP arrangements ($IS^* \sim PUBC^* PRIC^* RG^* \sim SO \rightarrow HPV$). In such a configuration, combining IS and PRIC is necessary for high public value. Our data analysis demonstrates that the public partners in the PPP cases with such a configuration (e.g., PPP cases: SW2H and BS1H) do not have previous experience designing and implementing PPP projects, nor do they have PPP units to coordinate public-private arrangements. Our findings suggest that PRIC has complementary effects on PUBC (Kivleniece & Quelin, 2012; Quelin et al., 2019), mainly when there is IS between the public/private partners and adequate RG to secure the PPPs' social aims. IS exerts an important role in nurturing the public partner's ability to monitor the private partner's behavior in pursuing the PPPs' social goals according to RG focused on the public service users. There is another necessary combination of conditions ($PUBC+RG+SO$), a SUIN condition, for achieving high public value in our PPP context (as demonstrated in Table 3.1). Although strong PUBC is lacking in this configuration, we can see that a minimal degree of PUBC acts as an important condition combined with RG (e.g., configuration 2H) or SO (e.g., configuration 3H). From this perspective, our results also suggest that combining blended economic/social incentives (Barnett & Salomon, 2006; Lazzarini et al., 2021; Zahra & Wright, 2016) with an adequate level of RG can stimulate private partners to pursue social value.

[...] Considering we didn't have any previous experience in implementing PPP projects, we designed our PPP bid to focus on attracting experienced firms in the basic sanitation sector [...] We also hired a PPP consulting to help us to design the PPP project, and, at the same time, we sought for PPP benchmarks with positive results [...] Nowadays, we daily monitor the PPP regarding operational performance and risks that

may affect our public service users, which is facilitated by the exchange of information between the private partner and us [...] (Public contract manager, pers. comm.).

[...] We have provided service in the solid waste sector for a long time to different public authorities, so we have large experience providing public services in this sector [...] Due to our experience, we have adopted risk governance as a mechanism to mitigate our risk in terms of economic aspects, such as demand risk, to guarantee a balanced risk allocation between our concessionaire and public partner. However, we also have paid much attention to mitigating the risks associated with our users since we can be penalized by the PPP contract if we have any operational failure. For example, interrupting public service provision due to our mismanagement or causing any damage to our users can reduce our variable public payment [...] (Private operational manager, pers. comm.).

Configuration 3H shows that, in the absence of PUBC and RG, the combined presence of IS, PRIC, and SO can also generate high public value in PPP projects ($IS \sim \sim PUBC \sim \sim PRIC \sim \sim RG \sim \sim SO \rightarrow HPV$). Like configuration 2H, in configuration 3H, the same rationale regarding the combination of conditions (IS*PRIC) and (PUBC+RG+RG) can be applied. However, unlike configuration 2H, in configuration 3H, SO acts as a contributing condition instead of RG (e.g., PPP cases: SW1H, BS2H). Thus, our findings indicate that configurations 2H and 3H are neutral permutations (Fiss, 2011) since they share the same necessary central conditions (IS and PRIC) but differ in the contributing conditions (RG and SO). We can interpret configurations 2H and 3H as similar, because this permutation does not influence the configurations' outcomes (Fiss, 2011). Our findings suggest that combining blended economic/social incentives (Barnett & Salomon, 2006; Lazzarini et al., 2021; Zahra & Wright, 2016) with an adequate level of SO can also stimulate private partners to pursue social value.

[...] We daily exchange information about the PPP operations with our public partners, and they can access real-time information online via our shared operational management system. [...] Thus, we comply with the transparency criteria of the outcome-based contract, which allows the public partner to monitor our operations and pay our variable commission based on our achievement of the social-based performance [...] (Private operational manager, pers. comm.).

[...] *This is our first PPP project. However, following good practices of other successful PPPs, we designed our PPP outcome-based contract to ensure that our private partner delivers an outstanding public service based on the needs of our users* [...] (Public contract manager, pers. comm.).

3.4.2 Configurations leading to low public value outcomes

We now investigate the configurations associated with low public value outcomes (LPV) in our PPP context. We first analyzed whether the absence of the five theoretical conditions is necessary alone or in combination to lead to low public value (Table 3.3).

Table 3.3. The necessity of conditions for low public value outcomes

	Consistency*	Coverage	Relevance of Necessity (RoN)**
Absence of information sharing (~IS)	0.904	0.934	0.955
Absence of public capabilities (~PUBC)	0.581	0.692	0.851
Absence of private capabilities (~PRIC)	0.711	0.957	0.980
Absence of risk governance (~RG)	0.872	0.694	0.734
Absence of stakeholder orientation (~SO)	0.872	0.712	0.756
~RG + ~SO	0.904	0.652	0.659

* Necessary conditions: consistency score > 0.9

** RoN score > 0.55

Table 3.3 indicates that the absence of information sharing (~IS) is the only necessary condition for generating low public value outcomes, complying with the criteria of empirical consistency and relevance of necessity (RoN). However, we note that the absence of risk governance (~RG) and the absence of stakeholder orientation (~SO) are close to the parameter of fit related to the consistency score and are important enough according to the RoN score. We also found that the combination of the absence of both conditions (~RG + ~SO) acts as a SUIN condition. Finally, the absence of public capabilities (~PUBC) and the absence of private capabilities (~PRIC) cannot be considered necessary conditions. We assessed the sufficiency of configurations for achieving low public value outcomes in our PPP cases (Table 3.4). Our results indicate that a third path (Configuration 1L) is sufficient for generating such an outcome.

Table 3.4. Configurations consistent with low public value outcomes

Conditions	Configuration 1L ~IS * ~RG * ~SO
Absence of information sharing (~IS)	☒
Absence of public capabilities (~PUBC)	
Absence of private capabilities (~PRIC)	
Absence of risk governance (~RG)	⊗
Absence of stakeholder orientation (~SO)	⊗
Consistency	0.929
Solution PRI	0.914
Raw coverage	0.840
Unique coverage	0.840
Number of PPP cases	12
Codes of PPP cases	PT4L, PL4L, HC3L, HC4L, PT3L, CS3L, CS4L, PL3L, SW3L, SW4L, BS3L, BS4L
Overall solution consistency	0.929
Overall solution PRI	0.914
Overall solution coverage	0.840

Table 3.4 shows that the combination of ~IS, ~RG, and ~SO is sufficient to lead to PPP failure ($\sim IS * \sim RG * \sim SO \rightarrow LPV$). Configuration 1L confirms the importance of ~IS as an individual necessary central condition to generate low public value. This is important because the presence of IS is also a necessary central condition for achieving high public value. Although ~RG and ~SO did not meet the parameter of fit to be considered as necessary conditions, they play an important role combined with ~IS for generating PPP failure in terms of social performance. In addition, our findings suggest that ~PUBC and ~PRIC act as "do not care" conditions since the presence of PUBC or PRIC is not sufficient individually or combined to avoid low public value outcomes in such public-private interactions.

3.5 DISCUSSION

In line with our empirical findings, we now discuss how public value creation and appropriation can occur in PPP settings in the light of configurations of public value conditions. We identify two paths consistent with high public value outcomes and a third path associated with low public value outcomes, demonstrating how such configurations can produce these effects. Echoing Dos Reis and Gomes (2022), our findings reveal that configurations leading to high public value outcomes (i.e., configurations 1H, 2H, and 3H) generate social benefits. In

addition, public/private values can be distributed/allocated in a balanced manner amongst the multiple stakeholders (e.g., public/private partners and public service users). In contrast, we find that the configuration leading to low public value outcomes (i.e., configuration 1L) leads to the destruction and misappropriation of public value. Configuration 1L can lead to PPP failure to produce social outcomes and an imbalance in the distribution/allocation of public/private values amongst stakeholders, so that "public resources are misused for realizing private value" (Cui & Osborne, 2022, p. 7).

Our first path (configuration 1H, Table 3.2) relies on PUBC. The latter fosters RG and SO in a context where PUBC is nourished by IS and complemented by PRIC. In line with recent PAM literature, our findings show that experienced public partners with consolidated PPP units (Boardman & Hellowell, 2017; Casady et al., 2020) adopt IS as a crucial mechanism in their PPP outcome-based contracts (Karaba et al., 2022). Public partners in partnership with socially-oriented private partners (Barnett & Salomon, 2006; Lazzarini et al., 2021; Zahra & Wright, 2016) can effectively coordinate the PPP design, implementation, and management based on RG and SO, enhancing the PPPs' public value creation and appropriation. Experienced public partners with PUBC benefiting from PRIC (Kivleniece & Quelin, 2012; Quelin et al., 2019) can guide private partners to deliver better public services (Cabral, 2017) based on the needs of the public service users since a sufficient level of RG (Brown & Osborne, 2013; Renn, 2008) and SO (Guo & Ho, 2019; Nederhand & Klijn, 2019; Osborne et al., 2021) is ensured. In such a configuration, IS can mitigate potential conflict of interests between public service providers and users, allowing better public scrutiny and hampering opportunistic behavior regarding value appropriation, such as "actors' achievement of private value at the cost of public value" (Cui & Osborne, 2022, p. 9). Combining RG and SO can facilitate transparent risk negotiation between public service providers and users, based on their needs and expectations, balancing their needs and interests and the risks and benefits of the PPP.

