

# Cognitive distance in public procurement and public–private partnerships: An analysis of the construction sector

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## Abstract

Public–private partnerships (PPPs) are understood as collaborative devices that can be used to achieve both efficiency and innovation. For this potential to be realized, however, some significant obstacles to effective collaboration must be overcome, such as the cognitive distance that often separates public and private agents. In order to deepen our understanding of the collaboration problem, this article assesses the size and characteristics of cognitive distance by looking at agents operating in the construction industry in Italy and Slovenia. Our analysis detects the presence of different types of cognitive distance in different socio-economic contexts, suggesting that cognitive distance is not simply the outcome of individual intentionality but also of social context. We argue that there is constructive room for policies supporting the efficiency and diffusion of PPPs that will facilitate the emergence of context-specific intermediaries to smooth the progress of collaborative work.

## Keywords

Cognitive distance, cognitive misalignment, public–private partnerships, public procurement

## Introduction

Public–private partnerships (PPPs) are complex objects. They are long-term agreements having a wide scope, and they involve many agents, both of public and of private nature, which share financial, technical and operational risks in varying degrees. Their complexity is likely to increase when the agreement is related to the construction of public works. In this case, the PPP also incorporates the typical complexity of the construction industry, in which projects mobilize a multitude of different professionals working in different disciplines and technologies in order to produce a unique product (Briscoe et al., 2001). Moreover, the life of the project goes through many stages, which are characterized by the work of different

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professionals and stakeholders. Many changes can arise during the life of the project, some of which may not be covered by the contract. For these reasons, a high degree of trust and understanding between the partners is needed (Cheung et al., 2006). Similar types of collaborative problems arise in the case of procurement of public works. Moreover, in this case, public and private agents do not work under the umbrella of organizational structures that should facilitate collaboration, such as the special purpose vehicles that are often created in PPPs (Eriksson and Westerberg, 2011; Ey et al., 2014).

Literature has shown that performance and innovation in construction are significantly hindered by lack of collaboration (Cox and Townsend, 1998; da Cruz et al., 2013; van den Hurk, 2015). To overcome these problems the recent years have witnessed the diffusion of supply chain management and relationship management approaches (Pryke, 2009; Walker and Hampson, 2008). These approaches focus on interaction and learning processes that develop during the course of the project and aim at supporting the development of sustainable relationships along the value chain (Grimsey and Lewis, 2004; Teicher et al., 2006; Smyth and Edkins, 2007; Smyth and Pryke, 2008). Such approaches often understand the problem of collaboration as one of miscommunication or mistrust, which can be addressed by increasing the involvement of stakeholders (Smyth, 2008; Zou et al., 2014). The literature on public administration goes further in the understanding of the collaboration problem, by acknowledging that the knowledge produced during the project is (also) the result of social processes taking place in certain contexts (Gray, 1989; Huxham and Vangen, 2000; Klijn and Teisman, 2003; Thomson et al., 2009). Indeed, the knowledge that is mobilized in a construction project has a tacit component, which is related to the way in which agents perceive problems, find solutions and, more generally, make sense of the reality (Morledge et al., 2009). Given the diversity of agents involved, the collaborative work should be supported by working on mutual understanding of the different points of view.

This collaboration problem is very similar to the one discussed in the innovation literature. Indeed, innovation is produced thanks to the recombination of a number of agents having different pieces of knowledge, competencies and perceptions (Powell, 1998). Agents' diversity (or, more exactly, cognitive distance) is a valuable asset unless it becomes as large as to prevent agents from building trust and cooperating effectively. Indeed, as noted by Nooteboom et al. (2007: 1017) for collaboration to be possible and profitable, agents (organizations) 'need to share certain basic perceptions and values to sufficiently align their competencies and motives'. Collaboration failures arising from excessive cognitive distance may prevent the realization of collective work or, once the work has started, jeopardize the results (Nooteboom, 2000a; Nooteboom et al., 2007; Powell, 1998).

The issue of agents cognitive distance has received relatively little attention from the literature on PPP (notable exceptions are Edelenbos and Teisman, 2008; Klijn and Teisman, 2003; Termeer, 2009), despite the fact that it may hinder the development of effective partnerships and decrease their performance. In this article, we address this critical gap in understanding. By combining the literature on PPPs and procurement with that on innovation, we frame the collaboration problem as one of cognitive distance among agents involved, we try to measure cognitive distance in an empirical setting and finally suggest possible solutions. In recent years, the literature on innovation has been particularly concerned with analysis of the contexts that are more conducive to innovation (Boschma, 2005; Cooke et al., 2004). Analogously, the solutions we put forward refer to elements of the socioeconomic context that can facilitate collaboration.

More specifically, we develop an original empirical analysis by assessing the size and characteristics of agents' cognitive distance in the construction industry in Italy and Slovenia. These two countries represent two different economic and institutional contexts

in which cognitive distance takes different forms. On the one hand, Italy is a relatively large country in which regions and municipalities are responsible for many of the policy areas in which PPPs and procurement are involved. Apart from large-scale projects of national relevance, the main agents are local. The Italian construction industry is highly fragmented, mainly characterized by small and medium-sized enterprises (SMEs). These smaller entities often suffer from limitations due to scarce internal resources, making them unable to collect and manage knowledge about procedures and opportunities or to cope with large-scale projects and long-term contracts (Loader, 2005, 2013). As shown by previous research, private companies claim to have a certain degree of distrust of public officials, especially their ability to properly manage both traditional and newer forms of PPPs (Sedita and Apa, 2014). Indeed, the success of PPPs seems to be undermined by the lack of strategy-making and dynamism in public sector organizations (Codecasa and Ponzini, 2011).

On the other hand, Slovenia is a small country in which the provision of public goods of strictly local interest falls under the responsibility of municipalities, while any other type of public good is provided by the national government. Given the small size of the country, the context is more centralized than the Italian one. The Slovenian construction industry is also based on SMEs, with new forms of PPPs having been undertaken and private companies claiming to have a certain degree of confidence in the ability to manage procedures relating to PPPs (Sedita and Apa, 2014).

