Dyadic capabilities in implementing performance-based public procurement

Kati Loijas and Aki Jääskeläinen
Unit of Industrial Engineering and Management, Tampere University, Tampere, Finland, and
Elina Karttunen
Business School, LUT University, Lappeenranta, Finland

Abstract

Purpose – This study aims to provide new understanding on operational and dynamic capabilities supportive to the implementation of performance-based public procurement by focusing on dyadic capabilities of a supplier and a buyer.

Design/methodology/approach – The study is based on the qualitative analysis of 20 interviews with informants representing Finnish public organizations and their private sector suppliers. The analysis is aligned with a theoretical framework connecting the phases of procurement and the capability types studied.

Findings – The findings of the study present the role of operational and dynamic capabilities of a buyer and a supplier in the implementation of performance-based procurement at public procurement phases. Preprocurement phase is found to greatly benefit from all three dynamic capabilities, while operational capabilities suffice in the contracting phase.

Social implications – Increased understanding on capabilities needed in performance-based procurement can increase the chances of success in reaching better value for money of public services and developing supplier markets.

Originality/value – The study contributes to the literature on performance-based public procurement and value-based selling by taking a dyadic approach to the operational and dynamic capabilities needed in business with an emphasis on performance. As the focus in public procurement shifts increasingly from resources to performance, involving a joint effort between buyer and supplier, the study provides insights into role of dyadic capabilities and explains how dynamic and operational capabilities together support the phases of performance-based procurement implementation in the public sector.

Keywords Performance-based procurement, Public procurement, Value-based selling, Dynamic capabilities

Paper type Research paper

Introduction

Public procurement is no longer seen as a purely operational activity but can be used as a tool to achieve desired societal objectives, such as developing local SMEs, advancing sustainability (Grandia and Meehan, 2017; Obwegeser and Müller, 2018), generating innovations (Adjei-Bamfo *et al.*, 2022) or reaching positive health outcomes for citizens. According to Malacina *et al.* (2022), public procurement should focus on effectiveness and performance and not only on prices and inputs such as labor hours or materials. In addition, Sjödin *et al.* (2020) argue that selling performance outcomes is not the same as selling products in a traditional way and, therefore, suppliers may even need to rethink their entire business model. These specific characteristics of performance as a trading object also challenge the current, often one-sided view on the capabilities required in public procurement.

The purpose of this study is to understand how dyadic operational and dynamic capabilities of buyer and supplier support the implementation of performance-based public procurement. With performance-based public procurement, we refer to a procurement approach, where the supplier is required to deliver the desired performance, is not instructed how to deliver the service, but is given the freedom to decide how to achieve the given measurable performance objectives linked to payments fully or partially (Baquero, 2005). Our definition of performance follows Martin's (2002) definition in relation to performance-based contracting, where performance can refer to outputs, quality or outcomes. To capture the elements of performance, the study covers broadly the performance-based (Baquero, 2005; Ekström and Selviaridis,

The current issue and full text archive of this journal is available on Emerald Insight at: **https://www.emerald.com/insight/0885-8624.htm**

Journal of Business & Industrial Marketing
39/13 (2024) 128–144
Emerald Publishing Limited [ISSN 0885-8624]
[DOI 10.1108/JBIM-09-2023-0542]

This research is supported by the INNOP ROCU project funded by the Academy of Finland. The authors are grateful for the support. Authors are also thankful for Laura Mäkinen and Elina Mäntysaari for the support of data gathering.

Received 25 September 2023
Revised 12 April 2024
Accepted 24 June 2024

2014; Hensher and Stanley, 2003; Kashiwagi, 1999; Kleeman and Essig, 2013; Martin, 2002, 2007; Selviaridis and Wynstra, 2015; Van Duren *et al.*, 2014; Vullo *et al.*, 2018), outcome-based (Farr, 2016; Koivisto, 2018; Korkeamäki *et al.*, 2022; Sjödin *et al.*, 2020) and value-based approaches (Liinamaa *et al.*, 2016; Lindgreen and Wynstra, 2005; Liu and Zhao, 2021; Meehan *et al.*, 2017; Raja *et al.*, 2020; Terho *et al.*, 2012; Töytäri *et al.*, 2011; Töytäri and Rajala, 2015) of the literature. In addition, the study also considers practical experience of the interviewees on how the different performance conceptions manifest in practice. Moreover, the analysis of the study is based on literature in the fields of performance-based procurement and value-based selling as complementary trading approaches from buyer and supplier perspectives.

The evolving role and new requirements of public procurement in a strategic direction (Guarnieri and Gomes, 2019) have put evolutionary pressure on the capabilities of both public procurement and its suppliers. According to Grant (1991), capabilities are what organizations can do, with resources working together, but involving complex coordination of activities and resources. In addition, capabilities have been said to bridge the gap between intention and outcomes and, when linked to performance-based contracting, capabilities have been seen as closely linked to activities (Ekström and Selviaridis, 2014). Previous research on capabilities in performance-based procurement focuses mainly on contracting, i.e. contract design and management and related capabilities (Ekström and Selviaridis, 2014; Selviaridis and Wynstra, 2015), and recognizes the role of performance-based contracting as a complement to tendering (Selviaridis and Wynstra, 2015). However, it is expected that performance-oriented approach to procurement requires specific capabilities also before and after the contracting. To address the whole procurement process beyond tendering and contracting, and, thus, to consider the evolving role of public procurement as an enabler of societal objectives, we have chosen to discuss procurement and sales capabilities instead of contracting capabilities.

Although new demands for capabilities have been identified in both procurement (Edler and Yeow, 2016) and sales organizations (Raja *et al.*, 2020), and European Commission (2020) has published the competency matrix for public procurement, the specific capabilities needed in performance-based public procurement remain unclear and the literature remains rather silent on the potential dyadic capabilities. However, previous literature argues that to create value, the capabilities possessed by the parties must be adapted to the dyad to which they apply (Croom, 2001). This viewpoint is essential since performance-based procurement typically needs efforts and dyadic interaction from both buyer and supplier. In addition, the supplier perspective deserves more attention in the public procurement research (Malacina *et al.*, 2022; Patrucco *et al.*, 2017), such as the pioneering work done in the public procurement of innovation (Valovirta, 2015; Edler *et al.*, 2015; Karttunen *et al.*, 2022). Moreover, there are already papers which concentrate on buyer (e.g. Ekström and Selviaridis, 2014) and supplier (e.g. Töytäri and Rajala, 2015) capabilities in performance-based or value-based approaches in procurement/sales. Consequently, this paper focuses on dyadic capabilities which have gained surprisingly little attention considering the importance of dyadic approach in implementing the performance-based approach. Hence, instead of studying a performance-based approach from buyer-centric or supplier-centric perspective, this study follows the suggestion of taking a dyadic perspective (Johnsen *et al.*, 2022; Sjödin *et al.*, 2020).

With the particular focus on the dyadic capabilities required, we developed the literature base based on strategic public procurement (Guarnieri and Gomes, 2019), performance-based contracting (Selviaridis and Wynstra, 2015), outcomes-based procurement (Koivisto, 2018) and value-based selling (Liu and Zhao, 2021) activities. We used Yook *et al.*'s (2018) view of operational capabilities to support the daily activities of the organizations. Then, the lens of dynamic capability view was applied, as dynamic capabilities have been seen as necessary for business renewal (Kump *et al.*, 2019), for directing ordinary capabilities and operational activities toward desirable outcomes (Teece, 2014) and for supporting change (Helfat and Winter, 2011; Teece, 2014; Winter, 2003; Yook *et al.*, 2018), such as the implementation of new trading approaches. Although the importance of interaction and relational capabilities (Holma *et al.*, 2022) and capabilities for public procurement of innovation (Valovirta, 2015) has been recognized in the context of public procurement, we do not discuss them separately in this study. We focus on dyadic capabilities specific to performance-based procurement which represent a different setting despite some potential similarities with the above-mentioned capability literature. Furthermore, we limit our focus to operational and dynamic capabilities, encompassing both the activities of operational implementation and the pursuit of long-term impact (Teece, 2014), both of which are important for performance-based procurement (van Duren *et al.*, 2014).

Dynamic capabilities have been topical since 1997 (Teece *et al.*, 1997) but have received relatively little research attention in public procurement (Piening, 2013) and even less in performance-based public procurement. Although operational and dynamic capabilities differ in purpose and outcomes (Helfat and Winter, 2011), Yook *et al.* (2018) recommend that both operational and dynamic capabilities should be covered to get a complete picture. In addition, the consideration of operational and dynamic capabilities in the same study is also supported by Teece's (2014) article, where Teece distinguishes ordinary capabilities (the capability to perform operational and administrative activities) and dynamic capabilities, but discusses them together, as their combination supports both operational performance and long-term impact.

In all, this study aims to address these research gaps and suggestions by providing a better understanding of the performance-based public procurement from the dyadic viewpoint. By collecting empirical data through semi-structured theme interviews and analyzing it by using qualitative content analysis, the aim is to find answers to the following research question:

RQ1. How do buyer and supplier operational and dynamic capabilities contribute to the implementation of performance-based public procurement?

As a first contribution, this study contributes to the debate on performance-based public procurement by emphasizing its

dyadic capability needs. Second, this study contributes to the debate on dynamic capabilities in public procurement by specifying the phases of procurement supported by dynamic capabilities. In addition, the study uses the perceptions of buyer and supplier practitioners, to provide more understanding of capabilities related to public procurement, both in terms of partner selection and organizational capability development more widely.

In the following section, we explain the concepts of performance-based procurement and value-based selling, and as background, discuss how previous literature links them to activities and capabilities. Next, we describe the methodology used. Then, we present empirical dyadic findings aligned to different procurement phases. Finally, we discuss how dyadic capabilities support the implementation of performance-based procurement and conclude with suggestions for future research.