Our second path is twofold (Configurations 2H and 3H, Table 3.2). It entails a higher weight on PRIC in a scenario where PUBC is a weak condition, and RG (Configuration 2H) and SO (Configuration 3H) conditions can act as substitutes for generating the same public value outcome. Although PUBC is vital for creating public value in public-private interactions (Casady et al., 2020; Geuijen et al., 2016; Moore, 1995, 2000), our findings show that PRIC can attenuate the lack of PUBC in a context where IS is well-established in the PPP arrangements. IS can foster the PUBC of inexperienced public partners in their supervision role

to safeguard that the private partners will pursue the social goals of the PPP. Although PRIC has a key role in Configurations 2H and 3H, our findings indicate that PRIC cannot substitute PUBC, since PRIC alone does not guarantee the achievement of the PPPs' social outcomes, as we discuss in more detail below in relation to Configuration 1L. Our findings also suggest that a sufficient level of RG can compensate for the lack of SO (Configuration 2H) and vice versa (Configuration 3H). RG incorporates some attributes of SO (e.g., regarding the needs, experiences, and expectations of both public service providers and users), which balances the risk-benefit balance during the production and use of its public service. Similarly, SO also incorporates some attributes of RG (e.g., concerning the contested view of public service providers and users), which contributes to safeguarding their needs, experiences, and expectations.

Finally, our third path (Configuration 1L, Table 3.4) is associated with low public value outcomes. Configuration 1L underscores \sim IS as a necessary central condition for generating low public value. This is in contrast to the previous configurations that lead to high public value, and where IS plays a central role, confirming its importance as a key attribute for the PPP outcomes (e.g., Karaba et al., 2022; Reynaers, 2014). Configuration 1L also entails \sim RG and \sim SO as central conditions for generating low public value rather than contributing conditions. Our findings indicate that \sim PUBC and \sim PRIC can be considered "do not care conditions" since the presence of both \sim PUBC and \sim PRIC conditions are insufficient solely or combined to lead to PPP failures. We reaffirm that PUBC and PRIC only play a role when they are supported by IS, indicating an interplay between such conditions. Our rationale is that experienced public partners without IS cannot perform suitably. For example, they cannot monitor and guide private partners to pursue the public interest and achieve social performance. Similarly, experienced private partners without IS cannot properly deliver better public services and meet the needs of the target beneficiaries. Our findings also highlight that PUBC and PRIC are dependent on RG and SO. This is because even experienced public/private partners with \sim RG or \sim SO cannot properly address the PPPs' social aims. Even in the presence of strong PUBC and PRIC, PPP settings with \sim IS, \sim RG, and \sim SO tend to fail in their social aims, leading to the destruction of public value and misappropriation, resulting from an imbalance between public and private values.

3.6 CONCLUSION

Our study contributes to the theoretical and practical literature concerning public value in PPP settings in several important ways. In contexts where creating public value is vital if wicked problems are to be faced (Geuijen et al., 2016), our findings reveal the drivers of public value creation and appropriation in public-private arrangements. By operationalizing the conceptual framework of Dos Reis and Gomes (2022), we examine configurations of public value conditions that can explain such phenomena. Our analysis shows how different configurations achieve high or low public value outcomes through distinct paths. We demonstrate how PPP projects can create public value and enable the appropriation of balanced private/public values amongst public service providers and users. We also show how to avoid public value destruction and misappropriation when private and public values conflict (Cui & Osborne, 2022). Our findings can guide policymakers and public and private sector managers in successfully setting up PPPs, by suggesting alternative paths associated with high public value outcomes and avoiding low public value outcomes.

Overall, our fsQCA solutions show that PPP projects can achieve high or low social performance through different configurations of conditions and how public value creation and appropriation can be enhanced or hampered as a function of combinations of conditions. Our results can help policymakers and public managers to organize PPP arrangements to achieve better social outcomes, benefiting public service users. We emphasize that balancing public and private value is vital to value creation and appropriation, especially in contexts where there are different levels of various values in the public service ecosystem (Osborne et al., 2022). Our findings add some nuance to the ongoing debate in the PAM literature regarding public value creation and appropriation in public-private interactions (e.g., Cabral et al., 2019; Dos Reis & Gomes, 2022; Lazzarini, 2020; Reynaers, 2014; Vakkuri & Johanson, 2020).

However, we do not claim that our findings are generalizable, since that is not the purpose of the fsQCA method. FsQCA aims to reveal configurations of conditions for a given outcome in small-N research settings. Other public value conditions may affect the PPPs' social outcomes, in addition to those considered in this research. However, our set of conditions is conceptually meaningful, and our findings are consistent with the recent public value and PPP literature. Following Lazzarini et al. (2020), we looked for other conditions in our cases that could explain the PPPs' social performance during our data collection and analysis process. However, we only found idiosyncrasies of the PPP projects¹⁰ rather than general conditions

that could influence PPP arrangements more generally. Our study is based on a specific PPP context, so that, although our empirical research setting is robust and meets QCA method protocols, it remains an open question whether our paths and configurations could be found in other sectors or countries. Future studies could also benefit from large-N QCA research settings or integration of QCA and econometric analysis (Fiss et al., 2013; Vis, 2012). Finally, by considering the various configurations that may emerge from PPP cases, future research could explore the extent to which other paths/configurations may lead to public value creation (destruction) and appropriation (misappropriation) in different PPP contexts.

ENDNOTES

¹ Our PPP cases are DBFMO (design, build, finance, maintain and operate) or BFMO (build, finance, maintain and operate) projects.

² The social aims of PPPs comply with the Brazilian Federal Law of PPPs 11,079 of 2004.

³ Lazzarini et al. (2022) discuss why counterfactual assessment methods are not widespread in outcome-based contracts.

⁴ Adopting PPP performance evaluation by external independent audit firms complies with the Brazilian Federal Law of PPPs 11,079 of 2004.

⁵ We had access to PPP documents via the transparency portal of each public authority associated with the PPP cases, according to the Brazilian Federal Law of Transparency 12,527 of 2011.

⁶ We used data from Radar PPP, a leading consulting group specializing in Brazilian PPPs. They provide a unique database (<https://radarppp.com/resumo-de-contratos-de-ppps/>) encompassing the entire lifecycle of Brazilian PPP projects.

⁷ We selected independent PPP specialists to guarantee independent data and to validate our case selection. We interviewed a partner from Radar PPP consulting group and a vice-president of a regional development bank that finances PPP projects in Brazil.

⁸ We invited public and private managers of each PPP case to our semi-structured interviews. We anticipated interview with 48 PPP managers, 24 public managers and 24 private managers. However, we only performed 26 interviews. In 22 cases, we conducted only one interview, as

only one partner agreed to participate. Other factors hampered the participation of both public and private managers of the same PPP. 7 out the 24 PPP cases were terminated early (see Supplementary Table A1). However, in the data we collected, we could see no major differences between the responses of public and private partners, albeit that we interviewed respondents from different projects. To ensure the reliability of our data collection where it was not possible to interview both partners, we triangulate the content analysis with the secondary data analysis to mitigate respondent bias.

⁹ A SUIN condition is “a sufficient but unnecessary part of a factor that is insufficient but necessary for an outcome” (J. Mahoney et al., 2009, p. 126).

¹⁰ For example, some PPP projects received more political attention and public resources than others to guarantee successful social-based outcomes because they were the first PPP initiative implemented in the sector or by the public authorities.