In a large and fragmented market like Italy's, where there is little trust and limited experience with previous cooperation, we would expect the cognitive distance between public and private agents to be broader than in a smaller market like Slovenia's. In order to verify this, we performed an empirical analysis using information we gathered during the development of an EU-funded project aimed at fostering transregional and transnational collaborations between public and private agents for the development of PPPs in the construction industry (Profili project, see Sedita and Apa, 2014). In particular, we analysed a series of focus groups carried out in Italy and Slovenia (7 focus groups in Italy and 18 in Slovenia) involving construction firms, business associations operating in the construction industry, municipalities and regional governments. The focus groups were aimed at discussing agents' experiences in PPPs and procurement and identifying PPPs or procurement projects that local and regional authorities could promote in the future.

We developed an original analysis of agents' cognitive distance using the tools of textual content analysis (Bolasco, 2002), applying them to transcripts of focus group discussions. By employing textual tools, we were able to identify the specific cognitive domains of the different agents involved in PPPs and procurement and to assess the cognitive distances separating them. Our analysis detected the presence of different cognitive domains struggling to interact with one other and requiring a learning process to become partially shared and coordinated. Moreover, cognitive distance takes different forms in different socioeconomic contexts. We argue that there is constructive room for context-specific policies aimed at improving the efficiency of PPPs and requiring 'soft' interventions that target the information, knowledge and skills of the agents involved.

The article develops as follows. *Cognitive distance and coordination failures in procurement and PPPs* section reviews the literature on cognitive distance and coordination failures and frames these issues in the peculiar context of procurement and PPPs. *Data* section presents the data on procurement and PPPs evaluated through textual content analysis, its basic tools explained in greater detail in *Methodology* section. *Results of the correspondence analysis* section discusses the results of our empirical analysis, while *Some hints from the innovation literature: the role of intermediaries in reducing cognitive distance* section presents some hints

from the literature on innovation about how to face the problem of cognitive distance. *Final remarks* section concludes the article with recommendations for future research.

## **Cognitive distance and coordination failures in procurement and PPPs**

Many authors have recognized that maintaining sustainable relationships and building trust among stakeholders are two key ingredients to manage the complexity of PPPs projects and procurement in the field of public works and ensure their success (Eriksson and Westerberg, 2011; Ey et al., 2014; Pryke and Smyth, 2012; Smyth and Edkins, 2007; Teicher et al., 2006). However, few contributions have tried to go deep in the understanding of the mechanisms that can lead to the development of such relationships and trust in a context that is characterized by many agents having different goals, perceptions and backgrounds. This diversity of purpose and experience can frequently produce misunderstandings, conflicting perceptions and inconsistent strategies that slow the activities of PPPs or hamper their creation (Carrillo et al., 2006; Edelenbos and Teisman, 2008; El-Gohary et al., 2006; Klijn and Teisman, 2003; Termeer, 2009).

Innovation literature has produced some reflections that can contribute to framing this collaboration problem, which is discussed through the concept of cognitive distance (Nooteboom, 1992, 2000a). This concept refers to the fact that each individual perceives and makes sense of her world according to unique mental categories developed over time and dependent upon the educational, professional and social experiences she has lived both directly and indirectly. The more dissimilar such personal stories are, the greater the cognitive distance between agents. In contexts characterized by a large cognitive distance, the agents involved interpret the same reality in different ways and define their intentionality to act based on these differing interpretations (Weick, 1995; Weick et al., 2005). In such contexts, agents' cognitive misalignment is likely to lead to the adoption of uncoordinated behaviours.

The issue of cognitive distance can also be framed in more dynamic terms. Every time agents face some uncertain or unexpected event that interrupts the course of their ordinary actions, they must make an effort to give it a meaning. Again, the interpretation of novelty and uncertainty is based on prior knowledge and experience as well as on social norms. Behavioural responses to novelties are thus constrained by a subjective and social perspective of reality (Choo, 1996; Hahneman, 2011).

The concept of cognitive distance is also defined at the organization level. Organizations that are very distant from a cognitive point of view do not share basic perceptions and values and therefore are not able to align their competencies and goals. These organizations, therefore, are not able to cooperate successfully or even to enter into a partnership (Nooteboom, 2000b; Nooteboom et al., 2007; Oberoi and Saviotti, 2011; Wuyts et al., 2005). On the other hand, as in the case of individuals, a 'fair' degree of cognitive distance is a valuable asset, to the extent that it implies the presence of different knowledge and competencies whose combination is of fundamental importance for the success of any complex or innovative work (Nooteboom et al., 2007).

The same reasoning can be applied to PPPs and procurement, particularly when they operate in the field of public works. Indeed, PPPs and procurement are complex projects, always surrounded by some degree of uncertainty. In theory, the cognitive distance between organizations involved in these agreements (e.g. public authorities, private companies, banks) is very large, and potentially so is the distance between agents that form these organizations (policymakers, civil servants, private entrepreneurs, private employees). In fact, agents operating in these organizations often have different backgrounds and

different professional experiences. In addition, the many organizations involved have different decision-making processes and strategies (Klijn and Teisman, 2003). However, in order to realize a public good, a broad range of different expertise and knowledge must be mobilized. Therefore, challenges arise when this distance is too large and hampers mutual understanding and governance of the project.

Some solutions have been identified by the literature on PPPs and procurement to address this problem. Among these, supply chain management and relationship management approaches have gained popularity in recent years. The former refers to 'the process of strategic management of information flow, activities, tasks and processes, involving various networks of organizations and linkages (upstream and downstream), throughout a project life cycle' (Morledge et al., 2009: 32). Relationship management can be defined as a set of strategies and processes aimed at building trust and developing sustainable relationships with the client as well as with the other project stakeholders, to create superior value for the PPP (Pryke and Smyth, 2012; Smyth and Edkins, 2007; Teicher et al., 2006; Walker and Hampson, 2008). These approaches focus on improved communication between partners, rather than on creating an environment of understanding between the different partners. By doing so, they address only part of the collaboration problem.