Literature review

Performance-based procurement

In the end of last century, Kashiwagi (1999) presented a performance-based procurement system based on life-cycle cost and performance to select best performing supplier, developed for both the public and private sectors in construction. Later, performance-based contracting evolved as a practical and feasible alternative to competitive tendering in the public sector when governments started to aim beyond cost reduction and link payments to performance, especially in service procurement (Hensher and Stanley, 2003). Baquero (2005) introduced the concept of performance-based procurement more widely to the infrastructure and social sectors, and in the definition she introduced characteristics of performance-based procurement with particular emphasis on end results/performance purchased from the supplier rather than a well-defined work, predefined performance metrics and payments linked to these metrics. Van Duren *et al.* (2014) argue that performance-based procurement should be defined through output specifications and consider quality over price in tendering, and suppliers should be challenged to maximize value for money and deliver the solution fit for purpose. Moreover, according to Vullo *et al.* (2018), the design of performance criteria and metrics design and the involvement of stakeholders should be included very early in the performance-based procurement planning process.

While performance-based approach as a strategic choice has been identified as a possible approach to harness the sustainability and innovation potential, more empirical evidence on its implementation is needed (Selviaridis and Wynstra, 2015). Some outcomes can be difficult to monetize (Selviaridis and Wynstra, 2015), but tenders have to include performance indicators (Vullo *et al.*, 2018) and typically at least part of the payment is linked to the performance (Baquero, 2005; Martin, 2007). In addition, performance-based procurement emphasizes the value provided to the customer (Kashiwagi, 1999; Selviaridis and Wynstra, 2015; Van Duren *et al.*, 2014). Moreover, the literature recognizes the possibilities of co-creation of outcomes and the role of end-users' experiences in framing public services (Farr, 2016). Performance-based procurement encourages suppliers to be innovative in finding ways to deliver the desired outputs or outcomes (Baquero, 2005; Van Duren *et al.*, 2014). However, when allowing the supplier more freedom in terms of how performance is delivered, it also transfers risk to the supplier (Baquero, 2005; Ekström and Selviaridis, 2014; Farr, 2016; Selviaridis and Wynstra, 2015; Van Duren *et al.*, 2014). Kleeman and Essig (2013) argue that in performance-based procurement it is advisable to build trust and reciprocity with suppliers and involve suppliers in the development of a performance-based solution to achieve mutual benefits. These characteristics set a demand for new capabilities for both buyers and suppliers.

Value-based selling

According to Terho *et al.* (2012), value-based selling is not about presenting the benefits of an offering or the functionalities of a product to the customers. Instead, value-based selling is identifying potential customers, understanding the value creation opportunities relevant to the customer, creating and quantifying value propositions, communicating value potential to the customer and verifying customer value (Liu and Zhao, 2021; Raja *et al.*, 2020). Moreover, value-based selling is presented as understanding and improving the customer's business (Terho *et al.*, 2012; Töytäri *et al.*, 2011).

In value-based selling, payments are typically linked to the value or performance and the value proposition is, therefore, based on verifiable data (Liinamaa *et al.*, 2016; Raja *et al.*, 2020). According to Korkeamäki *et al.* (2022), contracts are characterized by a long-term period and the need to review and possibly implement changes also during the contract period. Performance-based contracts can also be used in value-based selling (Liinamaa *et al.*, 2016).

Value-based selling focuses on customer needs more proactively than traditional selling and it is seen as providing solutions to customer pain points (Liu and Zhao, 2021). Similarly to the literature on performance-based procurement, the literature on value-based selling argues that focusing sales on value and performance outcomes shifts responsibility from the customer toward the supplier (Sjödin *et al.*, 2020). In addition, value creation is a collaborative effort between supplier and customer, but the end user can also be involved in the value creation process (Sjödin *et al.*, 2020).

Dyadic key activities in performance-based public procurement

Strategic public procurement has been identified as having three phases: planning, tendering and monitoring of the contract (Guarnieri and Gomes, 2019). Similar phases are recognizable from the suppliers' side, although they are referred to in slightly different terms. The phases of value-based selling are described using the terms: planning, implementation and leverage (Töytäri and Rajala, 2015).

To study dyadic capabilities of the parties, it is first necessary to understand the main activities related to performance-based public procurement and value-based selling on a party-specific basis, and then to examine the activities of the dyad. The key activities related to the three identified process phases, referred to in this article as preprocurement, contracting and contract period, are presented in the Table 1.

Table 1 Dyadic key activities of performance-based public procurement

Process phases (modified from Guarnieri and Gomes, 2019)	Performance-based public procurement key activities (modified from Guarnieri and Gomes, 2019; Koivisto, 2018; Selviaridis and Wynstra, 2015)	Value-based selling key activities (modified from Liu and Zhao, 2021; Töytäri *et al.*, 2011)	Interpretation of dyadic key activities
Preprocurement	Identifying potential suppliers	Identifying potential customers	Identifying potential business partner
	Defining need	Understanding a customer's business	Building a common understanding of the need
	Defining performance	Crafting solutions	Defining outputs/outcomes
	Setting targets and metrics	Setting mutual targets	Defining targets and metrics
Contracting	Tendering and contracting	Communicating and offering customer value	Contracting as a result of the tendering process
Contract period	Evaluating and reporting performance	Verifying and documenting customer value	Measuring and target monitoring

Source: Authors' own work

The previous studies suggest that the key activities presented in the Table 1 from defining needs to verifying their fulfilment are a joint effort and broad performance or value/solution co-creation activity (Farr, 2016; Koivisto, 2018; Liu and Zhao, 2021; Osborne, 2018; Santos and Cabral, 2022; Sjödin *et al.*, 2020; Terho *et al.*, 2012; Töytäri *et al.*, 2011). More specifically, in dyad, both the supplier's expertise and the buyer's knowledge of the operational environment together play a key role in value-creation activities (Sjödin *et al.*, 2020). In addition, Gadde and Håkansson (2023) argue that it is becoming common for business partners to seek to integrate their activities with each other. Moreover, for organizations, large-scale collaboration and co-creation can mean redefining procedures and processes, adapting existing practices, training, organizational changes and even cultural change (Uyarra *et al.*, 2020). However, also performance-based relationship paradoxes have been identified in terms of sharing and protection of information, sharing of objectives and formality of control, where the parties, despite their mutual efforts, also tend to maintain separate objectives and requirements (Korkeamäki *et al.*, 2022).

Capabilities in performance-based public procurement

According to Piening (2013), public sector organizations are required to evolve toward performance management and build effectiveness and capabilities that can be exploited to achieve benefits to society. Thus, the dynamic capabilities associated with strategic change (Winter, 2003) seem to be relevant in this strategic evolution of public procurement. However, the combination of dynamic and operational capabilities supports both operational performance and long-term impact (Teece, 2014). Hence, it is justified to cover also operational capabilities, as operational and administrative activities (Winter, 2003; Yook *et al.*, 2018) are not separated from more strategic activities in the implementation of performance-based procurement.

Performance-based procurement requires capacity and capability to adapt its processes, tools and change (Meehan *et al.*, 2017). Measuring performance impacts is challenging, which may even limit the use of performance-based approach in the public sector (Jääskeläinen and Laihonen, 2014; Selviaridis and Wynstra, 2015). To achieve new approaches to procurement, the ability to be innovative and risk-taking, a change-oriented attitude and a learning mindset are emphasized (Uyarra *et al.*, 2014). In terms of long-term effectiveness, the ability to define needs and performance/outcomes and translate them into objectives and metrics is crucial in performance-based public procurement (Baquero, 2005; Farr, 2016; Koivisto, 2018; Selviaridis and Wynstra, 2015; Vullo *et al.*, 2018). Early interaction between parties is essential to achieve innovativeness in public procurement (Adjei-Bamfo *et al.* (2022). In addition, public organizations need to be capable of co-creating outcomes or solution which often refers to partnership capabilities (Osborne, 2018; Sjödin *et al.*, 2020). Furthermore, monitoring, data collection and analysis are important process elements during the contract period, creating also an essential capability need for the public organization (Selviaridis and Wynstra, 2015).

Also, value-based selling requires service-centric mindset and an organizational learning process (Raja *et al.*, 2020). Value analysis, value proposition development, value communication, quantification and verification have been identified as essential capabilities for the success of value-based selling (Töytäri and Rajala, 2015). In addition, Kienzler *et al.* (2019) emphasize the learning orientation throughout value-based selling practices and see value-based selling as contributing to sales performance.

More generally, Flynn and Davis (2017) highlight that in the public sector context, it is important for suppliers to have both relational and procedural capabilities to successfully participate in public procurement. On the other hand, Kelly *et al.* (2021) highlight that public buyers should have the ability to engage with suppliers and build relationships very early in the procurement process to attract the best suppliers to the tendering process. They also highlight that public buyers should ensure fairness of the process from supplier perspective.

Holma *et al.* (2022) highlight interaction capabilities and demand-solution matching capability as important capabilities of both parties in preprocurement dialogues. Karttunen *et al.* (2024) found that public buyers' dynamic capabilities are connected to benefits such as well-functioning supplier markets. Whereas Santos and Cabral (2022) identified three types of capabilities for complex public procurement: bid and contract capability, relationship management with prominent

Journal of Business & Industrial Marketing
Volume 39 · Number 13 · 2024 · 128–144

stakeholders and knowledge management capability. These buyer's capabilities could be associated to increased levels of collaboration and trust in relationships between buyers and suppliers (Santos and Cabral, 2022). In addition, the ability to work collaboratively, integrate organizations and manage a project collectively are seen as essential collective capabilities in alliances (Hietajärvi, 2017), where performance-based approach also can be used. Moreover, Sjödin *et al.* (2020) states that developing operational capabilities for both customer and supplier to the contract period, at a very early stage, is vital for success. While the public buyer perspective recognizes the importance of linking payments to performance (Baquero, 2005; Farr, 2016; Selviaridis and Wynstra, 2015), sales research has also emphasized the important role of pricing capabilities in value-based selling (Raja *et al.*, 2020).