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APPENDIX - SUPPLEMENTARY TABLES AND ANALYSES

Supplementary Table A1. Description of PPP cases and their public value outcomes

Sector	PPP cases with evidence of high public value outcomes*		PPP cases with evidence of low public value outcomes*	
	PPP description	Why it is a PPP case of high public value outcomes	PPP description	Why it is a PPP case of low public value outcomes
Healthcare (HC)	HC1H: "PPP Hospital do Subúrbio." The PPP was implemented in 2010 to provide a public hospital to serve deprived citizens in the suburban area of the capital city of Salvador in Bahia State.	The hospital was recognized as an innovative public-private arrangement by World Bank (2013) and United Nations (2015) since it has improved emergency hospital services and increased the access of deprived citizens to high-quality urgent and emergency care.	HC3L: "PPP Hospital Regional Metropolitano." The PPP was launched in 2014 to increase universal health coverage in the capital city of Fortaleza in Ceará State.	The PPP contract was terminated early in 2019 due to project failure regarding the design of the public-private arrangements.
	HC2H: "PPP Diagnóstico por Imagem." The PPP was launched in 2015 to improve telemedicine, diagnostic, and bioimaging services in multiple public hospitals in Bahia State.	The project improved the quality of medical diagnostics and treatment in the public health system, benefiting disadvantaged citizens in Bahia State.	HC4L: "PPP Hospital da Zona Norte." The PPP was implemented in 2013 to enhance medical assistance in the capital city of Manaus in Amazonas State.	The hospital is in operation. Nonetheless, the PPP was under political contestation and in the spotlight of a parliamentary committee of inquiry (CPI) because of alleged mismanagement and poor social-based performance.
Public Transportation (PT)	PT1H: "PPP Sistema Integrado Metropolitano da Baixada Santista." The PPP was implemented in 2015 to provide a light rail vehicle integrated with a bus system to increase the quality of public transportation in multiple municipalities in São Paulo State.	The PPP generated social benefits by offering high-speed public transportation, reducing time travel in the city and between nine cities.	PT3L: "PPP Veículo Leve sobre Trilho do Rio de Janeiro." The PPP was implemented in 2013 to deliver a high-speed light rail vehicle integrated with the bus system and to improve public transportation in the capital city of Rio de Janeiro due to the Rio 2016 Olympic Games in Brazil.	The project is in operation. Notwithstanding, the PPP was under public contestation regarding its social impact/benefits since it was not fully generating the expected social benefits regarding its initial required investment.
	PT2H: "PPP Metro de São Paulo - Linha 4 Amarela." This subway project was the first Brazilian PPP implemented in 2006 to enhance public transportation in the capital city of São Paulo.	The subway system improved the quality of public transportation and reduced time travel, integrating municipal and inter-municipal bus lines. It also connected a suburban area to downtown and has been recognized as an innovative infrastructure project by World Bank (2013).	PT4L: "PPP Veículo Leve sobre Trilho no Eixo Anhanguera." The PPP was implemented in 2015 to provide a high-speed light rail vehicle and increase public transportation quality in the capital city of Goiânia in Goiás State.	The PPP contract was suspended in 2017 due to failures in project design, lack of cost-benefit analysis, and poor performance.
Citizen Services (CS)	CS1H: "PPP Unidade de Atendimento Integrado – UAI." The PPP was implemented in 2010 to deliver bureaucratic services and issue official documents to citizens via a one-stop shop in multiple cities in the State of Minas Gerais.	The initiative reduced the time spent and enhanced the quality of issuing official documents to citizens. Due to its success, the project was significantly expanded to other municipalities in Minas Gerais State.	CS3L: "PPP Unidades de Atendimento Faça Fácil." The PPP was implemented in 2013 to deliver bureaucratic services and augment the quality of issuing official documents to citizens via a one-stop shop in several municipalities in Espírito Santo State.	The PPP is in operation. However, The PPP's social goals were not completely met since its initial scope was reduced regarding the number of municipalities benefiting from the project due to capabilities constraints by the public and private partners.
	CS2H: "PPP Vapt Vupt." The PPP was implemented in 2013 to deliver bureaucratic services and issue official documents to citizens via a one-stop shop in several cities in the State of Ceará.	The project reduced the time spent and upgraded the issuance process of official documents to citizens, increasing citizens' access to this public service.	CS4L: "PPP Ganha Tempo." The PPP was implemented in 2016 to provide bureaucratic services and modernize the issuance process of official documents to citizens via a one-stop shop in multiple municipalities in Mato Grosso State.	The PPP contract was terminated early in 2021 because of alleged malfeasance by the private partner in public service delivery.
Public Lighting (PL)	PL1H: "PPP Iluminação Pública de Belo Horizonte." The PPP was implemented in 2016 to modernize public lighting by providing LED street lighting in the capital city of Belo Horizonte in Minas Gerais State.	The project saved energy by adopting a smart city approach and improved the quality of public illumination and the safety of its urban areas.	PL3L: "PPP Iluminação Pública de Guaratuba." The PPP was also implemented in 2016 to improve the quality of public lighting by adopting LED street lighting in the municipality of Guaratuba in Paraná State.	The PPP is in operation. However, the PPP was under public and political contestation because its initial goals were not entirely met due to the private partner's lack of capabilities and alleged mismanagement.

Sector	PPP cases with evidence of high public value outcomes*		PPP cases with evidence of low public value outcomes*	
	PPP description	Why it is a PPP case of high public value outcomes	PPP description	Why it is a PPP case of low public value outcomes
	PL2H: "PPP Iluminação Pública de Porto Alegre." The PPP was also implemented in 2020 to upgrade public lighting with LED street lighting in the capital city of Porto Alegre in Rio Grande do Sul State.	The project saved energy by adopting a smart city approach and improved the quality of public illumination and the safety of its urban areas.	PL4L: "PPP Iluminação Pública de Cuiabá." The PPP was also implemented in 2016 to renew public lighting by adopting LED street lighting in the capital city of Cuiabá in Mato Grosso State.	The PPP was shut down in 2017 due to failure in the bidding process and project design pointed out by the State of Mato Grosso Audit Court.
Solid Waste (SW)	SW1H: "PPP Resíduos Sólidos de Itu." The PPP was implemented in 2011 to provide solid waste management in the municipality of Itu in São Paulo State.	The initiative adopted an innovative solid waste collection system (e.g., underground containers) and enhanced the quality of solid waste management and the city's environmental sustainability.	SW3L: "PPP Resíduos Sólidos de São Bernardo do Campo." The PPP was implemented in 2012 to offer solid waste management in the São Bernardo do Campo municipality in São Paulo State.	The project scope was reduced in 2016 due to capabilities constraints by the public partner, and the PPP contract was terminated early in 2017 because of the private partner's lack of contractual compliance and poor performance.
	SW2H: "PPP Resíduos Sólidos de Salto." The PPP was implemented in 2014 to deliver solid waste management in the municipality of Salto in São Paulo State.	The project upgraded the waste recycling facilities and enhanced environmental preservation and citizens' quality of life.	SW4L: "PPP Resíduos Sólidos de Paulista." The PPP was implemented in 2013 to upgrade solid waste management in the municipality of Paulista in Pernambuco State.	The public authority suspended the PPP contract from 2019 to 2021 due to the private partner's poor performance and lack of contractual compliance. The project resumed operations in 2021 as authorized by the Audit Court of the State of Pernambuco.
Basic Sanitation (BS)	BS1H: "PPP Saneamento Básico de Piracicaba." The PPP was implemented in 2012 to modernize basic sanitation facilities and management in the municipality of Piracicaba in São Paulo State.	The initiative improved the quality of basic sanitation and expanded the citizens' access to drinking water and sewage treatment.	BS3L: "PPP Saneamento Básico de Guaratinguetá." The PPP was implemented in 2008 to enhance the quality of basic sanitation utilities and management in the municipality of Guaratinguetá in São Paulo State.	The PPP contract was terminated early in 2021 due to the private partner's lack of contractual compliance and poor performance. The public partner took over the public service delivery.
	BS2H: "PPP Saneamento Básico de Rio Claro." The PPP was implemented in 2007 to improve basic sanitation facilities and management in the municipality of Rio Claro in São Paulo State.	The project improved sanitation facilities by adopting technological and sustainable processes and expanded citizens' access to drinking water and sewage treatment.	BS4L: "PPP Saneamento Básico de Guarulhos." The PPP was implemented in 2014 to upgrade basic sanitation utilities and management in the municipality of Guarulhos in São Paulo State.	The PPP was shut down in 2019 due to the private partner's lack of contractual compliance and poor performance. The public partner took over the public service delivery.

* The PPP's public value outcomes were assessed based on qualitative or quantitative evidence from the PPP outcome-based contracts, whose social-based outcomes are audited by independent auditing firms.