Innovation literature can provide some insightful suggestions on how to solve the collaboration problem. Besides defining the problem of cognitive distance, the literature on innovation identifies the institutional conditions that help reduce it to generate novelty. One of the most important discoveries is that innovation is a process located in space and time and rooted in specific socioeconomic contexts (Boschma, 2005; Cooke et al., 2004). Indeed, context plays a role in reducing or increasing agents' cognitive distance and encouraging or discouraging innovation, for example by strengthening social norms that support collaboration or conversely those that support the opposite behaviour (Cooke and Morgan, 1998). As a result, the same types of agents can experience different degrees of cognitive distance depending on the socioeconomic context in which they operate. This means that there are many context-specific tools that can be targeted by innovation policies, including support for various types of intermediaries that can facilitate dialogue among agents possessing different perceptions, knowledge, skills and strategies and can promote the diffusion of information and the creation of a collaborative culture (Howells, 2006).

We argue that in order to address the collaboration challenge, some of the context-specific solutions put forward by the innovation literature can be employed. We will discuss those solutions in detail after first discussing the problem of cognitive distance in the case of the construction industries in Italy and Slovenia.

The concept of cognitive distance is ineffable. It is reasonable to believe that it exists and that its effects have been accurately predicted in the literature. However, as evidenced by the scarcity of available research, it is very difficult to measure (Nooteboom et al., 2007; Wuyts et al., 2005). Existing attempts have assumed that two organizations are cognitively closer when their knowledge bases are closer, as measured by the type of patents owned or the intensity of their collaboration. In what follows, we try to provide an original measure of such phenomena in the context of many-to-many collaborations that characterizes both PPPs and procurement.

## **Data**

We analysed data collected over the course of a European project of transnational cooperation between Italy and Slovenia in which we participated between 2012 and 2014

(xxx). The project was aimed at creating a platform of cross-border services for the improvement of the construction sector in Italy and Slovenia. In particular, its ultimate goal was to promote interaction, information exchange, knowledge and skills and coordination between public and private agents operating in an enlarged supply chain of the construction sector in order to facilitate the development of both domestic and cross-border PPP projects. The project focused in particular on public and private agents of small size (both small municipalities and small construction companies) and on investigating ways to promote aggregations from both sides in order to create new and more effective PPP projects.

A portion of our project was devoted to investigating cognitive distance among agents usually involved in PPPs and public procurement contracts but who, until that moment, had never collaborated. In order to accomplish this task, we performed a textual content analysis, illustrated in detail in the next section. The data we evaluated were collected through a number of focus groups (carried out between March and September 2013) involving agents who participated (or could participate) in PPPs. The focus groups (described in Table 1) have been implemented in Italy and Slovenia.

Our data consists of the speech of agents participating in the focus groups. These agents work in organizations that, for various reasons, have been involved in the development of

**Table 1.** Basic features of the focus groups conducted in Italy (ITA) and Slovenia (SLO).

Country	General info	Participants			
		Politicians	Technicians	Associations (business associations, chambers of commerce)	Firms
ITA	7 focus groups involving: - Public agents from 29 municipalities or unions of municipalities (50,000 inhabitants on average) - Public and private agents having implemented a maximum of two PPPs each - Private agents with experience mostly in public procurement	19	15	5	24
SLO	17 focus groups involving: - Public agents from 18 municipalities (13,000 inhabitants on average) - Public and private agents having implemented a maximum of four PPPs each - Private agents with some experience in PPPs (not just in procurement)	8	58	42	30

PPPs and procurement. Our basic assumption is that agents' speech is a reliable proxy for their individual mindsets, competencies and goals – i.e. of their cognitive domain. This is based on the literature on cognitive science, which has extensively discussed the connection between speech and mental models (Vygotsky, 1980). By assuming this, the distance between such domains can be considered a proxy for agents' cognitive distance.

As shown in Table 1, we consider agents from diverse backgrounds. Obviously, we expect that some distance separates their speech. However, these agents are involved in focus groups in which they are asked to exchange their opinions with others on the same subject. So if their vocabulary (which includes not only single words but also concepts, as we will explain in the next section) is completely different, we can reasonably conclude that agents have completely different perspectives and that they are very distant from a cognitive point of view.

The focus groups were organized by members of the European project in collaboration with a number of public managers working in small municipalities (or unions of municipalities) located in border areas between Slovenia and Italy (or around these areas). In particular, the project involved municipalities located in the North-East area of Italy (Veneto, Friuli-Venezia Giulia and part of the Emilia-Romagna region), as well as in the Western regions of Slovenia (Obalno-Kraška, Goriška, Notranjsko-Kraška and Osrednjeslovenka regions). A questionnaire was sent to all municipalities in the selected regions and was designed to collect information about the following issues: infrastructure needs (for example school buildings, sports facilities and road connections); plans to develop similar infrastructures through PPPs or procurement; competencies required in order to implement such plans; and other details about future projects. Respondents to the questionnaire who reported having procurement or PPP projects were invited to take part in focus groups. Each invited municipality was then asked to identify at least one employee working in the public works sector and one elected political representative to participate in the group.

At the same time, we identified all construction firms operating in the focus regions and defined a stratified sample by firms' size and activity. These companies (330 Italian and 41 Slovenian) were also given a questionnaire collecting information on the structure of enterprises, their behaviours and strategies about procurement and PPP projects (the types of projects realized), and the results of these behaviours. Small firms involved in procurement or PPP projects were invited to take part in the focus groups. Associations of construction firms were also invited, as were other intermediaries providing business services to the construction industry (such as chambers of commerce). Firms that agreed to participate in focus groups (24 Italian and 30 Slovenian, see Table 1) were SMEs that frequently take part in public tenders. As previously mentioned, these agents have not been involved in the same PPPs.

As a result, the composition of the focus groups was similar and included representatives from the following four categories: elected political representatives of the municipalities (politicians), municipal administration employees working in the public works sector (technicians), business associations or chambers of commerce (associations) and local firms. Since the focus groups had to give voice to the different opinions, the moderators of the focus groups had to give equal time to each category. Participants were aware that the focus group transcripts would be circulated among all the parties invited.

Moderators of the focus groups investigated the following issues: (i) past experience with PPPs or procurement, (ii) possibilities for future development of PPPs and (iii) opinions about collaboration problems and opportunities in PPPs.