In the transition from transaction-based to performance-based approaches, partner organizations need to adjust their capabilities to meet the requirements of the new activities, for which they need dynamic capabilities. While operational capabilities support the implementation of activities in the present, dynamic capabilities benefit the organization in the long term by directing the use of operational capabilities to produce major outcomes (Teece, 2014; Yook *et al.*, 2018). In addition, Piening (2013) describes dynamic capabilities as set of capabilities that "enable a public organization to renew its operational capabilities in pursuit of better performance".

Dynamic capability is originally developed to provide answers on how to create competitive advantage in a fast-changing environment (Teece *et al.*, 1997). The ability of both the buyer and the supplier to identify opportunities and risks (sensing), to implement changes (seizing) and to flexibly reconfigure operations and competences (transforming) (Lee and Rha, 2016; Teece, 2007) are crucial in shedding light on the requirements of novel performance-based procurement activities. On the other hand, Liu and Zhao (2021) states that organizations should grow their dynamic capabilities to support value-based selling in identifying potential customers, creating a value proposition that meets customer needs and generating a contract, and adapting organizational processes, tools and competences to a value-oriented approach.

According to Croom (2001), a dyad generates value only when the key capabilities of the parties complement each other and are activated through interaction. Therefore, based on the need for early interaction and joint effort on key activities, the study assumes that in the case of performance-based procurement it is possible to identify not only the individual capabilities of the parties but also necessary dyadic capabilities when implementing performance-based public procurement. Croom (2001) presents a dyadic capabilities framework, which is constructed through a distinction between relational capabilities (e.g. communication, interaction and relationship development) and operational capabilities. However, in this study, we do not use this framework as such, but instead use Croom's (2001) approach to the interpretation of capabilities in dyads. Furthermore, as relational capabilities (such as partnership building and trust building) appeared only in the supplier responses of our data and only rarely as dyadic capabilities, we excluded separate relational capabilities from our analysis and focused only on operational and dynamic capabilities that support performance-based public procurement in the dyadic context. Interaction capabilities are included according to whether they relate to operational activities or to the dynamic capabilities required for change. Figure 1 illustrates our theoretical framework.

Methodology

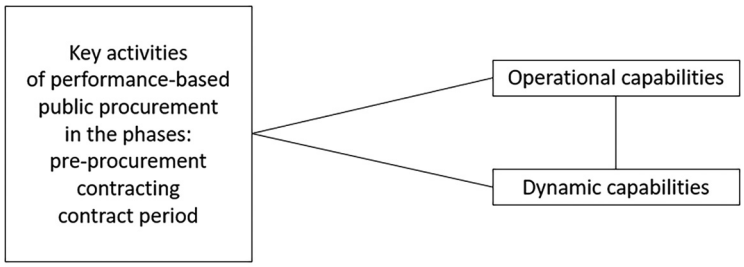
The qualitative approach chosen was this research necessary for the research problem at hand since there are only limited studies on performance-based public procurement and performance-based procurement has not yet been implemented much in the country where the study was conducted. Hence, this study has an abductive approach consisting of exploration in the empirical field and connection of observations with the research framework (Dubois and Gadde, 2002) through theory elaboration (Ketokivi and Choi, 2014). More specifically, the empirical part connects the capability-related observations with both dynamic capabilities as sensing, seizing and transforming, and operational capabilities following the phases of the performance-based procurement and value-based selling.

This study was implemented as a mono-method qualitative research consisting of semi-structured interview studies for both buyers and suppliers. Interview is chosen as the research strategy to gain access to the interviewees' personal experiences. In addition, semi-structured interview was used to keep discussion with key questions formal enough while leaving room for unexpected topics to appear. Interview study was supported by literature presenting different phases of procurement/selling and dynamic capability perspectives but also the open exploration was enabled. More specifically the buyer interviews consisted of following themes: opportunities and challenges in performance-based procurement, and activities and capabilities in different phases of performance-based procurement. Supplier interviews included the following themes: benefits of value-based selling, capabilities and practices in different phases of value-based selling.

The interviewees for the buyer interviews have been selected from Finnish public organizations using purposive sampling. The procurement representatives interviewed represent the social and health care sector and the infrastructure sector. Earlier literature acknowledges the application of performance-based procurement in these two sectors (Baquero, 2005) and also the analysis of earlier procurement cases in Finland confirmed the use of performance-based approach in these sectors. Some differences in procurement context between the social and health care sectors and the infrastructure sectors can be identified. In infrastructure sector the supply is often project oriented and provided by a complex network of suppliers for different infrastructure life-cycle stages (Eriksson *et al.*, 2023; Matinheikki *et al.*, 2021). Social and health services are commonly supplied as a continuous service delivery with the challenge of responding to customization demands (Chong *et al.*, 2019). The different sectors naturally also define their specific performance objectives differently. However, the basic idea in performance-based procurement approach does not clearly vary across the studied sectors.

Finland, as one of the Nordic countries, is well suited as an environment for public sector data collection because it has very extensive public services related to social and health

Figure 1 Theoretical framework



Source: Author's own work

services, infrastructure, education and public transport (Jääskeläinen, 2010). In addition, in Finland, the government has published a national procurement strategy to guide generally all public procurement toward a more strategic and procurement skills-developing approach, while also providing tools to implement the strategy (Ministry of Finance, 2020). Moreover, Finland has been recognized as a strong performer in terms of innovation and R&D procurement in the public sector, although there is still room for improvement (European Commission, 2021).

Similarly, the interviewees for the supplier interviews were selected by using purposive sampling from private companies supplying Finnish public organizations. All interviewees were limited to people who were identified as having experience of using performance-based or value-based elements in procurement cases, sufficient knowledge of the topics being asked and a sufficiently diverse perspective on the subject.

In addition, all interviewees were asked to share their views using examples of performance-based procurement. As an illustrative example, one interviewee discussed service procurement, where they first used the negotiation procedure to define together what they were going to procure, and to collaboratively set targets and metrics for that procurement. In this example, both impact and financial targets were set, and payments were linked to performance through a bonus model. The interviewee also reported, among other things, that flexibility was built into the contract, for example to adjust the metrics during the long contract period, and that during the contract period the interaction and cooperation with the supplier was more varied and closer than in some more traditional procurements. Also in the other mentioned examples, the roles of negotiation and interaction in the procurement procedures were common.

A total of 13 interviews were conducted from a buyer's perspective and 7 from a supplier's perspective. All interviews were conducted as 1–1.5 h lasting one-to-one sessions, via Teams. The interviews were recorded and transcribed. Before the data analysis, the interviewees were coded as follows: B = Buyer, S = Supplier, DI = Director, MA = manager and SP = Specialist. An overview of the informants is presented in the Table 2.

Empirical data was analyzed by qualitative content analysis. Coding of the data included different phases (cf. Ellram, 1996). The similar descriptive meanings from the transcribed interview data were identified manually in open coding which roughly followed the main themes of the interview structure (e.g. the different phases of procurement/selling). Open coding identified and combined observations from any parts of the interview and the similarity of meanings was the essential driver of code creation. In this phase, 124 capability codes were identified. Next, codes that were similar were merged and remaining codes were allocated to the three phases of the procurement/selling in alignment with the connections identified in interviews. The analysis continued with manual axial coding where the identified codes were connected to dynamic capabilities theory framework. Capabilities that could not be interpreted as dynamic capabilities were defined as operational. In this phase, some of the original codes were merged but also codes emerging from the data were sustained to elaborate the framework. While one of the authors was responsible for coding, the allocation of codes to dynamic and operational, and to different procurement phases, was reviewed and validated by all the authors.

As there were capabilities specific to both of the studied counterparts, the codes to be included in the results were identified next. The identification followed Croom's (2001) definition, where a dyad generates value when the parties' key capabilities complement each other and are activated through interaction. Thus, a total of 49 codes from both parties were selected in the result tables (Appendix Table A1–Ac), where the identified capability complements and interacts with the capability of the other party and is, thus, interpreted as adapted in a dyad. The capabilities identified and interpreted as dyadic were not necessarily identical. Finally, a conceptual framework was created by synthesizing the capability observations by merging them into dyadic capabilities of the parties. The conceptual framework presents the most essential capability observations for individual performance-based procurement phase. More specifically, capabilities partly supporting but not simultaneously serving both parties were excluded.

Findings

The results present the necessary dyadic capabilities identified for the three phases of procurement/selling in the case of a performance-based approach. Figure 2 illustrates the coding tree used. First, the first-order capability codes are presented phase by phase emerging from the interviews with buyers and suppliers. Then, the second-order capability themes are used to indicate which theme these codes were identified as in the data analysis. The operational capabilities shown in the findings are needed by the parties in the dyad to conduct practical activities to implement the specific procurement/sales cases (Yook *et al.*,

Table 2 Overview of the informants

Interviewee role	Organization	Interviewee code	Interview date, duration
Development director	Municipality (health services)	BDI1	March 2022, 65 min
Director	Municipality (health services)	BDI2	March 2022, 45 min
Procurement manager	Municipality (health services)	BMA1	March 2022, 46 min
Manager	Municipality (infrastructure services)	BMA2	February 2022, 78 min
Procurement director	Regional welfare services	BDI3	March 2022, 66 min
Procurement manager	Regional welfare services	BMA3	March 2022, 45 min
Project manager	State (infrastructure services)	BMA4	June 2022, 58 min
Project manager	State (infrastructure services)	BMA5	June 2022, 52 min
Associate director	State (infrastructure services)	BDI4	June 2022, 80 min
Procurement director	State (professional services)	BDI5	June 2022, 74 min
Development manager	State (infrastructure services)	BMA6	June 2022, 90 min
Senior researcher	State (research services)	BSP1	June 2022, 67 min
Specialist	State (infrastructure services)	BSP2	August 2022, 46 min
Product manager	ICT company 1	SMA1	April 2022, 53 min
Business development director	ICT company 2	SDI1	April 2022, 61 min
Director	ICT company 3	SDI2	April 2022, 49 min
Segment director	ICT company 4	SDI3	November 2022, 67 min
Sales manager	Health technologies	SMA2	December 2022, 60 min
Work manager	Infrastructure services	SMA3	February 2023, 59 min
Area director	Health services	SDI4	May 2023, 80 min

Notes: B = buyer; S = supplier; DI = director; MA = manager; SP = specialist
Source: Authors' own work

2018). The dynamic capabilities are needed to sense opportunities, to seize the identified opportunities in the organizations and to transforming operations and competences (Lee and Rha, 2016; Teece, 2007). As performance-based procurement is a relatively new approach to public procurement, our findings suggest that operational or dynamic capabilities alone are not sufficient but complement each other first to find opportunities and then to achieve the best performance.

