

Collaborative Public Procurement: a conceptual framework

Christine Harland* Dip. Ingegneria Gestionale, Politecnico di Milano Via R. Lambruschini, 4/B, Edificio BL26/B, 20156 Milano, Italy Tel. 02 - 2399 4797, Email: christinemary.harland@polimi.it

[Andrea Patrucco, Penn State University, Ross Administration Building, 100 University Drive, Monaca, PA 15061, USA](#)

[Jane Lynch, Cardiff Business School, Cardiff University, Colum Drive, Cardiff CF10 3EU, Wales](#)

[Yasmine Sabri](#), Dip. Ingegneria Gestionale, Politecnico di Milano Via R. Lambruschini, 4/B, Edificio BL26/B, 20156 Milano, Italy

Jan Telgen, University of Twente, Netherlands

Tunde Tatrai, Corvinus University, Budapest

*Corresponding author

Summary

Horizontal collaborative public procurement is where two or more public organisations collaborate to perform a procurement activity. A conceptual framework of 4 pillars is provided relating the objectives of collaborative public procurement to different forms and activities of CPP, to examine impact on performance of CPP. Barriers and enablers to CPP are also investigated. The framework is novel; prior work has focused only on specific pillars or the relationship between objectives and organizational form of CPP. The framework is tested empirically to verify the content of each pillar and test linkages between pillars.

Keywords

Collaborative public procurement, collaboration, inter-organizational

Submission category

WP

Introduction

Since the global economic crisis, public services have come under increasing pressure to do more with less, referred to as 'austerity' (Loader, 2011). Consequently, commissioners of government services are forced to cut spending and reduce system inefficiencies. One of the ways in which governments try to become more efficient is to stimulate or enforce more collaborative public procurement (CPP) (Schotanus, 2005; Walker et al. 2008). (Walker et al., 2013) endorse this point by noting that collaboration is often no longer an option but is written into policy as part of the political agenda. Whilst many types of collaboration have been identified (Walker et al. 2013) and benefits of collaboration have been acknowledged (Bakker et al., 2008), there remains little guidance on how to do CPP better.

IRSPP is an international network representing 45 countries whose members are academics, practitioners, policy makers and purchasing professional associations including CIPS, NIGP, PiANO and NEVI (Knight et al., 2012). Bi-annually IRSPP conducts a major piece of research on a topic that the network members perceive as contemporary and important to public procurement practice internationally and CPP was proposed by the members as the topic for IRSPP7.

This paper reports the front end of the IRSP7 study that sought to provide a conceptual framework for collaborative public procurement that could be used to guide the design and delivery of later empirical case study and survey research. Initially an operations management ‘input-process-output’ framework is used to review the literature on ‘organisational type of CPP-process of CPP-output performance of CPP’. The literature is used to build ‘pillars’ in the framework containing elements expanding on type, process and output performance and, from the literature, a fourth pillar of ‘objectives of CPP is added. Additionally barriers and enablers to each pillar are also elaborated. The developed framework and elements of each pillar are then tested theoretically, focusing on 22 collaborative public procurement papers, and empirically through a survey of 238 public procurement practitioners. The empirical findings show clusters of features of CPP and explain linkages between each of the pillars in the framework. They demonstrate how practitioners prioritise aspects of CPP, some of which are not represented in the literature. They also reveal areas emphasized in the literature that practitioners do not focus on. Both the theoretical and empirical testing support the conceptual framework, with minor additions. These findings are incorporated in the final version of the conceptual framework that contributes to knowledge on inter-organizational collaboration and public procurement.

Literature review

Collaborative public procurement is reviewed, then supplemented by a broader review of collaboration in public management and in inter-organizational networks.

Collaborative public procurement

The term ‘collaborative public procurement’ (CPP) is used here to describe the phenomenon of public organisations collaborating horizontally with each other to procure goods and services. Terms used to describe this horizontal collaboration include ‘cooperative purchasing’, ‘group procurement’, ‘joint procurement’ and ‘shared procurement’. At least 45 different terms have been identified in publications relating to CPP (Essig, 2000) (Essig, 2000). Some of the more frequently used terms are featured in *Table 1*.