Discussions were recorded and transcribed in Slovenian and Italian. For each country we collected all the focus groups in a single text. Analyses were then carried out on the Italian and Slovenian texts and their results were translated into English.

## Methodology

Textual content analysis allows for statistical calculations for qualitative data obtained from written or spoken language. Application of this methodology (currently used in many disciplines) is growing rapidly, thanks to development of information retrieval tools and new standards for processing textual data.

In this article, we assume that spoken language mirrors agents' real thoughts and attitudes and that it can be used to investigate their cognitive representations of the real world (Denzau and North, 1994). However, language may also include strategic elements of self-representation, that is through speaking and interacting, human beings reorganize their representational description and internalize a socio-cultural perspective (Karmiloff-Smith, 1992; Tomasello, 2009). This can happen in focus groups such as those analysed here, when the speech of an agent is influenced by her desire to self-represent herself in the eyes of the interviewer and/or in those of other interviewees. The tools of textual analysis can help reduce problems associated with this phenomenon and identify clear and objective individual narratives. In fact, while researchers using traditional qualitative analyses try to interpret agents' speech by drawing on unstructured methods – which can be greatly influenced by the researchers' perception of agents' speech – in textual analysis, this type of activity is assisted by automated and structured methods, allowing for calculation of objective indicators.

The content analysis procedure starts with a collection of textual data and the creation of a corpus that must be transformed into a vocabulary, that is a set of word-types associated with their frequency (occurrences).<sup>1</sup> The corpus size (small, medium or large) is given by the total number of occurrences and is a relevant piece of information about the quality of the investigated data.

The second step is the textual data processing, which is usually based on the following steps (Bolasco, 2005): (a) text cleaning (parsing) to standardize and disambiguate words and identify simple word-types (e.g. standardize to the singular or plural version, level out accents or apostrophes); (b) lexical analysis to identify features of the vocabulary, such as the presence of complex words (i.e. chains of words that frequently come together) and to evaluate the 'discourse' through, for instance analysis of the frequency of a specific word-type, the preference for positive/negative connectors and prepositions, or a concordance analysis<sup>2</sup>; (c) extraction of information, usually through a hypergeometric distribution model identifying the over/underused word-types.

Results of steps (a) and (b) are synthetically displayed in Table 2. The variable *corpus* refers to the total number of words (excluding numbers) in the focus group transcripts, while *vocabulary* includes the total number of simple and complex words. This variable is calculated for each group of interviewees (politicians, technicians, associations, firms) and for the whole population. As is evident from Table 2, politicians use a wider vocabulary and speak more than other participants. Firms are in the opposite position.

As for step (c), we focused our attention on the most significant language and on the characteristic textual units used by each speaking group. As to the first aspect, we considered the term frequency and inverse document frequency (TFIDF), which is the product of two statistical measures. The first (term frequency) ranks words with respect to their frequency in the textual corpus, while the second (inverse document frequency) ranks words with respect

**Table 2.** The content analysis: an overview of the main variables.

	Italian focus groups ( <i>Italian language</i> )		Slovenian focus groups ( <i>Slovenian language</i> )	
	Word-types	Word-tokens	Word-types	Word-tokens
Corpus		35.256		86.715
Vocabulary (simple and complex words)	5.404	35.256	11.824	86.715
Selected complex words	132		299	
Politicians' vocabulary	3.304	16.099	5.880	28.308
Technicians' vocabulary	2.266	8.348	4.471	17.956
Associations' vocabulary	1.640	5.709	5.316	24.623
Firms' vocabulary	1.562	5.100	3.708	14.257
TFIDF	341		948	
Characteristic textual units ( <i>probability threshold: 0.025; word frequency threshold: 5</i> )	208		497	

Note: By *word-types* we refer to the number of occurrences (different words) that have been found in the transcripts of the focus groups, while the term *word-token* refers to the total frequency of occurrences (repetitions of the same word). The variable *corpus* refers to the total number of words included in the focus group transcripts. The *vocabulary* includes the total number of word-types, that is the sum of simple and complex words. The *term frequency and inverse document frequency (TFIDF)* calculates the most significant language through a function weighting the importance of a word in a corpus subset with respect the whole textual corpus. The *characteristic textual units* identify words that are over- or under-represented in the language used by a group of interviewees with respect to the whole Italian and Slovenian vocabulary, respectively.

to their commonality across the different groups of interviewees. Their product weights the importance of a word in a corpus subset with respect to the whole textual corpus. By performing this procedure, we extracted 341 Italian and 948 Slovenian high-frequency words that can be considered central words in the vocabulary.

We then identified over-represented words for each group of interviewees by extracting the characteristic textual units – the minimum word-sets that maximize the vocabulary representation (Bolasco, 2002). This procedure is run on the corpus subsets (the corpus of each speaking group) and on a probability threshold under which a word becomes characteristic (the default threshold we adopted is 0.025). We extracted 208 positive (overused) and negative (underused) characteristic elements from the Italian vocabulary and 497 from the Slovenian vocabulary.

After performing these steps, we summed the TFIDF and characteristic elements, excluding word-types with a linguistic function (e.g. personal or demonstrative pronouns) and collapsed plural words into one unique word-type.

With the correspondence analysis (CA), we graphically mapped the narratives of agents usually involved in PPPs. CA is a multivariate technique that synthesizes information contained in a large array of textual data (Bénzecri, 1981; Lebart et al., 1998). It is similar to principal component analysis but uses categorical rather than continuous data. The output of the analysis shows the association between words and can be visualized on a Cartesian plane (whose axes can be interpreted as semantic dimensions). Words are located in the plane on the basis of the frequency with which they are associated with other words in the corpus (relative frequencies). The distance (or association) between words is measured by a weighted Euclidean distance (the chi-square statistic).

Word scattering can assume different shapes showing the distance/similarity among textual patterns of speaking agents. However, given that this technique is an exploratory one, there is no theoretical distribution to which the observed distances can be compared. Therefore, the chi-square test does not reveal whether the association between variables is statistically significant.

In the following section, we discuss the results of the CA we ran on data taken from the Italian and Slovenian focus groups. The total number of words used to perform the CA was 138 Italian and 190 Slovenian.