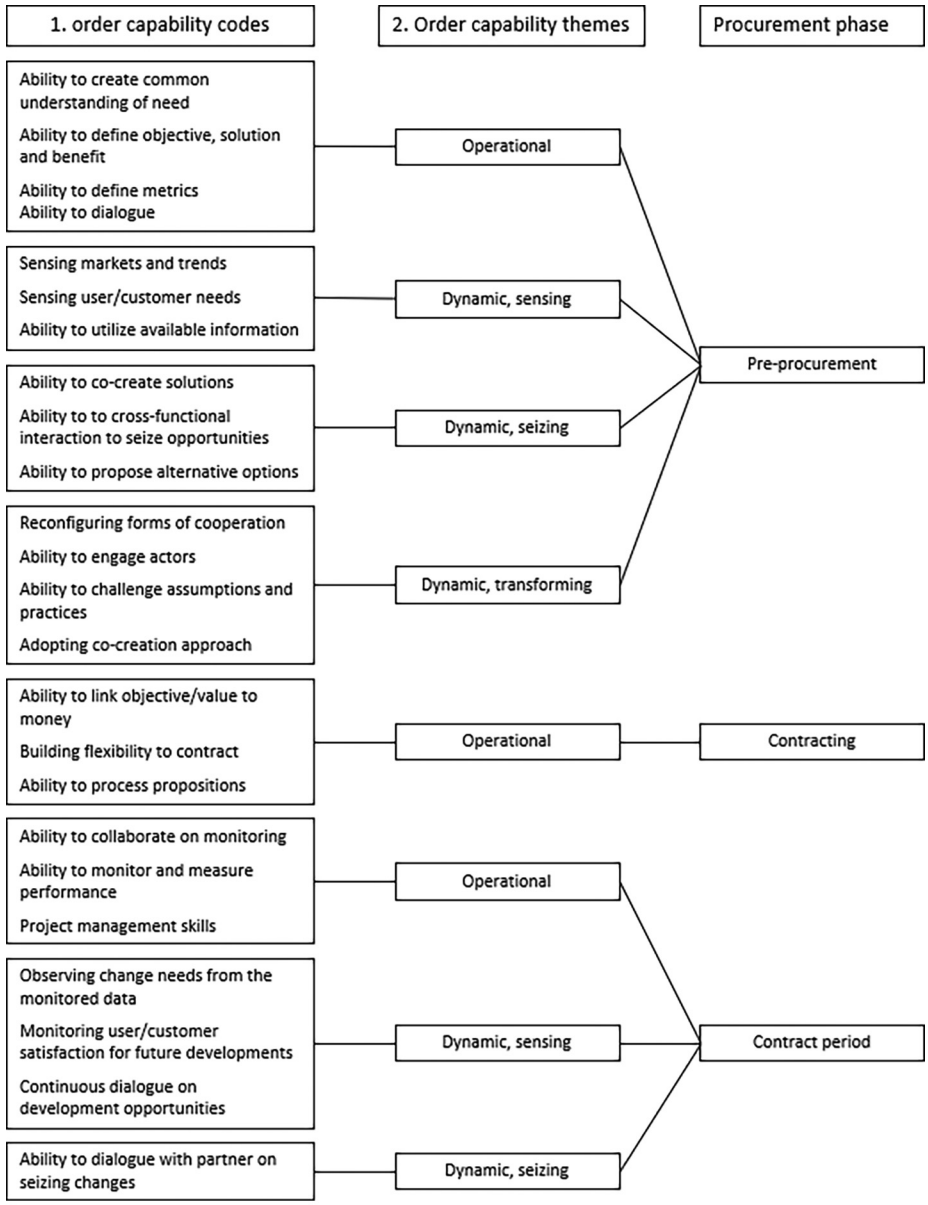
Dyadic capabilities in the preprocurement

Half of the identified capabilities are situated in the preprocurement phase. Thus, also the focus of the dyadic capabilities is on this phase, where the opportunity is identified and enabled, suitable partner is sensed, all the definitions are made and the common vision of the procurement objective and metrics are established. The capabilities identified in the preprocurement phase are shown in the Figure 2 and presented in more detailed in Appendix Table A1.

While value-based selling suppliers proactively seek to first identify and then contact their potential public customers, for example through phone calls, social media channels, presentations and webinars, and by using their references (SMA2), public buyers do talk about identifying opportunities in the market but not explicitly mention identifying a potential business partner. On the other hand, the ability to select or use procurement procedures did not emerge as a dyadic capability in the preprocurement phase. Instead, as an operational capability, the ability to create a shared understanding of the current situation and define objectives were, based on our data, the first operational activities adapted in dyad as described by one buyer respondent: "You have to understand what the target is that you want to achieve, and what the current situation is" (BDI3), and by a supplier respondent: "Good definition work creates a good basis for a common understanding of what the (end) customer needs, what the solution concept is, and how it is built" (SMA1). Of particular relevance for performance-based procurement is the dyadic capability to define metrics that match the objectives, as described by informants: "If we have very wrong metrics, or we don't get the data, we don't get to measure the impact or the outcomes. This means that it (performance-based approach) can then lose its meaning" (BMA1), and "There must be objectives and there must be some way of measuring that success" (SDI2). Moreover, respondents have seen the ability to have an open discussion, a dialogue, as relevant to the success of implementing a particular performance-based procurement, as illustrated by this response: "We do a lot of dialogue and often many times during that procurement planning phase" (BMA1).

In addition to operational capabilities, the preprocurement phase of performance-based procurement requires dynamic capabilities even more. Without dynamic capabilities, sensing opportunities might never have occurred, and organizations might never have been able to capture the opportunities fully. In addition to sensing market opportunities and following trends through buyer–supplier interaction, sensing end user needs was also considered important for the success of the performance-based procurement, and informants had different

Figure 2 Coding tree



Source: Author's own work

ways of doing this, such as: "In some procurements we have had workshops (with end users), or we have done a survey in a certain postcode area, for example, and got input from that. Then we have also used NGOs to some extent" (BDI1) and "We also have partners for gathering (end) customer interface data to see what new services we will produce in the future" (SMA2).

However, the overall number of seizing capabilities in the sales side findings was relatively low for all but co-creation/agile development. Seizing capabilities related to the joint definition, co-creation and co-development of a solution were considered essential by both parties. However, what is noteworthy in the empirical findings on this topic, is that the term used for this collaboration differed between the procurement and sales contexts. While the term co-creation was used in the context of performance-based procurement, the term of agile development was commonly used in the context of value-based selling. As described by these informants:

> The metrics are defined together with the purchaser and the service provider. The field will be consulted, and discussions will take place with the various parties representing that particular procurement. In principle, there should always be co-creation.

(BDI4) and If you are creating something new together with the customer, then the agile development is emphasized, so that value is produced for the customer all along the way and the plans can also be adapted according to what becomes apparent during the development" (SMA1).

To harness the sensing, seizing and operational capabilities mentioned above, a performance-based procurement approach also involves transforming capabilities such as a requirement to challenge and, if necessary, reconfigure previous structures, practices and even attitudes to allow for a performance-based and collaborative approach to dyad. In the examples of interviews, forms and practices of cooperation have been reconfigured: "Dialogues, demos, discussions, millions of meetings, presentations, but then we have also very concrete ones... We have labs where we show things, and visit with customers in demo centers" (SDI3), the benefits of integrated teams have been recognized: "The best result is usually achieved when the customer has a representative on the development team" (SDI1), and new ways of gathering end user needs have been established: "workshops have been held and some kind of citizens' panel and so on" (BSP1). Respondents also describe the transformation of common attitudes and mindsets needed to implement a collaborative approach, for example: "In a way you have to have the ability to let go of these ways of doing things and think about things in a completely different way" (BDI2) or "The co-creation mode (is needed), i.e. not going too far in defining things by yourself" (BDI1)

Interesting observation from the findings is that the codes "Building trust" (SDI1, SDI2, SMA2 and SDI4) and "Building partnership" (SDI1, SDI2, SDI3, SMA2) which were repeated by quite a few informants, only came up in the interview responses from the supplier side. On the other hand, "top management support and commitment" (BDI1, BDI2, BDI3, BDI4, BDI5, BMA5 and BSP1) and "courage and willingness to experiment" (BDI2, BMA4, BMA5, BMA6 and BSP2) emerged only from buyer responses. Since no interactive counterpart was found for these codes, they were removed from the findings, as only those capabilities that interact across parties were included, in accordance with the chosen methodological approach.

Dyadic capabilities in the contracting

The tendering and contracting process for performance-based procurement was seen as largely similar to any public procurement. However, some performance-based specific capabilities were also identified as being related to the contracting phase. These dyadic capabilities are shown in the Figure 2 and presented in more detailed in Appendix Table A2.

We found that only operational capabilities related to the contracting phase were identified in the responses. Some dynamic capabilities appeared, but they were not dyadic and were, therefore, excluded from the findings. In performance-based procurement, the link between payment and performance is seen as a clear part of the whole. In terms of operational capabilities, even two-thirds of the buyer-side informants cited as an essential capability to link objective, outcome or value to the pricing. When both the buyer: "If we are talking about good performance-based procurement, then the compensation to the service provider should be very strongly linked to that performance" (BDI3), and the supplier: "You should understand pretty well what kind of value the customer gets and try to reflect that in it (price setting)." (SMA1), find it relevant to link performance/value to payments/price, it is found that in the dyad it is relevant to link the desired performance to price in a mutually agreeable way.