Supplementary Table A2. Rubrics adopted to measure the public value outcomes and conditions

PUBLIC VALUE OUTCOME	1	2	3	4	5
<p>Social-based performance To what extent does the PPP generate a positive (negative) social impact on public service users and citizens via high-quality (low-quality) public service delivery, regarding (disregarding) citizens' perspectives and individuals' experiences?</p>	The PPP was implemented, but the contract was terminated early due to PPP failures. There is qualitative or quantitative evidence that the PPP generated negative or scant social benefits based on its outcome-based contract.	There is qualitative or quantitative evidence that the PPP was not generating the expected social benefits regarding its outcome-based contract and initial required investment.	There is qualitative or quantitative evidence that the PPP generated positive social benefits regarding some important dimensions of its outcome-based contract, but not in other dimensions.	There is qualitative or quantitative evidence that the PPP generated almost all dimensions of its outcome-based contract.	The PPP is considered a case of success concerning its social-based performance. There is qualitative or quantitative evidence that the PPP generated positive social benefits regarding all dimensions of its outcome-based contract.
INFORMATION SHARING CONDITION	1	2	3	4	5
<p>Risk identification and allocation To what extent is complete, unbiased, and useful information available (unavailable) about the PPP risks, enabling (disabling) their effective identification and balanced allocation between the partners to safeguard the PPP's social aims?</p>	There is insufficient information available about the PPP's risk identification and allocation.	There is biased information about the PPP's risk identification. The PPP arrangement does not specify who is responsible for what type of risk.	There is information about the PPP's risk identification and allocation concerning important risk dimensions but not on others.	Complete, unbiased, and useful information about the PPP's risk identification and allocation exists. The data about the PPP risks have quantitative or qualitative details, consistency, accessible formatting, and timeliness.	Besides existing complete, unbiased, and useful information about the PPP's risk identification and allocation, formal processes exist to allow the regular sharing of such information between the partners.
<p>Cost and benefit analysis To what extent is complete, unbiased, and useful information available (unavailable) about the PPP's cost and benefits analysis, enabling (disabling) the assessment by the public partner and third parties regarding whether the PPPs have comparative advantages compared with alternative modes of provision (e.g., traditional public procurement) to guarantee the PPP's social aims?</p>	There is insufficient information about the PPP's cost and benefits analysis.	There is biased information about the PPP's cost and benefits analysis. It does not reflect a clear advantage of the PPP regarding social benefits generation.	Information about the PPP's cost and benefits analysis reflects some advantages of the PPP regarding social benefits generation but not on others.	Complete, unbiased, and useful information about the PPP's cost and benefits analysis exists. The data about the PPP advantages have quantitative or qualitative details, consistency, accessible formatting, and timeliness.	Besides existing complete, unbiased, and useful information about the PPP advantages regarding social benefits generation, formal processes exist to allow the regular sharing of such information among the partners and third parties.
<p>Social and political impact To what extent is complete, unbiased, and useful information available (unavailable) about the PPP regarding its generation of high (low) social benefits/impact to public service users/citizens, enabling (disabling) the political support for maintaining the execution of the PPP projects to ensure the PPP's social aims?</p>	There is insufficient information about the PPP's social benefits/impacts. There is strong political opposition or criticism regarding the PPP's social outcomes.	There is biased information about the PPP's social benefits/impacts. Some political opposition or criticism exists regarding the PPP's social outcomes.	There is information about the PPP's social benefits/impacts concerning important dimensions of social-based performance but not on others.	There is complete, unbiased, and useful information about the PPP's social benefits/impact and explicit political support for maintaining the execution of the PPP project. The data about the PPP's social benefits/impact have quantitative or qualitative details, consistency, accessible formatting, and timeliness.	Besides existing complete, unbiased, and useful information about the PPP's social benefits/impact, formal processes exist to allow the regular sharing of such information among the partners and third parties.
<p>Expertise To what extent is complete, unbiased, and useful information available (unavailable) about the PPP arrangements, enabling (disabling) the exchange of reliable information between the partners, which can enhance (hinder) the partners' capabilities to accomplish the PPP's social aims?</p>	There is insufficient information exchange between the partners about their technical or managerial skills.	There is biased information exchange between the partners about their technical or managerial skills, and, in turn, it does not play an essential role in enhancing both partners' capabilities.	There is information exchange between the partners about their technical or managerial skills regarding important dimensions of the PPP project but not on others.	There are complete, unbiased, and useful information exchanges between the partners about their technical or managerial skills. Such information has quantitative or qualitative details, consistency, accessible formatting, and timeliness.	Besides existing complete, unbiased, and useful information exchanges between the partners about their technical or managerial skills, formal processes exist to allow the regular sharing of such information.
<p>Partnership collaboration To what extent is complete, unbiased, and useful information available (unavailable) about the PPP</p>	There are insufficient information exchanges between the partners about the PPP's	There are biased information exchanges between the partners about the PPP's operational	There are information exchanges between the partners about the PPP's operational management	There are complete, unbiased, and useful information exchanges between the partners about the	Besides existing complete, unbiased, and useful information exchange between the partners

arrangements, enabling (disabling) trustful and effective cooperation between the partners, which can enhance (hinder) the PPP's social aims?	operational management, not reflecting trustful and effective cooperation between them.	management, hampering their effective cooperation.	regarding important dimensions but not on others.	PPP's operational management, reflecting relational and trustful relationships. The operational data have quantitative or qualitative details, consistency, accessible formatting, and timeliness.	about the PPP's operational management, formal processes exist to allow the regular sharing of such information.
<i>Social-based performance measurement</i> To what extent is complete, unbiased, and useful information available (unavailable) about the PPP's social-based performance measurement, enabling (disabling) the public oversight and scrutiny by third parties regarding the public partner's expectation and the private partner's outcome performance, which can enhance (hinder) the PPP's social aim?	There is insufficient information about the PPP's social-based performance.	Biased information about the PPP's social-based performance hinders public oversight and scrutiny.	There is information about the PPP's social-based performance regarding some important dimensions but not others.	There is complete, unbiased, and useful information exchange among the partners and third parties about the PPP's social-based performance. Such information has quantitative or qualitative details, consistency, accessible formatting, and timeliness.	Besides existing complete, unbiased, and useful information exchanges among the partners and third parties about the PPP's social-based performance, formal processes exist to allow the regular sharing of such information.
PUBLIC CAPABILITIES CONDITION	1	2	3	4	5
<i>Contract-management capabilities of public managers</i> To what extent does the PPP's public partner hold (does not hold) contract management capabilities (e.g., the abilities to conduct tender, select appropriate suppliers, negotiate contracts, manage the relationships with multiple suppliers, and evaluate the private partner's behavior in pursuing the public interest), enhancing (hindering) the PPP's social outcomes?	The public partner does not have enough experience designing, implementing, and managing PPP projects or alternative modes of provision through public-private arrangements (e.g., traditional public concession or outsourcing) and, in turn, does not have enough contract-management capabilities.	The public partner has little experience designing and implementing PPP projects.	The public partner has some experience designing, implementing, and managing PPP projects or alternative modes of provision. However, capabilities are not consistent. For instance, the public partner has enough capabilities regarding important aspects (e.g., negotiation of contracts) but not others (e.g., evaluating the private partner's behavior in pursuing the public interest).	The public partner has broad experience designing, implementing, and managing PPP projects or alternative modes of provision and, in turn, strong contract-management capabilities.	The public partner has a well-structured PPP unit and qualified public managers with strong capabilities to design, implement, and manage PPP projects.
<i>Knowledge sharing capabilities</i> To what extent do the partners share (unshared) the PPP's knowledge between them, enabling (disabling) their heterogeneous and complementary capabilities, which in turn can enhance (hinder) the PPP's social outcomes?	The private partner does not share any knowledge about the PPP arrangements with the public partner.	There is little knowledge sharing between the partners. It does not enhance the heterogeneous and complementary knowledge of the partners.	There is knowledge sharing between the partners regarding some important dimensions of the PPP. Nonetheless, the partners share knowledge regarding some dimensions but not others.	Knowledge-sharing between the partners concerning almost all PPP dimensions enhances their heterogeneous and complementary capabilities.	There is knowledge sharing between the partners concerning all PPP dimensions, enhancing their heterogeneous and complementary capabilities. Mechanisms also exist to allow regular knowledge sharing between the partners.
<i>Partnership capabilities</i> To what extent do the PPP's partners hold (do not hold) the effective partnership capabilities, enabling (disabling) the development of their relational and collaborative/cooperative skills, which can enhance (hinder) the PPP's social outcomes?	The partners do not collaborate. They develop their PPP activities completely independently of each other.	The partnership collaboration is not aligned since only the public partner collaborates with the private partner or vice versa.	The partners collaborate only in support activities.	The partners collaborate in some core operations.	The PPP is a partnership characterized by mutual interdependence between the partners. The public partner activities are deeply connected with the private partner and vice versa.
<i>Stakeholder management capabilities</i> To what extent do the partners hold (do not hold) stakeholder management capabilities in the PPP arrangements, enabling (disabling) the management of the needs, preferences, and expectations of multiple stakeholders, which can enhance (hinder) the PPP's social outcomes?	The partners do not adopt mechanisms to identify and manage the multiple stakeholders' needs, preferences, and expectations in public service delivery.	One partner adopts mechanisms to identify and manage the multiple stakeholders' needs, preferences, and expectations but not the other.	The partners adopt mechanisms to identify and manage the multiple stakeholders' needs, preferences, and expectations. However, they incorporate some of these inputs into the decision-making process but neglect others.	The partners adopt mechanisms to identify and manage the multiple stakeholders' needs, preferences, and expectations, incorporating such inputs into the decision-making process.	The partners adopt mechanisms to identify and manage the multiple stakeholders' needs, preferences, and expectations. Conflict-management mechanisms also exist to conciliate the stakeholders' contested views.
PRIVATE CAPABILITIES CONDITION	1	2	3	4	5