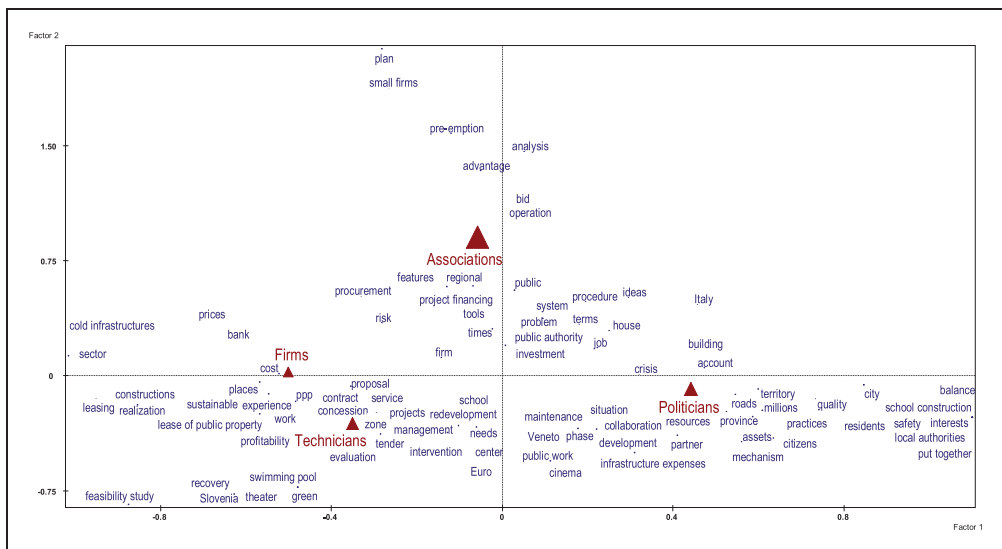
## Results of the CA

To investigate agents' cognitive distance, we identified the cognitive profiles of participants and analysed differences and similarities among the different types of agents. We performed a CA on the characteristic textual units of each speaking group in the two countries and on the most significant language (TFIDF) of the whole vocabulary. The analysis took into account the two main dimensions of cognition and action, as well as the related problems of interpretation of reality (sensemaking) and choice (of the course of action) (Weick, 1995; Weick et al., 2005).

Results are presented separately for Italy and Slovenia and then compared in the next section.

### Italy

Figure 1 displays the first two principal axes that account for 73.7% of the total lexical variance. Indeed, the first two eigenvalues are 0.1614 (39.63%) and 0.1386 (34.03%),



**Figure 1.** Correspondence analysis of significant language (TFIDF) and characteristic elements of the Italian focus groups. Note: Speaking groups are represented with a triangle whose dimension depends on the groups' contribution to the total lexical variance. Significant words are scattered throughout the plane on the basis of the frequency with which they are associated with other words in the corpus (relative frequencies). Word clouds represent the narrative profiles of the speaking actors and mirror their cognitive domains.

**Table 3.** Contributions of speaking groups to the total lexical variance, Italian case.

Variable label	Relative weight	Distance to origin	Axis 1	Axis 2	Axis 3
Politicians	42.77	0.21142	51.78	3.24	2.21
Technicians	25.63	0.37496	19.54	18.29	36.55
Associations	13.31	0.88420	0.27	78.41	8.01
Firms	18.29	0.56349	28.41	0.07	53.23

respectively. The ‘meaning’ of the two principal axes, as measured by the contribution brought by different groups to the total lexical variance, is mainly given by contributions of politicians, associations and firms (Table 3).

To identify the meaning framework of the focus groups’ general discourse and build a representation of the agents’ sensemaking, we looked to the words that more distant from the origin of the Cartesian plane (Figure 1). We found that the cognitive domain characterizing the horizontal axis is represented by the profitability/usefulness of PPPs and procurement. Indeed, along this axis we find terms related to the evaluation of the costs (‘cost’, ‘bank’, ‘risk’) and opportunities (increased ‘quality’ and ‘safety’ of infrastructures, better ‘city’, ‘balance’ between the different ‘interests’ at stake) to participate in projects in the field of public works. Instead, the vertical axis is about management issues. Here, the discussion is focused on the most appropriate organizational forms for the realization of new public infrastructures or for the maintenance of existing ones (‘bid’, ‘procedure’, ‘project financing’, ‘maintenance contracts’) (see also Kort et al., 2016). Particular concerns are raised by some stakeholders as to the forms that can facilitate the involvement of small businesses. By looking at the word pattern, we produced the image displayed in Figure 1. This figure shows policymakers in opposition to the other speaking groups – and to firms in particular – with respect to the vertical axis. Politicians’ narratives do not seem to take into account issues surrounding the operationalization and management of public procurement or PPPs. Instead, such issues are of special concern to firms, which talk about financial viability and bankability of PPPs, costs, prices and profitability of the various operations related to public works. Words like ‘bank’, ‘costs’ and ‘profitability’ are present in the vocabulary of firms but completely absent in that of policymakers.

Associations occupy an interesting, though unsurprising, position in the plane identified in Figure 1. Their perspective on management of PPPs puts them in an intermediate position between firms and policymakers. Indeed, their language incorporates some of the more technical issues that are typical of firms’ and technicians’ vocabularies, but such terms are combined with words mirroring more political issues typical of policymakers. In addition to the words ‘risk’, ‘project financing’ and ‘firm development’, which bring associations close to firms and technicians, they also speak of regional development and put forward reflections on how to react to the current crisis – typical topics in the politicians’ discourse. This unique feature of associations, which lies in between these different cognitive domains, explains the important contribution they bring to the word pattern (Table 3).