Similarly, because performance-based contracts tend to be long-term in nature, both buyer and supplier informants shared the view that the parties should be able to work together to build flexibility into contracts, although the findings were biased toward the buyer side. One respondent initially described the need as follows: "If the contract is long, the service must also be able to respond to changes that may occur during the contract period" (BMA2). This was followed by an explanation of what kind of requirements it would set the contract if it were to allow for further development during the contract period:

> Long-term (contracts) may be a more flexible. The metrics may change if they are not considered appropriate for the service, or the service may be modified to include new, innovative solutions on how to do it. And that may invalidate some metrics and we have to invent a new one. (BMA2).

It is worth noting that flexibility is not necessarily a term commonly associated with public procurement contracts, but it is seen as relevant in the context of performance-based public procurement.

Dyadic capabilities in the contract period

During the contract period, the public buyer and the supplier typically manage the contract and conduct activities without continuous monitoring or measuring. In the case of the performance-based approach, the operational capabilities to monitor and verify the achievement of objectives in collaboration become relevant. However, the observations show that the contract period also provides an opportunity to identify new opportunities that can be implemented already during the current contract period or later. The capabilities required in the contract period are shown in the Figure 2 and presented in more detailed in Appendix Table A3.

The importance of the ability to cooperate in monitoring was considered essential by both parties: "Monitoring and collection of measurement data, it certainly requires that it is typically done in collaboration with the supplier" (BSP1) and "We work with the customer right from the start to monitor effectiveness" (SMA2). Several informants also considered the joint monitoring and measuring capability important, and not just the responsibility of the supplier to prove the achievement of the target, as found in the interview with this informant: "The metrics and measurement of performance-based procurement are so complex that (also) the procuring organization must have the expertise to measure" (BDI5).

In addition, many informants from both the buyer and the supplier side considered important the ability to jointly identify new opportunities and development possibilities. One buyer informant describes the sensing based on collaborative data monitoring as follows:

> If it is a performance-based procurement, then during the contract period the performance is monitored more closely. Perhaps, we are better able to identify how the procurement is carried out and how the service is best to produce in the future. (BMA3).

On the other hand, sensing together through dialogue emerged as follows:

> It is good to have a feedback loop and a discussion link all the time and to have a dialogue with the customer on how what has now been implemented, how it has worked and how much they have benefited from it, and whether there are things that could be further developed to better serve the customer's needs and be able to deliver value to the customer. (SMA1).

However, the results show that future opportunities and development needs are more often mutually sensed in discussions between buyer and supplier (dialogue) than by sensing opportunities and development needs from measurement data. Similarly, dialogue capability, i.e. the ability to engage in discussion between buyer and supplier, on seizing changes was mentioned as a prerequisite, although with a clear bias toward buyer informants. Transforming capabilities were not identified in relation to the contract period.

Discussion

This study explains how the dyadic capabilities of buyer and supplier contribute to the implementation of performance-based procurement at different public procurement process phases. This is relevant, as the public sector is required to develop its activities and capabilities toward a more collaborative approach, to gain wider performance impacts (Piening, 2013). The major aims of getting better long-term impacts require attention not only to contracting but also to preprocurement and contract phases. Based on our qualitative analysis, the dyadic capabilities highlight the collaborative nature of performance-based and value-based approaches. The capability need to collaborate on the specific performance-based procurement activities to achieve the best performance is in line with previous literature, such as Sjödin *et al.*'s (2020) emphasis on collaborative efforts. We extend the private sector findings by Sjödin *et al.* (2020) highlighting early stakeholder involvement in performance-based procurement process, by finding the key importance of dyadic capabilities in preprocurement phase. In all, we propose that the dyadic capabilities presented in Figure 3, play a crucial role in the successful implementation of performance-based public procurement in three phases.

As the figure shows, operational capabilities supports activities of operational implementation (Teece, 2014; Yook *et al.*, 2018) of performance-based procurement. The dynamic capabilities were found to support activities in the preprocurement and contract period. The observed importance of dynamic capabilities supports the findings of previous studies on the capability needs for process adaptations and change (Meehan *et al.*, 2017) as well as change-oriented attitude (Uyarra *et al*, 2014), and in innovative forms of procurement, such as performance-based procurement. In addition, our findings support the previous arguments that dynamic capabilities in performance-based public procurement involve learning from experience, contribute to refining specifications and link performance to payments (Baquero, 2005; Ekström and Selviaridis, 2014; van Duren *et al.*, 2014; Vullo *et al.*, 2018). However, our research addresses these findings more precisely at the different phases of procurement and demonstrates the contribution of dynamic capabilities, especially in the preprocurement phase. Furthermore, we find, in line with Teece *et al.* (1997), that all the different forms of dynamic capabilities are needed. However, we further specify that their role varies in between different procurement phases. Sensing and seizing capabilities seem to be most widely important in the examined procurement phases.

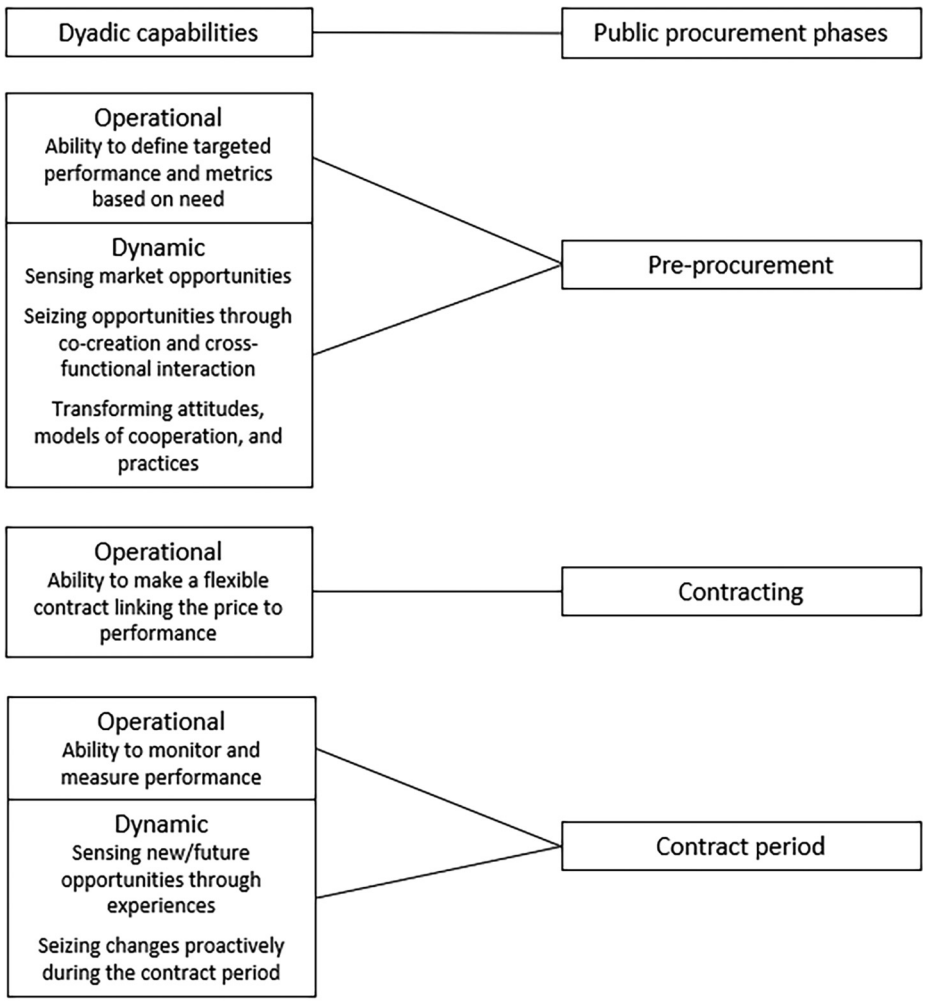
Preprocurement phase. Based on the findings, all three dynamic capabilities (sensing, seizing and transforming) are needed in the preprocurement phase to enable performance-based public procurement. To get the best out of performance-based procurement, it seems important to first sense opportunities and then realize them through co-creation between supplier and buyer and cross-functional interaction within one's own organization. This is a specific new finding as a response to the Osborne's (2018) article, which has called for the capability of public organizations to dynamic co-creation. The ability to sense and seize opportunities between the supplier and customer markets can enable the identification and realization of opportunities to meet end user needs that would not have been reached through the traditional way of conducting public procurement (i.e. starting with the opening of a tender with cost criteria). However, our results did not recognize dyadic capabilities in sensing a potential supplier or target customer, despite the fundamental importance of finding a capable partner. This is different from the literature on strategic public procurement (Guarnieri and Gomes, 2019) and value-based selling (Töytäri *et al.*, 2011; Liu and Zhao, 2021). One explanation for this may be the novelty of the partnership approach in public procurement.

The parties need transforming capabilities to find a common state of will, effective collaboration models and efficient practices in the early stage. Our findings suggest that transforming capabilities direct the use of the operational dyadic capabilities through a shared sense of purpose and increased collaboration. Transforming capabilities enable sensing and seizing capabilities (Teece *et al.*, 1997), and can, thus, also be beneficial for performance-based public procurement as a whole. More specifically, our findings indicate that transforming capabilities support the transformation required by performance-based procurement, particularly in the public sector where the performance-based approach is still relatively new.

Specific to operational implementation of the performance-based procurement are the definitions in the preprocurement phase that create the base for the whole process. When the parties involved have the ability to build and define a common understanding of the need and targets of public procurement, the expected level of performance and the metrics required to achieve the expected performance, the implementation of performance-based public procurement becomes possible. These findings are in line with the studies on performance-based procurement with emphasis on performance-based definitions (van Duren *et al.*, 2014; Vullo *et al.*, 2018) but also with the study by Holma *et al.* (2022), which emphasizes interaction capabilities and demand–supply matching capabilities.