<p>Execution management capabilities of private managers To what extent does the PPP's private partner hold (does not hold) execution management capabilities (e.g., the ability to deliver better-adjusted public services based on the needs of the public partners and the target beneficiaries and effectively manage public-private collaboration by following the public interest), enhancing (hindering) the PPP's social outcomes?</p>	<p>The private partner does not have enough experience delivering public service via PPP contracts or alternative modes of provision through public-private arrangements (e.g., traditional public concession or outsourcing) and, in turn, lacks execution management capabilities.</p>	<p>The private partner has little experience delivering public service via PPP contracts or alternative modes of provision and, in turn, weak execution management capabilities.</p>	<p>The private partner has some experience delivering public service via PPP contracts or alternative modes of provision. However, capabilities are not consistent. For example, the private partner has enough capabilities concerning important aspects (e.g., management of public-private collaboration) but not others (e.g., delivering better-adjusted public services based on the needs of the target beneficiaries).</p>	<p>The private partner has experience delivering public service via PPP contracts or alternative modes of provision and, in turn, has sufficient execution management capabilities regarding PPP contracts.</p>	<p>The private partner has broad experience delivering public service and qualified private managers with strong execution management capabilities regarding PPP contracts.</p>
<p>Knowledge sharing capabilities To what extent do the partners share (unshared) the PPP's knowledge between them, enabling (disabling) their heterogeneous and complementary capabilities, which in turn can enhance (hinder) the PPP's social outcomes?</p>	<p>There is no knowledge sharing between the partners.</p>	<p>There is little knowledge sharing between the partners. It does not enhance the heterogeneous and complementary knowledge of the partners.</p>	<p>There is knowledge sharing between the partners regarding some important dimensions of the PPP. Nonetheless, the partners share knowledge regarding some dimensions but not concerning others.</p>	<p>Knowledge-sharing between the partners concerning almost all PPP dimensions enhances their heterogeneous and complementary capabilities.</p>	<p>There is knowledge sharing between the partners concerning all PPP dimensions, enhancing their heterogeneous and complementary capabilities. Mechanisms also exist to allow regular knowledge sharing between the partners.</p>
<p>Partnership capabilities To what extent do the PPP's partners hold (do not hold) the effective partnership capabilities, enabling (disabling) the development of their relational and collaborative/cooperative skills, which can enhance (hinder) the PPP's social outcomes?</p>	<p>The partners do not collaborate. They develop their PPP activities completely independently of each other.</p>	<p>The partnership collaboration is not aligned since only the public partner collaborates with the private partner or vice versa.</p>	<p>The partners collaborate only in support activities.</p>	<p>The partners collaborate in some core operations.</p>	<p>The PPP is a partnership characterized by mutual interdependence between the partners. The public partner activities are deeply connected with the private partner and vice versa.</p>
<p>Stakeholder management capabilities To what extent do the partners hold (do not hold) stakeholder management capabilities in the PPP arrangements, enabling (disabling) the management of the needs, preferences, and expectations of multiple stakeholders, which can enhance (hinder) the PPP's social outcomes?</p>	<p>The partners do not adopt mechanisms to identify and manage the multiple stakeholders' needs, preferences, and expectations in public service delivery.</p>	<p>One partner adopts mechanisms to identify and manage the multiple stakeholders' needs, preferences, and expectations but not the other.</p>	<p>The partners adopt mechanisms to identify and manage the multiple stakeholders' needs, preferences, and expectations. However, they incorporate some of these inputs into the decision-making process but neglect others.</p>	<p>The partners adopt mechanisms to identify and manage the multiple stakeholders' needs, preferences, and expectations, incorporating such inputs into the decision-making process.</p>	<p>The partners adopt mechanisms to identify and manage the multiple stakeholders' needs, preferences, and expectations. Conflict-management mechanisms also exist to conciliate the stakeholders' contested views.</p>
<p>RISK GOVERNANCE CONDITION</p>	<p>1</p>	<p>2</p>	<p>3</p>	<p>4</p>	<p>5</p>
<p>Explicit risk identification by concerning multiple stakeholders To what extent is the PPP's risk explicitly identified (unidentified) regarding the public service users/citizens beyond the economic sustainability of the public and private partners, which can enhance (hinder) the PPP's social value?</p>	<p>The PPP risks identification only considers the economic sustainability of the partners (PPP internal arrangements) and neglects public service users' and citizens' perspectives (PPP external environment).</p>	<p>The PPP risks identification focuses on the economic sustainability of the partners but considers some risks related to public service users/citizens.</p>	<p>Beyond economic risk identification associated with the partners, the PPP considers some important risk dimensions regarding public service users/citizens but not others.</p>	<p>The PPP risks are explicitly identified in a balanced way regarding the risk implications on both the partners and public service users/citizens.</p>	<p>The PPP also adopts mechanisms to monitor and identify potential risks affecting the partners and public service users/citizens.</p>
<p>Balanced risk allocation among multiple stakeholders To what extent is the PPP's risk-benefit balanced (unbalanced) among public service providers and users/citizens, which can enhance (hinder) the PPP's social value?</p>	<p>There is no balanced risk allocation among the PPP partners and public service users/citizens. One partner assumes more risk than the other, and the PPP neglects the risk implications on public service users/citizens.</p>	<p>There is risk-sharing between the PPP partners regarding economic criteria. However, the PPP neglects the risk implications on public service users/citizens.</p>	<p>There is a balanced risk allocation between the PPP partners. The PPP also considers the risk implications on public service users/citizens regarding some important risk dimensions but not others.</p>	<p>A balanced risk allocation exists among the PPP partners and public service users/citizens. The PPP considers the risk implications on multiple stakeholders directly or indirectly affected by its public service delivery.</p>	<p>The PPP also adopts mechanisms to monitor and balance potential risk implications among the partners and public service users/citizens.</p>