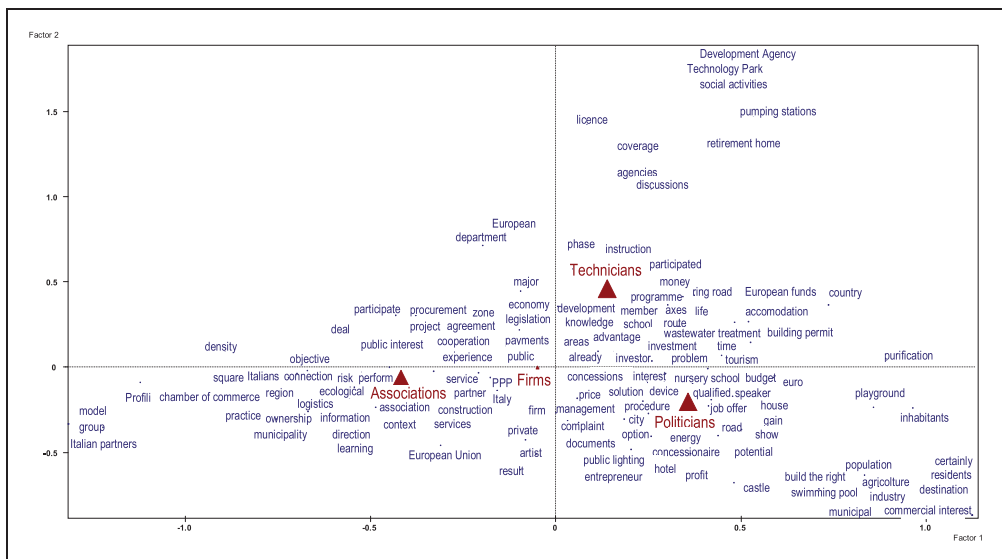
The cognitive domains of different agents are focused on different narrative objects: politicians seem concerned with how PPPs can support territorial development, while associations pay strong attention to general issues about the management of procurement and PPPs, especially when they involve SMEs. Indeed, the term ‘small firm’ is used only by associations. On the other hand, the discourse of technicians and firms combines management and profitability/usefulness issues.

In conclusion, we observe that each agent seems to play a peculiar role in the dialogue. Politicians make political speeches, associations try to act as mediators between the interests of firms and policymakers, and firms and technicians adopt language expressing practical issues (locating these two agents relatively close to one another).

The most noticeable characteristic is that politicians seem distant from all other speaking groups. They are clearly opposed to firms and, to a lesser extent, also to associations and technicians. They are the only group in the right quadrant because they are almost absent in defining management problems and cooperation opportunities. This result reflects a tension within local governments (municipalities or regions): engineers operating in local administration are apparently very close to the needs of enterprises, while politicians seem relatively isolated. The path to resolving this tension is not immediately clear, however, since policymakers often play a fundamental role in the initiation and development of PPP or procurement projects.

### Slovenia

The results of the CA for Slovenia are displayed in Figure 2. Here the first two principal axes, which are displayed in the figure, account for 73.08% of the total lexical variance. The first two eigenvalues are 0.1027 (45.33%) and 0.0628 (27.75%), respectively. The ‘meaning’ of the two principal axes is given by contributions of associations, politicians and technicians (Table 4).



**Figure 2.** Correspondence analysis of significant language (TFIDF) and characteristic elements of the Slovenian focus groups. Note: Speaking groups are represented with a triangle whose dimension depends on the groups' contribution to the total lexical variance. Significant words are scattered throughout the plane on the basis of the frequency with which they are associated with other words in the corpus (relative frequencies). Word clouds represent the narrative profiles of the speaking actors and mirror their cognitive domains.

**Table 4.** Contributions of speaking groups to the total lexical variance, Slovenian case.

Variable label	Relative weight	Distance to origin	Axis 1	Axis 2	Axis 3
Politicians	31.58	0.18578	39.90	17.54	10.98
Technicians	20.55	0.25086	4.12	74.95	0.38
Associations	32.54	0.19779	55.70	1.01	10.75
Firms	15.32	0.33844	0.29	6.49	77.89

As the content of the Slovenian focus groups is similar to that of the Italian ones, the meaning framework of the plane constructed with the first two principal axes is again defined by the profitability/usefulness and management dimensions mentioned earlier.

The image is rather different than the one produced in the Italian case. Here, technicians and associations make the largest contributions to the word pattern and appear in opposing positions. On the one hand, associations are very much concerned with identification of networking strategies that can help their affiliates enter the international market. Their most significant words ('Italian partners', 'Italian partnerships', 'joint practice', 'transnational group') reveal that they are mainly concerned with issues of cooperation and partnering. On the other hand, technicians use language that is relatively more operational than that of other agents. Their discourse concerns specific cases and experiences of procurement and PPPs from which they highlight the most difficult aspects. Technicians and politicians share a tendency to reflect on the use of European funds for building a number of facilities for the community; politicians, however, also discuss broader local development strategies.

The firms' word profile is very similar to that of other agents and therefore seems to occupy a neutral position in the dialogue. This is apparent in Figure 2, where firms are located near the intersection of the Cartesian axes. Technicians, politicians and associations are placed in different quarters, but politicians and technicians have far more in common than do other combinations.

### *A comparative perspective on the two case studies*

Using the results of the two CAs presented in Figures 1 and 2, which develop in the same plane, we can compare the Italian and Slovenian cases directly. In particular, by looking at the different shapes of word clusters, we can identify differences and similarities in sensemaking about PPPs and procurement in these two countries.

Politicians appear in the same quadrant in both national contexts. Their language is focused on broad-scope issues of local development, and their contribution to the general vocabulary is quite significant. In the Italian case, however, they are clearly opposed to other agents, and to firms in particular. They seem to grasp the usefulness of PPPs in driving territorial development but are unable or unwilling to put this idea into practice and to deal with more operational issues of PPPs management. This is consistent with previous findings that highlight the lack of strategy-making and dynamism in Italian public sector organizations, which undermines the success of PPPs in this country (Codecasa and Ponzini, 2011). Our analysis suggests that the responsibility for this lack of dynamism seems more attributable to politicians, who are relatively cognitively distant from other groups, than to other agents working in public administration – technicians in particular. In Slovenia, the contrast between firms and policymakers does not seem as sharp as in Italy, with more distant language occurring between politicians and associations. Although

Slovenian associations and policymakers share language of a political nature, their discourse focuses on very different contents.