Table 1: Terms used comparable with collaborative public procurement

Type	Definition	Author/s
Cooperative purchasing	<i>The cooperation between two or more organisations in a purchasing group, in one or more steps of the purchasing process by sharing or bundling their purchasing volumes, information or resources in order to improve their performance</i>	(Schotanus and Telgen, 2007)
Purchasing group	<i>Two or more organisations that purchase together, either formally or informally, or through a third party</i>	(Hendrick, 1996)
Joint procurement	<i>Means combining the procurement actions of two or more contracting authorities. The key defining characteristic is that there should be only one tender published on behalf of all participating authorities</i>	Tatrai (2015, p.10)
Shared procurement	<i>Procurement of shared services refers to low value, commonly spent items such as janitorial supplies, administration items</i>	(Gordon Murray et al., 2008)
Purchasing consortium	<i>Consists of two or more independent organisations that join together, either formally or informally, or through an independent third party, for the purpose of combining their individual requirements for purchased materials, services, and capital goods to leverage more value-added pricing, service, and technology from their external suppliers than could be obtained if each firm purchased goods and services alone</i>	(Hendrick, 1996)
Consortium sourcing	<i>the combination of symbiosis and strategy - consortia are organized as symbiotic structural relationships between purchasing companies</i>	Essig (2000, p.16)

An alternative structure according to Murray, Rentall and Geere (2008) is shared service procurement which enables public bodies to “*maximise the benefits of both the intra-organisational hard core/soft core model and inter-organisational consortia participation*” and should be considered as an important option when public organizations may be smaller and /or lack resource and capabilities in procurement.

Reasons indicated for an increase in collaborative public procurement are the development of E-Procurement (Huber et al., 2004), shifting agendas from a short-term, internal focus to a long-term, external relationship focus (Dobler and Burt, 1996, Essig, 2000), an increased level of competition and cost pressure (Hendrick, 1996, Nollet and Beaulieu, 2005), an increased awareness and importance of purchasing (Walker et al., 2013), and the wish to counterbalance the power of large suppliers (Nollet and Beaulieu, 2005). Efficiencies gained from such collaboration can be termed ‘collaborative efficiencies’ and can be defined as: “*reforms that recognise and seek to resolve operating-cost interdependencies by creating multi-organisational arrangements to achieve levels of operating efficiency that cannot be achieved, or achieved easily, by single organisations*” (Elston, 2015).

There are many benefits associated with CPP which include economies of scale (Rozemeijer, 2000, Nollet and Beaulieu, 2005), reduction of transaction costs (Johnson, 1999), process cost avoidance (Schotanus, 2005), and improved relationships with suppliers and other organizations who are part of the purchasing group (Hendrick, 1996). Essentially the benefits can be categorized as improved efficiencies and improved effectiveness (Jost et al., 2005, Schotanus and Telgen, 2005, 2007; Walker et al. 2006, 2008). Improved efficiencies can be achieved by reducing transaction costs, bundling purchasing activities together and achieving economies of scale, while improved effectiveness can be reached through a focus on quality enhancement of the goods or services purchased through the collaboration, as well as a more effective execution of process activities, such as learning from other participants in the collaboration (Bakker et al 2008). Enhanced supplier relationship management arising from the collaboration may increase innovation or improve risk management (Patrucco et al., 2017). Reported disadvantages of collaborative procurement include a potential increase of complexity of the purchasing process (Tella and Virolainen, 2005), loss of flexibility and control of procurement activities (Schotanus, 2005), increase in coordination costs (Johnson, 1999), and a need to change and adapt specifications (Schotanus, 2005).

CPP research so far seems to have contributed to collaboration type, collaboration process and collaboration outputs but we find there is no one framework within the CPP literature that integrates these.

Collaboration in public management

One of the main concerns in public management is the complexity of the portfolio of social, economic and environmental problems where responses to form solutions often involve collaboration between public organisations because of shared or similar goals (Gray, 1985; (Agranoff and McGuire, 2004). There are many government policy areas where it is recognised that collaboration across government agencies is required, for example to tackle crime, manage urban areas, provide social services and improve national security. However, following from the global financial crisis, increasingly it is being recognised that collaboration across government bodies is also essential to yield significant savings in operating costs (Bovaird, 2014). Collaboration to integrate back office functions such as HR and IT may yield efficiencies (Knol et al., 2014; MacCarthaigh, 2014; Elston, 2015). Collaboration across front

line government service providers to form 'one-stop-shops' for citizens (Reid, 1995) can also give rise to efficiencies.

Collaborative networks are the most common type of interorganizational network found in public and not-for-profit sectors (Eisingerich et al., 2009), (Isett et al., 2011) (Popp et al., 2013). Collaboration in these interorganizational networks is often intersectional, among business, government, non-profit organizations, communities and/or public as a whole (Bryson et al., 2006, Rethemeyer and Hatmaker, 2008).