Contracting phase. Key operational capabilities include the ability to link performance objectives and metrics to price and to build flexibility into the contract. Based on our findings, it is possible to agree on payments against performance, but the most common way to link payments to performance in the context of public procurement seems to be partially through a bonus system. The ability to link payments, either partially or fully, to performance targets contributes significantly to the success of the implementation of performance-based procurement implementation. The ability to link performance/value and payments/pricing resemble capabilities found separately in value-based selling and performance-based

Figure 3 Conceptual framework. Dyadic operational and dynamic capabilities contributing to the implementation of performance-based public procurement



Source: Author's own work

procurement literature (Baquero, 2005; Ekström and Selviaridis, 2014; Selviaridis and Wynstra, 2015; Farr, 2016; Liinamaa *et al.*, 2016; Edmiston and Nicholls, 2018; Raja *et al.*, 2020). However, public organizations have the power to divide tenders into performance and outputs, and to decide on bonus-sanction models, so suppliers' ability to link value and price may be more of an input for buyers' decision-making.

The capability to build flexibility into contracts at the tendering in the contracting phase supports performance-based procurement during the contract period, allowing for continuous performance improvement and the correction of any possible errors in targets or metrics. Both parties see the building of flexibility into contracts as a capability that allows for development in long-term contracts and keeps the current contract fair to both parties.

An essential finding regarding dyadic capabilities in the contracting phase is that no dynamic capabilities supporting this phase were identified. The tendering, offering and formal contracting process under the Public Procurement Law does not seem to provide a very dynamic environment.

Contract period phase. Dynamic capabilities contribute to the implementation of performance-based public procurement also during the contract period. We identified from our data that it is important to be able to sense new opportunities through the experience of a contract period, either in the long or short term. This finding provides a practical example that supports the Piening's (2013) notion that public organizations can introduce effective new operational practices for future use by dynamic capabilities accumulating experience. According to our findings, sensing of opportunities can take place through the monitoring of performance by the parties or through dialogue between the parties in interactive situations. Still sensing capabilities related to dialogue between parties were more emphasized than direct data-based monitoring capabilities in our findings. One reason to this might be challenges of measurement that adds variance in interpretation. However, sensed short-term improvements may even be possible to seize during the current contract period if the parties are capable of adapting improvements for the ongoing contract period and the flexibility of the contract allows this. However, based on our

data, sensing during the contract period often supports the seizing of opportunities through designing the implementation of future contract periods. In addition, our findings suggest that dyads require operational capabilities to monitor and measure performance, also in terms of end user satisfaction which concerns both buyer and supplier (Ekström and Selviaridis, 2014; Selviaridis and Wynstra, 2015; Guarnieri and Gomes, 2019; Liu and Zhao, 2021). Continuous improvement and optimization during the contract period is seen as an opportunity to achieve added value over long contract periods (Sjödin *et al.*, 2020) which supports our finding that flexibility must be built in performance-based contracts.

Conclusions

The academic contribution of this study consists of two main elements. First, this study contributes to the discussion of performance-based public procurement by emphasizing its dyadic capability needs. Second, this study contributes to the discussion of dynamic capabilities in public procurement and public sector more widely by specifying how the different forms of dynamic capabilities, together with operational capabilities, support performance-based procurement. As a further contribution, our study provides new insights into the development of public procurement capabilities toward more collaborative and performance-oriented direction, as a response to the call by Piening (2013). In addition, going beyond the firm level and conducting dyadic analysis has been presented as an important future research area on procurement and innovation (Johnsen *et al.*, 2022). Therefore, the findings on dyadic capabilities in this extend the understanding on a dyadic approach in public procurement research.

Our first main contribution relates to the understanding of dyadic capabilities role in the implementation of performance-based public procurement to complement the studies with buyer (e.g. Ekström and Selviaridis, 2014) or supplier-centric (e.g. Töytäri and Rajala, 2015) approaches. Building on previous literature on strategic public procurement (Guarnieri and Gomes, 2019), performance-based procurement (Baquero, 2005; Van Duren *et al.*, 2014; Vullo *et al.*, 2018), performance-based contracting (Ekström and Selviaridis, 2014; Selviaridis and Wynstra, 2015) and value-based selling (Liinamaa *et al.*, 2016; Liu and Zhao, 2021; Raja *et al.*, 2020; Terho *et al.*, 2012; Töytäri *et al.*, 2011; Töytäri and Rajala, 2015), and combining it with empirical findings, we generated new knowledge on how dyadic capabilities contribute to the implementation of performance-based procurement. The result of this study indicates that as public procurement evolves toward performance-orientation, with increasing collaboration between parties, the importance of new capabilities in organizations is growing and even dyadic capabilities become more relevant.

Our second main contribution relates to the alignment of three dynamic capability types to specific public procurement phases, going beyond contracting emphasized in prior performance-based procurement research. As an extension to the previous literature (e.g. Selviaridis and Wynstra, 2015; Osborne, 2018), our findings are not limited to just one phase or to public procurement as a whole, but distinguish capabilities relevant to preprocurement, contracting and contract period phases. In addition, our findings highlight suppliers as active participants that enable dyadic capabilities to emerge. Like Lee and Rha (2016) linking the need for dynamic capabilities to supply chains and Liu and Zhao (2021) to value-based selling, empirical findings of this study also support the need for dynamic capabilities in the performance-based approach in the public sector in a buyer–supplier dyad.

For practitioners seeking to develop their strategy toward buying or selling performance to public to achieve, for example, sustainability or innovation objectives, this study provides relevant information on essential organizational capabilities. To private supplier managers, capability to define value/benefit in the preprocurement phase is an antecedent of defining objects that are aligned to societal benefits. These objects are then, in turn, aligned with metrics which are agreed upon both parties. Private supplier managers could prepare themselves to draft a logical continuum from value proposition to objects and metrics before discussions with a buyer. Then they would have more time to create concrete proposals of metrics which could be really measured and fully apply their preprocurement capabilities. Second, supplier managers should possess an accurate plan how performance metrics and revenue are connected. It is beneficial to both parties that relationship between metrics and revenue is transparent. With transparency, a supplier can build trust to its business relationships which is valuable asset if some flexibility is sought during contract period. To public sector managers, the results offer opportunity to assess the current state of their organizational capabilities in relation to their future plans regarding possible strategic public procurement activities. In addition, in the longer term, practitioners can use the results in preparing their organizational development roadmaps and training programs. Operational capabilities should be considered something practical which must be possessed to implement performance-based procurement successfully in all procurement phases. In turn, dynamic capabilities are especially beneficial when the organization plans to do first trials or extends the use of performance-based procurement in new areas, but also from the perspective of strategic public procurement and continuous development. The dyadic approach of the study offers to public procurement managers especially insight on the capabilities that should be found in their own organization, but also in potential supplier organizations, when considering implementing procurement using a performance-based approach. Therefore, in the short term, the results can be used to identify a capable supplier, for example as part of the supplier selection process, or in the longer term for supplier market development activities, if the public organization has already decided to adopt a performance-based approach to procurement.

This research is limited by the ambiguity of the concept of performance-based public procurement, where performance can mean output, quality or long-term outcomes and the limited prior research on strategic public procurement capabilities. In addition, the empirical findings are collected from medium to large organizations, so the perceptions of small organizations on the required capabilities are not reflected in this study.

Future research avenues could include more studies on strategic public procurement capabilities, which clearly need

strengthening. The concept of value-based selling in the context of public procurement could also be an interesting future area of research as public procurement evolves toward performance and value orientation. In addition, it could be useful to study the party-specific capability needs involved in performance-based procurement and their relationship with dyadic capability needs. Furthermore, future research could pay more attention to the various processes and operational practices of performance-based public procurement, in particular defining the metrics that appear to be important for the success of performance-based procurement. Another challenge, and, thus, an effective practical area for research, could be building flexibility into contracts while maintaining the integrity of public procurement. It is also necessary to identify additional explanations for the observations of this study and to further test the applicability of the findings in other public procurement contexts, e.g. country.

References

Adjei-Bamfo, P., Djajadikerta, H.G., Jie, F., Brown, K. and Kiani Mavi, R. (2022), "Public procurement for innovation through supplier firms' sustainability lens: a systematic review and research agenda", *Business Strategy and the Environment*, Vol. 32 No. 1, pp. 387-407, doi: 10.1002/bse.3137.

Baquero, P.I. (2005), "Performance-based procurement: the key to effective basic services provision in developing countries", *Challenges in Public Procurement*, Academics Press, *Boca Raton, FL*, pp. 365-380.

Chong, J.L., Lim, K.K. and Matchar, D.B. (2019), "Population segmentation based on healthcare needs: a systematic review", *Systematic Reviews*, Vol. 8 No. 1, pp. 1-11, doi: 10.1186/s13643-019-1105-6.

Croom, S.R. (2001), "The dyadic capabilities concept: examining the processes of key supplier involvement in collaborative product development", *European Journal of Purchasing & Supply Management*, Vol. 7 No. 1, pp. 29-37, doi: 10.1016/S0969-7012(00)00019-8.

Dubois, A. and Gadde, L.-E. (2002), "Systematic combining: an abductive approach to case research", *Journal of Business Research*, Vol. 55 No. 7, pp. 553-560, doi: 10.1016/S0148-2963(00)00195-8.

Edler, J., Georghiou, L., Uyarra, E. and Yeow, J. (2015), "The meaning and limitations of public procurement for innovation: a supplier's experience", in Edquist, C., Vonortas, N.S., Zabala-Iturriagagoitia, J.M. and Edler, J. (Eds), *Public Procurement for Innovation*, Edward Elgar Publishing, Cheltenham, pp. 35-64, doi: 10.4337/9781783471898.

Edler, J. and Yeow, J. (2016), "Connecting demand and supply: the role of intermediation in public procurement of innovation", *Research Policy*, Vol. 45 No. 2, pp. 414-426, doi: 10.1016/j.respol.2015.10.01.

Edmiston, D. and Nicholls, A. (2018), "Social impact bonds: the role of private capital in outcome-based commissioning", *Journal of Social Policy*, Vol. 47 No. 1, pp. 57-76, doi: 10.1016/j.iref.2023.03.017.

Ekström, T. and Selviaridis, K. (2014), "Performance based contracting capabilities–A pre-study of Swedish defence acquisition", *Proceedings of the 31st International Symposium on Military Operating Research*, Department of Industrial Management and Logistics, Lund University, London, Vol. 1.