The Slovenian picture is more clearly split into separate public and private spheres than the Italian case. Even if politicians and technicians are concerned with development strategies and technical problems, respectively, they share a narrative and perception of the PPP's potential. Indeed, they are the closest types of agents in our plane. This proximity should be fairly obvious, given that they work closely together. However, this is a phenomenon we identify only in the Slovenian case, probably because public agents in this country have a stronger history of collaboration than in Italy, as in former communist countries the government and its bureaucratic organizations were deeply involved in the economic process.

On the private side, associations and, to a lesser extent, firms are concerned with PPP opportunities, and their intentionality revolves around the design of partnerships that can overcome problems of competence deficits and risk reduction. However, the game seems to be mainly played by public agents – the drivers of intentionality and sensemaking.

The word scatter displayed in Figure 1 seems to be more dispersed than the one in Figure 2, suggesting that the cognitive distance separating Italian agents is generally larger than in the Slovenian case. Therefore, it would be more difficult to realize PPPs and use them as innovation vehicles in Italy than in Slovenia. However, the different shape of the figures shows that this distance takes different forms in different contexts, suggesting that in general, participants' visions of PPPs – stemming from their own cultures, experiences and presumptions – do not easily form a uniform socially organized sensemaking process (Weick et al., 2005). On the contrary, each country seems to be characterized by its particular type of cognitive distance (or cognitive misalignment) separating agents' cognitive domains.

Significant differences between the two countries imply that there are no one-size-fits-all solutions and that different institutional and organizational devices must be designed and implemented in the different contexts in order to overcome the problem of cognitive misalignment. The literature on innovation provides some hints about possible solutions to the collaboration dilemma.

### **Some hints from the innovation literature: The role of intermediaries in reducing cognitive distance**

The relational marketing and supply chain management literatures have highlighted the need to use appropriate information technology tools to improve communication, create project governance committees to achieve a higher commitment from the parties involved, set mutual goals and maintain communities of practice involving experts from both the public and the private sector (Akintoye et al., 2000; Juriado and Gustafsson, 2007; Ruuska and Teigland, 2009; Zou et al., 2014). Other contributions have emphasized the importance of 'boundary management' functions (Van Buuren and Edelenbos, 2004), concerning the organization of links among separate knowledge coalitions and the settling of knowledge conflicts. However, reflection on these boundary functions or on agents that could carry them out is still underdeveloped. The innovation literature can provide some useful suggestions about the role of intermediaries.

Boundary spanners, brokers, bridges, are just some of the labels that have been used in the innovation literature to identify the organizations that play an intermediary role between the parties involved in a complex project. Intermediaries operate as bridges between

organizations with different knowledge and skills. Thanks to their education, culture and professional experiences, intermediaries are able to interact with different field specialists. They facilitate matchmaking and collaborative work by explaining the different parties involved in a complex project what is the strategy and what are the skills of other agents. Their role is not limited to improving communication, but they strengthen mutual understanding, facilitate the alignment of the different strategies and resolve any obstacles in the decision-making process.

This activity is also necessary to facilitate collaborative work in the case of PPPs and procurement (van Buuren and Edelenbos, 2004). Intermediaries can help increase coordination and mutual confidence among public and private partners and, more generally, stimulate stakeholders' involvement in planning and designing public works (El-Gohary et al., 2006; Roberts and Siemiatycki, 2015). Intermediaries can support the emergence of a shared sensemaking, that is a new form of coherence between public and private values and perceptions (Klijn and Teisman, 2003). Intermediaries – whose activity can in turn be supported by proactive policies – can also stimulate participation of small firms in PPPs and procurement projects (where their participation has traditionally been low compared to that of larger enterprises; Loader, 2013). Indeed, smaller firms have limited internal material and immaterial resources and therefore need to complement those internal resources with external ones. Financial and management intermediaries, able to disseminate information on priorities and opportunities for action and to organize networking activities can be particularly useful in facilitating participation of SMEs. Intermediaries can also promote knowledge and competence check-ups for SMEs willing to take part in public works, identify specific deficits and support specific learning paths (Flynn and Davis, 2016; Loader, 2005, 2013; Pickernell et al., 2011).

The innovation literature also suggests that there is no a unique type of intermediaries, which can operate in any context. Different types of intermediaries can perform this role in different socioeconomic contexts: technology transfer centres can be effective in some cases, while business associations and other service providers can serve as facilitators in others (Caloffi et al., 2015). The best choice of intermediary depends on the specific competencies of agents, the history of past collaborations, the characteristics of the specific institutional context and the structure of local leadership (Collinge et al., 2011).

There are reasons to believe that this lesson is true even in the case of PPPs and procurement. In fact, agents' knowledge and strategies, and decision-making processes differ in various contexts (Jooste et al., 2011). As shown by our analysis, in the Italian context this linking role may be carried out by business associations. This was not true in the Slovenian case, however, in which the position of business associations is quite peripheral to that of firms, technicians and politicians. In that context, business associations did not seem to facilitate the exchange and integration of existing knowledge and skills.

Previous studies in the field of innovation partnerships have shown that the most effective intermediaries are specialized ones. Such expert intermediaries are able to play a bridging role between agents with different skills because they possess – at least in part – the same skills and knowledge. This seems to hold true in the field of PPPs. Indeed, some evidence seems to support the idea that agents with technical skills – for instance, communities of practice or similar learning networks – can play an important role in supporting the formation and development of PPPs (Carrillo et al., 2006). However, intermediaries are not meant to perform only technical tasks. A leadership role is needed to facilitate the alignment of different strategies, which is not always played by this type of agents.

## **Final remarks**

This article considers procurement and PPPs as tools whose innovation potential can be undercut by the presence of large cognitive distances among the agents involved. As shown in the literature on innovation, cognitive distance is beneficial as long as it does not prevent understanding and exchange of knowledge and expertise among agents, thus undermining opportunities for collaboration and execution of contractual agreements. However, few attempts have been made to measure such cognitive distance. We have tried to do so using textual content analysis, applying it to a series of construction industry focus groups carried out in Italy and Slovenia. In particular, we have quantified the cognitive domain of agents typically involved in PPPs and procurement (policymakers, technicians working in public administration, firms and business associations) and analysed the distance between them.