Collaboration across government agencies not only helps to tackle complex problems but also enables the sharing of scarce resources (Keast et al., 2004) (Bryson et al., 2006), (Weber and Khademian, 2008, Hoberecht et al., 2011), Collaboration can help to improve efficiency, legitimacy, power and manage uncertainty (Isett and Provan, 2005, Pesämaa, 2007, Hoberecht et al., 2011, Isett et al., 2011). It has been claimed that they can improve service delivery, advance innovation, support risk distribution and share accountability (Pesämaa 2007, Hoberecht, Joseph et al. 2011) enabling key managers to understand bigger, more sustainable solutions (Hoberecht, Joseph et al. 2011) that individual organizations and managers cannot achieve independently (Provan and Kenis, 2008, Weber and Khademian, 2008). In particular, wicked problems such as poverty and global warming, and reform of complex services such as education and healthcare, cannot be solved by single agencies, organizations and even sectors (Huxham and Vangen 2005, Hoberecht, Joseph et al. 2011). These complex problems facing society provide a "moral imperative" to collaborate across organizations and sectors (Popp et al., 2013).

Interorganisational network collaboration

Much of the focus on collaboration across private sector organisations has been on trying to achieve efficiencies to generate cost savings (Vereecke & Muylle (2006) (Min et al 2005), Essig (2000). Interorganizational networks come in a variety of forms of cooperation including joint ventures, strategic alliances, collaborations and consortia (Podolny and Page 1998), though some view them as informal, social, rather than legally bound constellations of organisations (Barringer and Harrison, 2000). Interaction between organisations in business to business dyadic relationships lead to longer term relationships becoming institutionalised (Håkansson and Laage-Hellman, 1984, Håkansson and Snehota, 1989, Håkansson and Group, 1982, Ford and Group, 1990)..

Supply chain management can be conceptualised as occurring at different levels – within organizations, relationships, supply chains and networks of organizations (Harland, 1996). Interorganizational supply network activities include partner selection, resource integration, information processing, knowledge capture, social coordination, risk and benefit sharing, decision making, conflict resolution and motivating (Harland et al., 2004, Harland et al., 2001, Johnsen et al., 2000). Management of, and in, interorganizational networks is through six network management roles - network structuring agent, coordinator, advisor, information broker, relationship broker and innovation sponsor (Harland and Knight, 2001, Knight et al., 2005).

All 150 papers reviewed were analysed, coded and mapped onto the initial conceptual framework of type, process and output performance of CPP. In addition to this mapping, it was observed that many papers also addressed the objectives of collaboration and what was enabling or constraining collaboration from occurring. This led to 5 main 'pillars' in the conceptual framework rather than 3. Within each pillar elements relating to that pillar were recorded. For example, papers examining organisational design discussed organisational form,

dynamics among group members (e.g. motivation, decision making, conflict resolution, trust, number of members), and members' roles (e.g. collaboration coordinator, collaboration leader, technical advisor). These 'elements' provided the content of each 'pillar'

Methodology for testing the conceptual framework

Theoretical testing method

The initial literature review used keywords of “collaboration”, “procurement” and “public administration” and combinations of these, yielding 150 papers. To test the initial conceptual framework and the additional content from the broader literature review we focused on a subset from the 150 of 22 papers that focused on public procurement considering both the content (evaluating title, abstract, and the full text) and the journal relevance, as suggested by McGuire (2006), Quintens et al. (2006), Pagano (2009), and (Spina et al., 2013). Only ABS ranked journal papers were included in the search. As a result 22 papers from 8 operations and supply journals 5 public administration journals remained for in depth analysis to see if they supported the conceptual framework design.

Empirical testing method

A questionnaire survey was designed to collect data on collaborative public procurement projects. It was divided into six sections: the first on general data on the institution, respondent and CPP project, the next five on CPP objectives, type, process, performance, and barriers and enablers. Piloting was conducted to improve item wording, reduce survey length and improve translations. 238 institutions in the IRSPP network contacts agreed to participate, and out of these, 161 useable responses were received, yielding a 10% response rate of the total sample and a 67% response rate of those who agreed to respond. To test the validity of the pillars and of the items included in the conceptual framework, we ran an Exploratory Factor Analysis (EFA). Only items with factor loadings of at least 0.4 were retained. For each of the obtained constructs, we measured reliability.

Findings and discussion

Findings from the theoretical testing

Table 2 below summarises findings of the pillars and elements from the conceptual framework found in the in depth analysis of the collaborative public procurement literature.