Ellram, L. (1996), "The use of the case study method in logistics research", *Journal of Business Logistics*, Vol. 17 No. 2, pp. 93-138.

Eriksson, P.E., Pesämaa, O. and Larsson, J. (2023), "Governing technical and organizational complexity through supply chain integration: a dyadic perspective on performance in infrastructure projects", *International Journal of Project Management*, Vol. 41 No. 4, p. 102479, doi: 10.1016/j.ijproman.2023.102479.

European Commission (2020), "ProcurComp: European competency framework for public procurement professionals", Publications Office of the European Union, Luxembourg.

European Commission (2021), "The strategic use of public procurement for innovation in the digital economy – final report", Publications Office of the European Union, doi: 10.2759/936544.

Farr, M. (2016), "Co-production and value co-creation in outcome-based contracting in public services", *Public Management Review*, Vol. 18 No. 5, pp. 654-672, doi: 10.1080/14719037.2015.1111661.

Flynn, A. and Davis, P. (2017), "Explaining SME participation and success in public procurement using a capability-based model of tendering", *Journal of Public Procurement*, Vol. 17 No. 3, pp. 337-372, doi: 10.1108/JOPP-17-03-2017-B003.

Gadde, L.-E. and Håkansson, H. (2023), "Network dynamics and action space", *Journal of Business & Industrial Marketing*, Vol. 38 No. 13, pp. 166-179, doi: 10.1108/JBIM-10-2022-0454.

Grandia, J. and Meehan, J. (2017), "Public procurement as a policy tool: using procurement to reach desired outcomes in society", *International Journal of Public Sector Management*, Vol. 30 No. 4, pp. 302-309, doi: 10.1108/IJPSM-03-2017-0066.

Grant, R.M. (1991), "The resource-based theory of competitive advantage: implications for strategy formulation", *California Management Review*, Vol. 33 No. 3, pp. 114-135, doi: 10.1016/B978-0-7506-7088-3.50004-8.

Guarnieri, P. and Gomes, R.C. (2019), "Can public procurement be strategic? A future agenda proposition", *Journal of Public Procurement*, pp. 295-321, doi: 10.1108/JOPP-09-2018-0032.

Helfat, C.E. and Winter, S.G. (2011), "Untangling dynamic and operational capabilities: strategy for the (n)ever-changing world", *Strategic Management Journal*, Vol. 32 No. 11, pp. 1243-1250, doi: 10.2307/41261789.

Hensher, D.A. and Stanley, J. (2003), "Performance-based quality contracts in bus service provision", *Transportation Research Part A: Policy and Practice*, Vol. 37 No. 6, pp. 519-538, doi: 10.1016/S0965-8564(03)00006-5.

Hietajärvi, A.-M. (2017), *Capabilities for Managing Project Alliances*, University of Oulu, Oulu.

Holma, A.-M., Østensen, M.W., Holmen, E. and de Boer, L. (2022), "Market dialogue in public procurement: buyer-supplier interfaces and relational abilities", *Industrial*

Marketing Management, Vol. 104, pp. 51-67, doi: 10.1016/j.indmarman.2022.04.004.

Johnsen, T., Le Dain, M.-A., Kiratli, N. and Schiele, H. (2022), "Editorial: purchasing and innovation: past, present and future of the field of research", *Journal of Purchasing and Supply Management*, Vol. 28 No. 2, p. 100768, doi: 10.1016/j.pursup.2022.100768.

Jääskeläinen, A. (2010), "Productivity measurement and management in large public service organizations", Tampere University of Technology, Publication 927.

Jääskeläinen, A. and Laihonen, H. (2014), "A strategy framework for performance measurement in the public sector", *Public Money & Management*, Vol. 34 No. 5, pp. 355-362, doi: 10.1080/09540962.2014.945807.

Karttunen, E., Jääskeläinen, A., Malacina, I., Lintukangas, K., Kähkönen, A.-K. and Vos, F.G.S. (2024), "Dynamic capabilities view on value creation in public procurement", *Journal of Public Procurement*, Vol. 24 No. 1, pp. 114-141, doi: 10.1108/JOPP-05-2023-0035.

Karttunen, E., Matela, M., Hallikas, J. and Immonen, M. (2022), "Public procurement as an attractive customer: a supplier perspective", *International Journal of Operations & Production Management*, Vol. 42 No. 13, pp. 79-102, doi: 10.1108/IJOPM-05-2021-0346.

Kashiwagi, D.T. (1999), "The development of the performance based procurement system (PBPS)", *Journal of Construction Education*, Vol. 4 No. 2, pp. 196-206.

Kelly, S., Marshall, D., Walker, H. and Israilidis, J. (2021), "Supplier satisfaction with public sector competitive tendering processes", *Journal of Public Procurement*, Vol. 21 No. 2, pp. 183-205, doi: 10.1108/JOPP-12-2020-0088.

Ketokivi, M. and Choi, T. (2014), "Renaissance of case research as a scientific method", *Journal of Operations Management*, Vol. 32 No. 5, pp. 232-240, doi: 10.1016/j.jom.2014.03.004.

Kienzler, M., Kindström, D. and Brashear-Alejandro, T. (2019), "Value-based selling: a multi-component exploration", *Journal of Business & Industrial Marketing*, Vol. 34 No. 2, pp. 360-373, doi: 10.1108/JBIM-02-2017-0037.

Kleeman, F.C. and Essig, M. (2013), "A providers' perspective on supplier relationships in performance-based contracting", *Journal of Purchasing and Supply Management*, Vol. 19 No. 3, pp. 185-198, doi: 10.1016/j.pursup.2013.03.001.

Koivisto, J. (2018), "Co-designing an outcome-based public procurement: early involvements, participations and orderings", *Journal of Public Procurement*, Vol. 18 No. 4, pp. 323-335, doi: 10.1108/JOPP-11-2018-019.

Korkeamäki, L., Sjödin, D., Kohtamäki, M. and Parida, V. (2022), "Coping with the relational paradoxes of outcome-based services", *Industrial Marketing Management*, Vol. 104, pp. 14-27, doi: 10.1016/j.indmarman.2022.04.005.

Kump, B., Engelmann, A., Kessler, A. and Schweiger, C. (2019), "Toward a dynamic capabilities scale: measuring organizational sensing, seizing, and transforming capacities", *Industrial and Corporate Change*, Vol. 28 No. 5, pp. 1149-1172, doi: 10.1093/icc/dty054.

Lee, S.M. and Rha, J.S. (2016), "Ambidextrous supply chain as dynamic capability: building a resilient supply chain", *Management Decision*, Vol. 54 No. 1, pp. 2-23, doi: 10.1108/MD-12-2014-0674.

Liinamaa, J., Viljanen, M., Hurmerinta, A., Ivanova-Gongne, M., Luotola, H. and Gustafsson, M. (2016), "Performance-based and functional contracting in value-based solution selling", *Industrial Marketing Management*, Vol. 59, pp. 37-49, doi: 10.1016/j.indmarman.2016.05.032.

Lindgreen, A. and Wynstra, F. (2005), "Value in business markets: what do we know? Where are we going?", *Industrial Marketing Management*, Vol. 34 No. 7, pp. 732-748, doi: 10.1016/j.indmarman.2005.01.001.

Liu, Y. and Zhao, X. (2021), "Successful implementation of value-based selling: a value co-creation and dynamic capabilities perspective", *Journal of Business & Industrial Marketing*, Vol. 36 No. 3, pp. 372-389, doi: 10.1108/JBIM-05-2020-0240.

Malacina, I., Karttunen, E., Jääskeläinen, A., Lintukangas, K., Heikkilä, J. and Kähkönen, A.-K. (2022), "Capturing the value creation in public procurement: a practice-based view", *Journal of Purchasing and Supply Management*, Vol. 28 No. 2, p. 100745, doi: 10.1016/j.pursup.2021.100745.

Martin, L.L. (2007), "Performance-based contracting for human services: a proposed model", *Public Administration Quarterly*, Vol. 31 No. 2, pp. 130-158.

Martin, L.L. (2002), "Performance-based contracting for human services: lessons for public procurement?", *Journal of Public Procurement*, Vol. 2 No. 1, pp. 55-72.

Matinheikki, J., Naderpajouh, N., Aranda-Mena, G., Jayasuriya, S. and Teo, P. (2021), "Befriending aliens: institutional complexity and organizational responses in infrastructure public–private partnerships", *Project Management Journal*, Vol. 52 No. 5, pp. 453-470, doi: 10.1177/87569728211024385.

Meehan, J., Menzies, L. and Michaelides, R. (2017), "The long shadow of public policy; barriers to a value-based approach in healthcare procurement", *Journal of Purchasing and Supply Management*, Vol. 23 No. 4, pp. 229-241, doi: 10.1016/j.pursup.2017.05.003.

Ministry of Finance (2020), "Kansallinen julkisten hankintojen strategia 2020", Publications of Ministry of Finance, Helsinki, available at: http://urn.fi/URN:NBN:fi-fe2020090768680

Obwegeser, N. and Müller, S.D. (2018), "Innovation and public procurement: terminology, concepts, and applications", *Technovation*, Vols 74/75, pp. 1-17, doi: 10.1016/j.technovation.2018.02.015.

Osborne, S.P. (2018), "From public service-dominant logic to public service logic: are public service organizations capable of co-production and value co-creation?", *Public Management Review*, Vol. 20 No. 2, pp. 225-231, doi: 10.1080/14719037.2017.1350461.

Patrucco, A.S., Luzzini, D. and Ronchi, S. (2017), "Research perspectives on public procurement: content analysis of 14 years of publications in the journal of public procurement", *Journal of Public Procurement*, Vol. 17 No. 2, pp. 229-269, doi: 10.1108/JOPP-17-02-2017-B003.

Piening, E.P. (2013), "Dynamic capabilities in public organization: a literature review and research agenda", *Public Management Review*, Vol. 15 No. 2, pp. 209-245, doi: 10.1080/14719037.2012.708358.