<p>Risk minimization as an element of risk governance rather than focused orientation To what extent is the PPP's risk minimization process not only seen (only seen) as a narrowed approach to minimize the risks and their consequent costs, enabling (disabling) the dialogue among the partners and public service users/citizens, which can enhance (hinder) the PPP's social value?</p>	The PPP partners do not have structured risk minimization or risk governance mechanisms.	The PPP partners focus on minimizing internal risks and their consequent costs regarding only the PPP's economic sustainability.	Beyond minimizing economic risks, the PPP partners seek to minimize some risk implications on public service users/citizens, but it is not fully effective. For instance, the PPP partners consider important risk dimensions but not others.	Beyond minimizing economic risks, the PPP partners seek to minimize the potential risk implications on public service users/citizens through dialogue with them.	Beyond minimizing economic risks, the PPP partners proactively keep the dialogue with public service users/citizens through informal and formal channels, aiming to monitor and minimize the potential risk implications for multiple stakeholders.
<p>Risk analysis as an element of risk governance rather than a focused orientation To what extent is the PPP's risk analysis process not only seen (only seen) as a narrowed way to shift uncertainty into manageable internal risks, enabling (disabling) the PPPs to consider its external risks (e.g., the risks implication on the public service users/citizens), which can enhance (hinder) the PPP's social value?</p>	The PPP does not have structured risk analysis or risk governance mechanisms.	The PPP partners focus on shifting uncertainty into manageable risks regarding only the PPP's internal arrangements.	Beyond seeking to shift uncertainty into manageable internal risks, the PPP partners analyze risk implications on public service users/citizens, but it is not fully effective. For instance, the PPP partners consider some important risk dimensions but not others.	Beyond seeking to shift uncertainty into manageable internal risks, the PPP partners analyze the potential risk implications on public service users/citizens.	Beyond seeking to shift uncertainty into manageable internal risks, the PPP partners actively analyze the potential risk implications on public service users/citizens in a nonlinear and multidirectional way.
<p>Transparent risk negotiation among multiple stakeholders To what extent are the PPP's risks negotiated (unnegotiated) among their partners and public service users/citizens, enabling (disabling) the agreement of possible resolution concerning their contested views and different needs, preferences, and expectations, which can enhance (hinder) the PPP's social value?</p>	The PPP does not have structured risk negotiation mechanisms.	The PPP risks are only negotiated between the partners, but the risks associated with public service users/citizens are neglected.	The PPP risks are mainly negotiated between the partners, and there is some room for risk negotiation with public service users/citizens.	The PPP risks are negotiated among the partners and public service users/citizens, often reflecting an agreement on possible resolutions concerning their different needs, preferences, and expectations.	The PPP adopts transparent risk negotiation mechanisms among the partners and public service users/citizens to monitor and resolve the potential conflict between their contested views and different needs, preferences, and expectations.
STAKEHOLDER ORIENTATION CONDITION	1	2	3	4	5
<p>Co-design To what extent does the PPP adopt (neglect) the public service users/citizens' prior experiences and knowledge as a source in its public service design, which can enhance (hinder) the PPP's social benefits delivery?</p>	The PPP does not adopt any co-design mechanism to consider the public service users/citizens' prior experiences and knowledge as a source in its public service design. The PPP's public service is based only on the public or private partner's experiences and knowledge.	The PPP's public service is primarily designed based on public and private partners' experiences and knowledge, with limited involvement of its public service users/citizens.	The PPP allows public service users/citizens to provide ideas and suggestions regarding the public service design, but few incentives exist to stimulate their collaboration.	The PPP adopts structured processes to capture the public service users/citizens' prior experiences and knowledge as a source in its public service design. There is also a forum where public service users/citizens can submit their ideas and suggestions for consideration by the PPP partners.	The PPP actively encourages and incentivizes public service users/citizens to provide ideas and suggestions to improve the public service design. Mechanisms also exist to evaluate and incorporate such ideas and suggestions into the formal decision-making process of the PPP's public service design.
<p>Co-production To what extent does the PPP engage (disengage) the public service users/citizens in the production/management of its public service delivery, which can enhance (hinder) the PPP's social benefits delivery?</p>	The PPP does not adopt any mechanism to engage public service users/citizens in the production/management of its public service delivery.	The public and private partners play the main role in the production/management of the PPP's public service delivery, with a limited engagement of the public service users/citizens.	The PPP allows public service users/citizens to participate in the production/management of its public service delivery, but few incentives exist to stimulate their engagement.	The PPP adopts structured processes to engage public service users/citizens in the production/management of its public service delivery. There is also a forum where public service users/citizens can collaborate with the PPP partners.	The PPP actively encourages and incentivizes public service users/citizens to participate in the production/management of its public service delivery. Mechanisms also exist to evaluate and incorporate their inputs into the formal decision-making process of the PPP's public service delivery.
<p>Co-experience To what extent does the PPP consider (neglect) the public service users/citizens'</p>	The PPP does not adopt any mechanism to capture the public service users/citizens' satisfaction in the	The PPP has a limited process to allow the public service users/citizens to inform their experiences and satisfaction	The PPP has formal processes to allow the public service users/citizens to inform their experiences and satisfaction with	The PPP adopts structured processes to capture the public service users'/citizens' experiences and satisfaction with the	The PPP actively encourages and incentivizes public service users/citizens to inform their experiences and satisfaction with

experience in the use/consumption of its public service delivery, enabling (disabling) their positive experiences, and satisfaction, which can enhance (hinder) the PPP's social benefits delivery?	use/consumption of PPP's public service delivery.	concerning the use/consumption of the public service delivery.	the use/consumption of public service delivery. However, few incentives exist for the PPP partners to stimulate them to provide such inputs.	use/consumption of the public service delivery. There is also a forum where public service users/citizens can regularly share their experiences and satisfaction with the PPP partners.	the use/consumption of public service delivery. Mechanisms also exist to evaluate and incorporate it into the formal decision-making process of the PPP's public service delivery.
Co-construction To what extent does the PPP positively (negatively) affect the public service users/citizens' needs, experiences, and expectations in the use/consumption of public service delivery, which can enhance (hinder) the PPP's social benefits delivery?	The PPP does not adopt any mechanism to capture the public service users/citizens' needs and expectations in the use/consumption of PPP's public service delivery.	The PPP has limited processes to allow public service users/citizens to report their needs and expectations regarding the use/consumption of public service delivery.	The PPP has formal processes to allow public service users/citizens to report their needs and expectations regarding their use/consumption of public service delivery. However, few incentives exist for the PPP partners to stimulate them to provide such inputs.	The PPP adopts structured processes to capture the public service users'/citizens' needs and expectations regarding their use/consumption of public service delivery. There is also a forum where public service users/citizens can regularly share their needs and expectations with the PPP partners.	The PPP actively encourages and incentivizes public service users/citizens to report their needs and expectations regarding their use/consumption of public service delivery. Mechanisms also exist to evaluate and incorporate it into the formal decision-making process of the PPP's public service delivery.

Note: These rubrics were elaborated based on Dos Reis and Gomes's (2022) conceptual framework and following the rubrics' rationale adopted by Lazzarini et al. (2020).

Supplementary Table A3. Data measurement and calibration procedures

Outcomes and conditions	Composite conditions	Degree of public value outcomes and conditions	Principles regarding scores and calibration
Public value outcomes (PV)	Social benefits/impacts	The extent to which the PPPs generate positive (negative) social benefits/impacts to public service users and citizens via high-quality (low-quality) public services delivery, regarding (disregarding) citizens' perspectives and individuals' experiences	
Information sharing (IS)	Risk identification/allocation	The extent to which complete, unbiased, and useful information is available (unavailable) about the PPPs' risks	Customized scales/rubrics score > 3.75 ("fully in") 2.50 < score ≤ 3.75 ("more in than out") 1.25 < score ≤ 2.50 ("more out than in") score ≤ 1.25 ("fully out")
	Cost and benefit analysis	The extent to which complete, unbiased, and useful information is available (unavailable) about the PPPs' cost and benefits analysis	
	Social and political impact	The extent to which complete, unbiased, and useful information is available (unavailable) about the PPPs' social benefits/impact	
	Expertise	The extent to which complete, unbiased, and useful information is available (unavailable) to foster the partners' capabilities of PPPs	
	Partnership collaboration	The extent to which complete, unbiased, and useful information is available (unavailable) to enable cooperation between PPPs' partners	
Public capabilities (PUBC)	Social-based performance	The extent to which complete, unbiased, and useful information is available (unavailable) about the PPPs' social outcomes	↓ Calibrated scales/rubrics 1 = ("fully in") 0.67 = ("more in than out") 0.33 = ("more out than in") 0 = ("fully out")
	Contract-management cap.	The extent to which the PPPs' public partners hold (do not hold) contract-management capabilities	
	Knowledge sharing cap.	The extent to which the PPPs' public partners share (do not share) knowledge with the private partners	
	Partnership cap.	The extent to which the PPPs' public partners hold (do not hold) the effective partnership capabilities	
Private capabilities (PRIC)	Stakeholder management cap.	The extent to which the public partners hold (do not hold) stakeholder management capabilities	
	Execution management cap.	The extent to which the PPPs' private partners hold (do not hold) execution management capabilities	
	Knowledge sharing cap.	The extent to which the PPPs' private partners share (do not share) knowledge with the public partners	
	Partnership cap.	The extent to which the PPPs' private partners hold (do not hold) the effective partnership capabilities	
Risk governance (RG)	Stakeholder management cap.	The extent to which the private partners hold (do not hold) stakeholder management capabilities	
	Explicit risk identification	The extent to which the PPPs' risk is explicitly identified (unidentified) regarding the public service users/citizens beyond the partners	
	Balanced risk allocation	The extent to which the PPPs' risk-benefit is balanced (unbalanced) among public service providers and users/citizens	
	Risk minimization	The extent to which the PPPs' risk minimization process is not only seen (only seen) as a narrowed approach to minimize the risks/costs	
Stakeholder Orientation (SO)	Risk analysis	The extent to which the PPPs' risk analysis considers only (not only) internal risks, enabling (disabling) external risks analysis	
	Transparent risk negotiation	The extent to which the PPPs' risks are negotiated (unnegotiated) among their partners and public service users/citizens	
	Co-design	The extent to which the PPPs adopt (neglect) the public service users' prior experiences and knowledge as a source in their design	
	Co-production	The extent to which the PPPs engage (disengage) the public service users in the production/management of its public service	
Stakeholder Orientation (SO)	Co-experience	The extent to which the PPPs consider (neglect) the public service users' experience in the use/consumption of its public service	
	Co-construction	The extent to which the PPPs positively (negatively) affect the public service users' needs in the use/consumption of public service	

Note: We draw these public value outcomes and conditions from Dos Reis and Gomes's (2022) conceptual framework. Following Lazzarini et al. (2020), we defined the "fully in" threshold point as a score greater than 3.75. Setting the crossover point equal to a 2.5 score, we considered the "more in than out" threshold point as the score between 3.75 and 2.5. As to the "more out than in" threshold point, we classified it as a score between 1.25 and 2.5. Finally, regarding the "fully out" threshold point, we categorized the score as less than 1.25. For instance, if the average score attributed to a particular composite outcome/condition is greater than 3.75, we coded it as equal to 1 = "fully in." On the other hand, if the average composite outcome/condition is scored below 1.25, we coded it as equal to 0 = "fully out." The same rationale applies to the other scales.