Table 2: Support for pillars and elements of conceptual framework

PILLARS AND ELEMENTS OF CONCEPTUAL FRAMEWORK	NUMBER OF PAPERS ADDRESSING THESE
<i>Objectives of collaboration</i>	
Efficiency	6
Quality	2
Competence enhancement	3
Relationship development	4
Broader government objectives	0
Total objectives of collaboration	15
<i>Collaboration organisation</i>	
Organisational form	3
Dynamics among group members	6
Members' roles	3
Total collaboration organization	12
<i>Collaboration process and tools</i>	
Operational activities	4
Managerial activities	1
Strategy forming activities	3

Policy forming activities	1
Tools	0
Total collaboration process and tools	9
Collaboration output performance	
Efficiency savings	12
Effectiveness improvements	7
Strategic performance improvements	4
Total collaboration performance	23
Barriers and enablers to collaboration	
Level of partner involvement	7
High level support	6
Total barriers and enablers to collaboration	13

The theoretical testing supported the general architecture of the framework, but did not confirm all the elements of each pillar or any linkages between pillars

Findings from the empirical testing

Table 3 reports results of the Exploratory Factor Analysis

Table 3: Exploratory Factor Analysis

	Construct	Items	Loading	Cronbach alpha
OBJECTIVES	Efficiency	Optimize supply base	.741	0.785
		Standardize and rationalize needs	.714	
		Obtain savings, gain economies of scale	.635	
		Decrease procurement process cost	.620	
		Centralize procurement management	.614	
	Competence enhancement	Improve management of procurement risk	.808	0.691
		Lack of skills	.790	
		Increase procurement competences	.728	
Relationship development	Improve relationship with potential suppliers	.886	0.751	
	Improve relationship with other institutions	.857		
ORGANIZATIONAL DESIGN	Dynamics among group members	Conflict resolution	.859	0.895
		Motivating	.857	
		Decision making	.744	
	Group members roles and responsibilities	Collaboration coordinator	.915	0.766
		Collaboration leader	.891	
		Technical/ specification advisor	.655	
PROCESSES	Policy forming activities	Social/community benefits policy	.860	0.760
		Environmental sustainability process	.846	
		Ethical sourcing process	.846	
		Local economic development policy	.777	
	Managerial activities	Risk analysis and management	.851	0.859
		Demand analysis and management	.843	
		Regulation/compliance management	.819	
	Sourcing strategy	.858	0.778	

	Strategic sourcing activities	Relationship strategy	.772	0.757
		Innovation strategy	.765	
	Sourcing activities	Tender procedure selection	.870	
		Technical specification documents preparation	.816	
		Tender evaluation	.798	
	PERFORMANCE	Effectiveness	Optimize supply base	
Reduce supply base			.819	
Improve relationship with other institutions			.743	
Improve relationship with potential suppliers			.667	
Efficiency		Obtain savings or avoid additional costs	.805	0.804
		Decrease procurement process cost	.786	
		Increase procurement quality	.738	
Risk management		Outsource management of non – strategic procurement	.803	0.672
		Improve management of procurement risk	.746	
ENABLING FACTORS		Partner involvement	Information brokering/ sharing	.758
	Knowledge capture		.740	
	Commitment of partners to invest time		.729	
	Risk and benefit sharing		.622	
	Government support	Political support	.933	0.843
		High level support	.924	

The final revised conceptual framework contained the additional findings from the theoretical and empirical testing. Elements not viewed as important by either literature or practice but featuring in the other were retained as they represented potentially interesting areas to explore further.

Revised conceptual framework



Figure 1: Revised conceptual framework

Conclusions

Whilst there have been contributions to knowledge on Collaborative Public Procurement, to date there has not been evidence of understanding of the objectives, type, process, performance, and barriers and enablers. Most significantly there has not been any empirical testing on how these ‘pillar’ of CPP are inter-related. This working paper provides a summary of the analysis to date supporting a conceptual framework for Collaborative Public Procurement. This framework is applied in subsequent analysis of the empirical data in the rest of the IRSP7 study. It can also be used to guide research in Collaborative Public Procurement.

References

AGRANOFF, R. & MCGUIRE, M. 2004. *Collaborative public management: New strategies for local governments*, Georgetown University Press.