Raja, J.Z., Frandsen, T., Kowalkowski, C. and Jarmatz, M. (2020), "Learning to discover value: value-based pricing and selling capabilities for services and solutions", *Journal of Business Research*, Vol. 114, pp. 142-159, doi: 10.1016/j.jbusres.2020.03.026.

Santos, J.B. and Cabral, S. (2022), "Public procurement capabilities as engines for collaboration and enhanced performance in complex projects", *International Journal of Operations & Production Management*, Vol. 42 No. 1, pp. 32-58, doi: 10.1108/IJOPM-02-2021-0098.

Selviaridis, K. and Wynstra, F. (2015), "Performance-based contracting: a literature review and future research directions", *International Journal of Production Research*, Vol. 53 No. 12, pp. 3505-3540, doi: 10.1080/00207543.2014.978031.

Sjödin, P., Parida, V., Jovanovic, M. and Visnjic, I. (2020), "Value creation and value capture alignment in business model innovation: a process view in outcome-based business models", *Journal of Product Innovation Management*, Vol. 37 No. 2, pp. 158-183, doi: 10.1111/jpim.12516.

Teece, D.J., Pisano, G. and Shuen, A. (1997), "Dynamic capabilities and strategic management", *Strategic Management Journal*, Vol. 18 No. 7, pp. 509-533.

Teece, D.J. (2007), "Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance", *Strategic Management Journal*, Vol. 28 No. 13, pp. 1319-1350, doi: 10.1002/smj.640.

Teece, D.J. (2014), "The foundations of enterprise performance: dynamic and ordinary capabilities in an (economic) theory of firms", *Academy of Management Perspectives*, Vol. 28 No. 4, pp. 328-352.

Terho, H., Haas, A., Eggert, A. and Ulaga, W. (2012), "It's almost like taking the sales out of selling' – Towards conceptualization of value-based selling in business markets", *Industrial Marketing Management*, Vol. 41 No. 1, pp. 174-185, doi: 10.1016/j.indmarman.2011.11.011.

Töytäri, P., Brashear, A.T., Parvinen, P., Ollila, I. and Rosendahl, N. (2011), "Bridging the theory to application gap in value-based selling", *Journal of Business & Industrial Marketing*, Vol. 26 No. 7, pp. 493-502, doi: 10.1108/08858621111162299.

Töytäri, P. and Rajala, R. (2015), "Value-based selling: an organizational capability perspective", *Industrial Marketing Management*, Vol. 45, pp. 101-112, doi: 10.1016/j.indmarman.2015.02.009.

Uyarra, E., Edler, J., Garcia-Estevez, J., Georghiou, L. and Yeow, J. (2014), "Barriers to innovation through public procurement: a supplier perspective", *Technovation*, Vol. 34 No. 10, pp. 631-645, doi: 10.1016/j.technovation.2014.04.003.

Uyarra, E., Zabala-Iturriagagoitia, J.M., Flanagan, K. and Magro, E. (2020), "Public procurement, innovation and industrial policy: rationales, roles, capabilities and implementation", *Research Policy*, Vol. 49 No. 1, p. 103844, doi: 10.1016/j.respol.2019.103844.

Valovirta, V. (2015), "Building capability for public procurement of innovation", in Edquist, C., Vonortas, N.S., Zabala-Iturriagagoitia, J.M. and Edler, J. (Eds), *Public Procurement for Innovation*, Edward Elgar Publishing, Cheltenham, pp. 65-86, doi: 10.4337/9781783471898.

Van Duren, J., Dorée, A. and Voordijk, H. (2014), "Perceptions of success in performance-based procurement", *Construction Innovation*, Vol. 15 No. 1, pp. 107-128, doi: 10.1108/CI-04-2014-0022.

Vullo, P., Passera, A., Lollini, R., Prada, A. and Gasparella, A. (2018), "Implementation of a multi-criteria and performance-based procurement procedure for energy retrofitting or facades during early design", *Sustainable Cities and Society*, Vol. 36, pp. 363-377, doi: 10.1016/j.scs.2017.09.029.

Winter, S.G. (2003), "Understanding dynamic capabilities", *Strategic Management Journal*, Vol. 24 No. 10, pp. 991-995, doi: 10.1002/smj.318.

Yook, K.H., Choi, J.H. and Suresh, N.C. (2018), "Linking green purchasing capabilities to environmental and economic performance: the moderating role of firm size", *Journal of Purchasing and Supply Management*, Vol. 24 No. 4, pp. 326-337, doi: 10.1016/j.pursup.2017.09.001.

Appendix

Table A1 Capabilities in the preprocurement phase

Capability	Buyer	Supplier
Operational	Understanding the current situation and the need (BDI3, BDI4, BDI5, BMA4, BMA5, BSP1, BSP2) Ability to define objectives and targeted outcomes (BDI1, BDI2, BDI3, BDI4, BDI5, BMA1, BMA2, BMA3, BMA4, BMA5, BMA6, BSP1, BSP2) Ability to define metrics (BDI1, BDI2, BDI3, BDI4, BDI5, BMA1, BMA2, BMA3, BMA4, BMA5, BMA6, BSP1, BSP2) Ability to market dialogue with the selected suppliers (BDI5, BMA1, BMA2, BMA3, MBA6, BSP1)	Understanding the customer need (SMA1, SDI1, SDI2, SDI3, SMA2, SDI4) Ability to define value/benefit (SDI2, SDI3, SMA2) Ability to define the objective and solution (SMA1, SDI2, SDI3, SMA2, SMA3, SDI4) Ability to define metrics (SDI2) Ability to open dialogue between supplier and customer (SMA1, SDI1, SDI2, SDI3, SMA2, SMA3, SDI4)
Dynamic, sensing	Sensing supplier markets and offerings (BMA1, BMA2, BDI1, BDI2, BDI3, BDI4, BDI5, BMA4, BMA5, BMA6, BSP1, BSP2) Sensing end user needs (BDI1, BDI2, BDI4, BDI5, BMA1, BMA2, BMA3, BMA4, BMA5, BSP1) Ability to use previous contract period information (BDI1, BDI3, BDI4, BDI5, BMA3)	Sensing global and local trends (e.g. sustainability) (SMA1, SDI1, SDI2, SDI3) Sensing customer needs (SMA1, SDI1, SDI2, SDI3, SMA2) Ability to use information provided by customers (SDI1)
Dynamic, seizing	Ability to co-create solutions (BDI1, BDI2, BDI3, BDI4, BMA5, BSP1) Ability to cross-functional interaction within own organization to seize opportunities (BDI1, BDI3, BDI4, BDI5, BMA2, BMA3, BMA4, BSP1) Proposing and promoting options and alternative approaches within own organization (BMA1, BDI3, BMA6)	Ability to agile development/co-creation of solutions (SMA1, SDI1, SDI2, SDI3, SMA2, SMA3, SDI4) Ability to cross-functional interaction within own organization to seize opportunities (SDI2) Ability to propose alternative solutions (SMA1, SMA3)
Dynamic, transforming	Reconfiguring expert network and forms of cooperation to meet future needs (BDI1, BMA1, BMA2, BMA3, BDI3, BDI5, BMA4, BMA5, BSP1) Ability to engage all actors (BDI5, BMA5) Ability to challenge own assumptions and practices (BDI2, BDI5, BSP2) Adopting co-creation mindset in the organization (BDI1)	Reconfiguring models of cooperation (e.g. workshops, surveys) to enable sensing (SMA1, SDI3) Ability to engage/involve customer and other actors (SMA1, SDI2) Ability to challenge customers' old habits and practices (SDI3) Adopting agile development/co-creation in the organization (SMA1, SDI1, SMA3)

Source: Authors' own work

Table A2 Capabilities in the contracting phase

Capability	Buyer	Supplier
Operational	Ability to link objectives to payments (e.g. usage of bonus-sanction models) (BDI1, BDI2, BDI3, BDI4, BDI5, BMA1, BMA2, BMA4, BMA5, BSP1) Building flexibility into contracts (BDI1, BDI2, BDI3, BDI5, BMA1, BMA2, BMA3) Ability to evaluate propositions and make decisions (BDI3, BDI4, BDI5, BMA4, BSP1)	Ability to link value to price (SMA1, SDI2) Building development flexibility into contracts (SDI3, SDI4) Ability to communicate value and value proposition (SMA1, SDI1, SDI2, SDI3, SMA2, SMA3)
Dynamic	N.A.	N.A.

Source: Authors' own work

Table A3 Capabilities in the contract period phase

Capability	Buyer	Supplier
Operational	Ability to collaborate on monitoring and development (BDI1, BDI3, BDI4, BDI5, BMA4, BMA5, BMA6, BSP1, BSP2) Ability to monitor and measure performance (BDI1, BDI3, BDI4, BDI5, BMA1, BMA2, BMA3, BMA4, BMA6, BSP1, BSP2) Project and contract management skills (BDI3, BDI5, BSP2)	Ability to collaborate on monitoring (SDI2, SMA2) Ability to monitor and measure performance (SMA1, SDI2, SMA2) Project management skills (SDI1, SMA1, SMA2, SMA3, SDI4)
Dynamic, sensing	Observing change needs from the monitored data (BDI1, BDI3, BDI5, BMA1, BMA3) Monitoring user satisfaction for future developments (BDI1, BDI4, BDI5, BMA1, BMA4) Continuous good dialogue on development opportunities (BDI1, BDI4, BMA1, BMA2, BDI3, BMA4, BMA5, BMA6, BSP2)	Observing change needs from the monitored data (SDI2) Monitoring customer and user satisfaction for future developments (SMA1, SDI2, SMA2) Continuous good dialogue on development opportunities (SMA1, SDI2, SDI3, SMA2, SMA3, SDI4)
Dynamic, seizing	Dialogue with supplier on seizing changes (BMA2, BDI1, BDI3, BDI4, BMA1, BMA4, BMA5)	Dialogue with customer on seizing changes (SDI3)
Dynamic, transforming	N.A.	N.A.

Corresponding author
Kati Loijas can be contacted at: kati.loijas@tuni.fi