Supplementary Table A4. Raw data matrix

Sector / (PPP code)	Information Sharing (IS)	Public Capabilities (PUBC)	Private Capabilities (PRIC)	Risk Governance (RG)	Stakeholder Orientation (SO)	Public Value Outcomes (PV)
Healthcare 1 (HC1H)	4.17	5.00	4.75	4.00	4.00	5.00
Healthcare 2 (HC2H)	4.17	5.00	4.75	3.60	3.50	5.00
Public Transportation 1 (PT1H)	4.67	5.00	5.00	4.00	4.00	4.00
Public Transportation 2 (PT2H)	4.83	5.00	4.75	3.60	3.25	5.00
Citizen Services 1 (CS1H)	4.50	5.00	4.25	3.60	4.25	5.00
Citizen Services 2 (CS2H)	4.17	5.00	4.75	3.00	3.50	4.00
Public Lighting 1 (PL1H)	4.00	5.00	4.75	4.00	3.50	5.00
Public Lighting 2 (PL2H)	4.00	4.50	4.00	3.00	3.25	4.00
Solid Waste 1 (SW1H)	3.50	2.25	3.50	2.40	3.50	4.00
Solid Waste 2 (SW2H)	3.83	2.25	4.00	3.00	2.00	4.00
Basic Sanitation 1 (BS1H)	3.83	2.25	4.00	3.00	2.25	4.00
Basic Sanitation 2 (BS2H)	3.50	2.25	4.00	2.20	3.00	5.00
Healthcare 3 (HC3L)	2.33	3.25	2.00	2.20	2.00	2.00
Healthcare 4 (HC4L)	1.67	5.00	2.25	2.40	1.00	1.00
Public Transportation 3 (PT3L)	2.17	3.00	3.25	2.40	2.25	2.00
Public Transportation 4 (PT4L)	1.17	2.25	2.25	1.20	1.00	1.00
Citizen Services 3 (CS3L)	2.33	3.25	2.25	2.40	2.25	2.00
Citizen Services 4 (CS4L)	1.17	2.25	2.00	1.20	2.00	1.00
Public Lighting 3 (PL3L)	1.83	2.00	2.00	1.20	1.50	2.00
Public Lighting 4 (PL4L)	1.17	1.50	2.00	1.20	1.00	1.00
Solid Waste 3 (SW3L)	2.17	1.75	3.00	1.80	2.25	1.00
Solid Waste 4 (SW4L)	2.17	2.00	1.75	2.20	1.50	2.00
Basic Sanitation 3 (BS3L)	1.17	1.75	1.75	1.80	1.50	1.00
Basic Sanitation 4 (BS4L)	2.17	3.00	2.25	2.20	2.00	1.00

Supplementary Table A5. Calibrated data matrix (recoding calibration)

Sector / (PPP code)	Information Sharing (IS)	Public Capabilities (PUBC)	Private Capabilities (PRIC)	Risk Governance (RG)	Stakeholder Orientation (SO)	Public Value Outcomes (PV)
Healthcare 1 (HC1H)	1.00	1.00	1.00	1.00	1.00	1.00
Healthcare 2 (HC2H)	1.00	1.00	1.00	0.67	0.67	1.00
Public Transportation 1 (PT1H)	1.00	1.00	1.00	1.00	1.00	1.00
Public Transportation 2 (PT2H)	1.00	1.00	1.00	0.67	0.67	1.00
Citizen Services 1 (CS1H)	1.00	1.00	1.00	0.67	1.00	1.00
Citizen Services 2 (CS2H)	1.00	1.00	1.00	0.67	0.67	1.00
Public Lighting 1 (PL1H)	1.00	1.00	1.00	1.00	0.67	1.00
Public Lighting 2 (PL2H)	1.00	1.00	1.00	0.67	0.67	1.00
Solid Waste 1 (SW1H)	0.67	0.33	0.67	0.33	0.67	1.00
Solid Waste 2 (SW2H)	1.00	0.33	1.00	0.67	0.33	1.00
Basic Sanitation 1 (BS1H)	1.00	0.33	1.00	0.67	0.33	1.00
Basic Sanitation 2 (BS2H)	0.67	0.33	1.00	0.33	0.67	1.00
Healthcare 3 (HC3L)	0.33	0.67	0.33	0.33	0.33	0.33
Healthcare 4 (HC4L)	0.33	1.00	0.33	0.33	0.00	0.00
Public Transportation 3 (PT3L)	0.33	0.67	0.67	0.33	0.33	0.33
Public Transportation 4 (PT4L)	0.00	0.33	0.33	0.00	0.00	0.00
Citizen Services 3 (CS3L)	0.33	0.67	0.33	0.33	0.33	0.33
Citizen Services 4 (CS4L)	0.00	0.33	0.33	0.00	0.33	0.00
Public Lighting 3 (PL3L)	0.33	0.33	0.33	0.00	0.33	0.33
Public Lighting 4 (PL4L)	0.00	0.33	0.33	0.00	0.00	0.00
Solid Waste 3 (SW3L)	0.33	0.33	0.67	0.33	0.33	0.00
Solid Waste 4 (SW4L)	0.33	0.33	0.33	0.33	0.33	0.33
Basic Sanitation 3 (BS3L)	0.00	0.33	0.33	0.33	0.33	0.00
Basic Sanitation 4 (BS4L)	0.33	0.67	0.33	0.33	0.33	0.00

Supplementary Table A6. The truth table for high public value outcomes

Information Sharing (IS)	Public Capabilities (PUBC)	Private Capabilities (PRIC)	Risk Governance (RG)	Stakeholder Orientation (SO)	PPP Outcomes (1 = High Public Value Outcome)	Number of Cases	of PPP Codes	Consistency
1	1	1	1	1	1	8	HC1H, HC2H, PT1H, PT2H, CS1H, CS2H, PL1H, PL2H	0.929
1	0	1	0	1	1	2	SW1H, BS2H	0.847
1	0	1	1	0	1	2	SW2H, BS1H	0.834
0	0	1	0	0	0	1		0.499
0	1	1	0	0	0	1		0.466
0	1	0	0	0	0	4		0.350
0	0	0	0	0	0	6		0.330

Supplementary Table A7. The truth table for low public value outcomes

Information Sharing (IS)	Public Capabilities (PUBC)	Private Capabilities (PRIC)	Risk Governance (RG)	Stakeholder Orientation (SO)	PPP Outcomes (1 = Low Public Value Outcome)	Number of Cases	PPP Codes	Consistency
0	0	0	0	0	1	6	PT4L, CS4L, PL3L, PL4L, SW4L, BS3L	0.945
0	1	0	0	0	1	4	HC3L, HC4L, BS3L, BS4L	0.942
0	1	1	0	0	1	1	PT3L	0.867
0	0	1	0	0	1	1	SW3L	0.857
1	0	1	0	1	0	2		0.536
1	0	1	1	0	0	2		0.497
1	1	1	1	1	0	8		0.212

Supplementary Table A8. Calibrated data matrix (Direct calibration method)