- BAKKER, E., WALKER, H., SCHOTANUS, F. & HARLAND, C. 2008. Choosing an organisational form: the case of collaborative procurement initiatives. *International journal of procurement management*, 1, 297-317.
- BARRINGER, B. R. & HARRISON, J. S. 2000. Walking a tightrope: Creating value through interorganizational relationships. *Journal of management*, 26, 367-403.
- BOVAIRD, T. 2014. Efficiency in third sector partnerships for delivering local government services: the role of economies of scale, scope and learning. *Public Management Review*, 16, 1067-1090.
- BRYSON, J. M., CROSBY, B. C. & STONE, M. M. 2006. The design and implementation of Cross-Sector collaborations: Propositions from the literature. *Public administration review*, 66, 44-55.
- DOBLER, D. W. & BURT, D. N. 1996. *Purchasing and supply management: text and cases*.
- EISINGERICH, A. B., RUBERA, G. & SEIFERT, M. 2009. Managing Service Innovation and Interorganizational Relationships for Firm Performance To Commit or Diversify? *Journal of Service Research*, 11, 344-356.
- ELSTON, T., MACCARTHAIGH, M., & VERHOEST, K. 2015. Collaborative efficiency in government: what, where and why should we care?
- ESSIG, M. 2000. Purchasing consortia as symbiotic relationships: developing the concept of "consortium sourcing". *European Journal of Purchasing & Supply Management*, 6, 13-22.
- FORD, D. & GROUP, I. 1990. *Understanding business markets: Interaction, relationships and networks*, Academic Press London.
- GORDON MURRAY, J., RENTELL, P. G. & GEERE, D. 2008. Procurement as a shared service in English local government. *International Journal of Public Sector Management*, 21, 540-555.
- HÅKANSSON, H. & GROUP, I. 1982. *International marketing and purchasing of industrial goods: An interaction approach*, Wiley Chichester.
- HÅKANSSON, H. & LAAGE-HELLMAN, J. 1984. Developing a network R&D strategy. *Journal of Product Innovation Management*, 1, 224-237.
- HÅKANSSON, H. & SNEHOTA, I. 1989. No business is an island: The network concept of business strategy. *Scandinavian Journal of Management*, 5, 187-200.
- HARLAND, C., ZHENG, J., JOHNSEN, T. & LAMMING, R. 2004. A conceptual model for researching the creation and operation of supply networks¹. *British Journal of Management*, 15, 1-21.
- HARLAND, C. M. 1996. Supply chain management: relationships, chains and networks. *British Journal of management*, 7, S63-S80.
- HARLAND, C. M. & KNIGHT, L. A. 2001. Supply network strategy: role and competence requirements. *International Journal of Operations & Production Management*, 21, 476-489.
- HARLAND, C. M., LAMMING, R. C., ZHENG, J. & JOHNSEN, T. E. 2001. A taxonomy of supply networks. *Journal of Supply Chain Management*, 37, 21-27.
- HENDRICK, T. E. 1996. *Purchasing consortiums: horizontal alliances among firms buying common goods and services: what? who? why? how?*, Center for Advanced Purchasing Studies.
- HOBerecht, S., JOSEPH, B., SPENCER, J. & SOUTHERN, N. 2011. Inter-Organizational Networks. *OD and Sustainability*, 43, 23.
- ISETT, K. R., MERGEL, I. A., LEROUX, K., MISCHEN, P. A. & RETHEMEYER, R. K. 2011. Networks in public administration scholarship: Understanding where we are and where we need to go. *Journal of Public Administration Research and Theory*, 21, i157-i173.
- ISETT, K. R. & PROVAN, K. G. 2005. The evolution of dyadic interorganizational relationships in a network of publicly funded nonprofit agencies. *Journal of Public Administration Research and Theory*, 15, 149-165.
- JOHNSEN, T., WYNSTRA, F., ZHENG, J., HARLAND, C. & LAMMING, R. 2000. Networking activities in supply networks. *Journal of Strategic Marketing*, 8, 161-181.
- KEAST, R., MANDELL, M. P., BROWN, K. & WOOLCOCK, G. 2004. Network structures: Working differently and changing expectations. *Public Administration Review*, 64, 363-371.
- KNIGHT, L., HARLAND, C., TELGEN, J., THAI, K. V., CALLENDER, G. & MCKEN, K. 2012. *Public procurement: International cases and commentary*, Routledge.
- KNIGHT, L., HARLAND, C., WALKER, H. & SUTTON, R. 2005. Competence requirements for managing supply in interorganizational networks. *Journal of Public Procurement*, 5, 210.
- LOADER, K. 2011. Are public sector procurement models and practices hindering small and medium suppliers? *Public Money & Management*, 31, 287-294.
- NOLLET, J. & BEAULIEU, M. 2005. Should an organisation join a purchasing group? *Supply Chain Management: An International Journal*, 10, 11-17.
- PATRUCCO, A. S., LUZZINI, D., RONCHI, S., ESSIG, M., AMANN, M. & GLAS, A. H. 2017. Designing a public procurement strategy: lessons from local governments. *Public Money & Management*, 37, 269-276.
- PESÄMAA, O. 2007. Development of relationships in interorganizational networks: studies in the tourism and construction industries