Sector / (PPP code)	Information Sharing (IS)	Public Capabilities (PUBC)	Private Capabilities (PRIC)	Risk Governance (RG)	Stakeholder Orientation (SO)	Public Value Outcomes (PV)
Healthcare 1 (HC1H)	0.98080588	0.99723757	0.99503310	0.97162129	0.97162129	0.99723757
Healthcare 2 (HC2H)	0.98080588	0.99723757	0.99503310	0.93028700	0.91337445	0.99723757
Public Transportation 1 (PT1H)	0.99400935	0.99723757	0.99723760	0.97162129	0.97162129	0.97162129
Public Transportation 2 (PT2H)	0.99588271	0.99723757	0.99503310	0.93028700	0.85404224	0.99723757
Citizen Services 1 (CS1H)	0.99108533	0.99723757	0.98404990	0.93028700	0.98404995	0.99723757
Citizen Services 2 (CS2H)	0.98080588	0.99723757	0.99503310	0.76454761	0.91337445	0.97162129
Public Lighting 1 (PL1H)	0.97162129	0.99723757	0.99503310	0.97162129	0.91337445	0.99723757
Public Lighting 2 (PL2H)	0.97162129	0.99108533	0.97162130	0.76454761	0.85404224	0.97162129
Solid Waste 1 (SW1H)	0.91337445	0.35689009	0.91337450	0.44138201	0.91337445	0.97162129
Solid Waste 2 (SW2H)	0.95822894	0.35689009	0.97162130	0.76454761	0.23545239	0.97162129
Basic Sanitation 1 (BS1H)	0.95822894	0.35689009	0.97162130	0.76454761	0.35689009	0.97162129
Basic Sanitation 2 (BS2H)	0.91337445	0.35689009	0.97162130	0.33033609	0.76454761	0.99723757
Healthcare 3 (HC3L)	0.40120574	0.85404224	0.23545240	0.33033609	0.23545239	0.23545239
Healthcare 4 (HC4L)	0.12399751	0.99723757	0.35689010	0.44138201	0.02837871	0.02837871
Public Transportation 3 (PT3L)	0.31489521	0.76454761	0.85404220	0.44138201	0.35689009	0.23545239
Public Transportation 4 (PT4L)	0.04177106	0.35689009	0.35689010	0.04469297	0.02837871	0.02837871
Citizen Services 3 (CS3L)	0.40120574	0.85404224	0.35689010	0.44138201	0.35689009	0.23545239
Citizen Services 4 (CS4L)	0.04177106	0.35689009	0.23545240	0.04469297	0.23545239	0.02837871
Public Lighting 3 (PL3L)	0.17104782	0.23545239	0.23545240	0.04469297	0.08662555	0.23545239
Public Lighting 4 (PL4L)	0.04177106	0.08662555	0.23545240	0.04469297	0.02837871	0.02837871
Solid Waste 3 (SW3L)	0.31489521	0.14595776	0.76454760	0.16125959	0.35689009	0.02837871
Solid Waste 4 (SW4L)	0.31489521	0.23545239	0.14595780	0.33033609	0.08662555	0.23545239
Basic Sanitation 3 (BS3L)	0.04177106	0.14595776	0.14595780	0.16125959	0.08662555	0.02837871
Basic Sanitation 4 (BS4L)	0.31489521	0.76454761	0.35689010	0.33033609	0.23545239	0.02837871

Note: We converted our raw data matrix (Supplementary Table A4) into this calibrated data matrix using the direct calibration protocol of the SetMethods package in software R (Oana & Schneider, 2018; Oana et al., 2021).

Supplementary Table A9. Configurations consistent with high public value outcomes (Direct calibration method)

Conditions	Path 1	Path 2	Path 3
	IS * PUBC * PRIC * RG * SO	IS * ~PUBC * PRIC * RG * ~SO	IS * ~PUBC * PRIC * ~RG * SO
Information sharing (IS)	■	■	■
Public capabilities (PUBC)	●	⊗	⊗
Private capabilities (PRIC)	●	■	■
Risk governance (RG)	●	●	⊗
Stakeholder orientation (SO)	●	⊗	●
Consistency	0.944	0.865	0.832
Raw coverage	0.713	0.192	0.195
Unique coverage	0.550	0.057	0.042
Number of PPP cases	8	2	2
Codes of PPP cases	HC1H, HC2H, PT1H, PT2H, CS1H, CS2H, PL1H, PL2H	SW2H, BS1H	SW1H, BS2H
Overall solution consistency		0.935	
Overall solution coverage		0.812	

Note: The presence of necessary central conditions is represented by "■" and their absence by "⊗." The presence of central conditions is represented by "●" and their absence by "⊗." The presence of contributing conditions is represented by "●" and their absence by "⊗." Blank spaces indicate that the condition is not relevant to a particular configuration. The consistency of 0.8 and the frequency of at least one case per configuration were adopted as minimum thresholds. However, we did not find a significant difference between our baseline procedure (the indirect method) and the direct calibration method. We performed the direct method of calibration (see Supplementary Table A8) to analyze whether there were any significant differences in our research findings. This test is relevant because different calibration methods may affect the fsQCA results (Emmenegger et al., 2014; Thomann et al., 2018). However, we did not find a significant difference between our baseline procedure (the indirect method) and this direct calibration method.

Supplementary Table A10. Configurations consistent with low public value outcomes (Direct calibration method)

Conditions	Path 1 ~IS * ~RG * ~SO
Absence of information sharing (~IS)	⊗
Absence of public capabilities (~PUBC)	
Absence of private capabilities (~PRIC)	
Absence of risk governance (~RG)	⊗
Absence of stakeholder orientation (~SO)	⊗
Consistency	0.927
Raw coverage	0.809
Unique coverage	0.809
Number of PPP cases	12
Codes of PPP cases	PL4L, HC3L, HC4L, PT3L, PT4L, CS3L, CS4L, PL3L, SW3L, SW4L, BS3L, BS4L
Overall solution consistency	0.927
Overall solution coverage	0.809

Note: See Supplementary Table A9.

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4 CONTRIBUTIONS AND FUTURE RESEARCH

4.1 CONTRIBUTIONS OF STAND-ALONE STUDIES

In summary, the contributions of this doctoral thesis are twofold. First, by highlighting a need to evaluate PPPs beyond the dominant economic-based approach, the first portion of this research proposes an integrated/structured analytical framework to assess public value creation (destruction) and appropriation (misappropriation) in PPP settings, filling the literature gap. As theoretical implications, our conceptual framework presents insights on how the presence (absence) of different public value mechanisms conditions (i.e., information sharing, public and private capabilities, risk governance, and stakeholder governance) can enhance (hinder) the PPPs' public value outcomes. It also offers a set of empirically testable propositions as a potential starting point for further empirical research to test, refine, and develop our framework. As practical implications, our conceptual framework can be used by practitioners as a guideline to improve the PPPs' design, implementation, and evaluation by placing the social benefits/impacts as core performance dimensions.

Finally, by operationalizing such a conceptual framework and using the Brazilian PPP market as an empirical research setting, the second portion of this study unveils how PPP projects can achieve high or low public value through different configurations of conditions. As theoretical implications, this research validates our conceptual framework and shows how public value creation (destruction) and appropriation (misappropriation) can occur in PPP arrangements as a function of these configurations of conditions. Finally, as practical implications, these findings demonstrate how policymakers and public/private sector managers can successfully set up PPP arrangements by considering alternative paths associated with high public value outcomes and avoiding low public value ones.

4.2 FUTURE RESEARCH

Naturally, despite the contributions of this doctoral thesis, the analyses undertaken in this research do not encompass all public management complexity and challenges regarding PPPs' public value creation (destruction) and appropriation (misappropriation). To move forward, scholars could develop further research concerning these phenomena based on the following potential research avenues:

- To what extent can public value mechanisms affect the PPPs' social-based performance compared to traditional public procurement?
- To what extent can configurations of public value conditions lead to PPPs' public value creation (destruction) and appropriation (misappropriation) compared to traditional public procurement?
- To what extent can PPPs' public value creation (destruction) and appropriation (misappropriation) be impacted by the public service ecosystem (i.e., the interplay amongst institutional/societal, organizational, local milieu, individual, and belief levels; Osborne et al., 2022)?
- To what extent can different wicked problems (Geuijen et al., 2016) demand distinct configurations of public value conditions in PPP settings?
- To what extent can new approaches to PPPs influence public value creation and appropriation in public-private interactions (e.g., ESG/SDGs, social impact bonds, progressive PPPs; Carter, 2020; Casady & Garvin, 2022; Hevenstone & von Bergen, 2020; Vecchi et al., 2022)?

Certainly, other relevant questions may arise regarding these phenomena, and our intention in this work is not to exhaust them. In addition, adopting other promising research methods (e.g., experiments and insider econometrics; Hansen & Tummers, 2020; Teodorovicz et al., 2019) can complement and enhance our comprehension of these topics. From this perspective, this research contributes to paving the way for new developments concerning public value creation (destruction) and appropriation (misappropriation) in PPP settings.

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