It is likely that our analysis gives an optimistic view of agents' cognitive distance since it is limited to agents with experience in PPPs and procurement who participated voluntarily in our focus groups. This self-selection may ensure that only agents open to collaboration and discussion with other types of agents have given voice to their concerns. However, this is a first attempt at addressing the problem and has produced interesting results.

We have shown that cognitive distance is something that goes beyond the simple juxtaposition of private and public agents collaborating in PPPs. Moreover, such cognitive distance can take different forms depending on different institutional contexts, as evidenced by our comparison of Italy and Slovenia. Drawing on the innovation literature, we argue that there is room for public interventions that support the emergence of intermediaries (brokers, matchmakers) who can help agents handle the problem of excessive cognitive distance and coordinate their efforts to improve the effectiveness of PPPs and procurement.

The most relevant suggestion coming out of our analysis is that cognitive misalignment is the outcome of both individual intentionality and social context. We will analyse this finding in deeper detail in future works to disentangle the effects of both components of cognitive distance – a clarification that will have important implications for the design of policies supporting PPPs and other complex collaborative work.

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## **Notes**

1. Textual content analysis is performed with Taltac2 software ([www.taltac.it](http://www.taltac.it)).

2. The procedure consists of observing lexical richness, which is calculated by considering relationships between the total hapax (words occurring only once) and the whole vocabulary. Then, segments or complex words are identified through computer-based processing. Meaningful segments are detected by the researcher and analysed through a concordance analysis. With lexicalization, simple and complex word-types are summed up and a more articulated vocabulary is obtained for the analysis.

## References

- Akintoye A, McIntosh G and Fitzgerald E (2000) A survey of supply chain collaboration and management in the UK construction industry. *European Journal of Purchasing & Supply Management* 6(3): 159–168.
- Bénecrè JP (1981) *Linguistique et Lexicologie, Pratique de l'Analyse des Données*. Paris: Dunod.
- Bolasco S (2002) *Analisi Multimediale dei Dati*. Roma: Carocci.
- Bolasco S (2005) Statistica testuale e text mining: alcuni paradigmi applicativi. *Quaderni di Statistica* 7: 1–37.
- Boschma R (2005) Proximity and innovation: A critical assessment. *Regional Studies* 39(1): 61–74.
- Briscoe G, Dainty A and Millett S (2001) Construction supply chain partnerships: Skills, knowledge and attitudinal requirements. *European Journal of Purchasing and Supply Management* 7(4): 243–255.
- Caloffi A, Rossi F and Russo M (2015) What makes SMEs more likely to collaborate? Analysing the role of regional innovation policy. *European Planning Studies* 23(7): 1245–1264.
- Carrillo PM, Robinson HS, Anumba CJ, et al. (2006) A knowledge transfer framework: The PFI context. *Construction Management and Economics* 24(10): 1045–1056.
- Choo CW (1996) The knowing organization: How organizations use information to construct meaning, create knowledge and make decisions. *International Journal of Information Management* 16(5): 329–340.
- Cheung S, Yiu K and Chim P (2006) How Relational are Construction Contracts? *Journal of Professional Issues in Engineering Education and Practice* 132(1): 48–56.
- Codecasa G and Ponzini D (2011) Public–private partnership: A delusion for urban regeneration? Evidence from Italy. *European Planning Studies* 19(4): 647–667.
- Collinge C, Gibney J and Mabey C (eds) (2011) *On Leadership and Place*. London: Routledge.
- Cooke P and Morgan K (1998) *The Associational Economy: Firms, Regions and Innovation*. Oxford: Oxford University Press.
- Cooke P, Heidenreich M and Braczyk HJ (eds) (2004) *Regional Innovation Systems*. London: Routledge.
- Cox A and Townsend M (1998) *Strategic Procurement in Construction: Towards better practice in the management of construction supply chains*. London: Thomas Telford.
- da Cruz NF, Simões P and Marques RC (2013) The hurdles of local governments with PPP contracts in the waste sector. *Environment and Planning C: Government and Policy* 31(2): 292–307.
- Denzau AT and North DC (1994) Shared mental models: ideologies and institutions. *Kyklos* 47(1): 3–31.
- Edelenbos J and Teisman GR (2008) Public-private partnership: On the edge of project and process management. Insights from Dutch practice: The Sijtwende spatial development project. *Environment and Planning C: Government and Policy* 26(3): 614–626.
- El-Gohary NM, Osman H and El-Diraby TE (2006) Stakeholder management for public private partnerships. *International Journal of Project Management* 24(7): 595–604.
- Eriksson PE and Westerberg M (2011) Effects of cooperative procurement procedures on construction project performance: A conceptual framework. *International Journal of Project Management* 29(2): 197–208.
- Ey W, Zuo J and Han S (2014) Barriers and challenges of collaborative procurements: An exploratory study. *International Journal of Construction Management* 14(3): 148–155.
- Flynn A and Davis P (2016) The policy–practice divide and SME-friendly public procurement. *Environment and Planning C: Government and Policy* 34(3): 559–578.

- Gray B (1989) *Collaborating: Finding Common Ground for Multiparty Problems*. San Francisco: Jossey Bass.
- Grimsey D and Lewis MK (2004) The governance of contractual relationships in public-private partnerships. *The Journal of Corporate Citizenship* 15: 91–109.
- Hahneman D (2011) *Thinking, Fast and Slow*. New York: MacMillan.
- Howells J (2006) Intermediation and the role of intermediaries in innovation. *Research Policy* 35(5): 715–728.
- Huxham C and Vangen S (2013) *Managing to Collaborate: The Theory and Practice of Collaborative Advantage*. London: Routledge.
- Jooste SF, Levitt R and Scott D (2011) Beyond ‘one size fits all’: How local conditions shape PPP-enabling field development. *The Engineering Project Organization Journal* 1(1): 11–25.
- Juriado R and Gustafsson N (2007) Emergent communities of practice in temporary inter-organisational partnerships. *The Learning Organization* 14(1): 50–61.
- Karmiloff-Smith A (1992) *Beyond modularity: A developmental perspective on cognitive science*. Cambridge: Bradford Book.
- Klijin EH and Teisman GR (2003) Institutional and strategic barriers to public–private partnership: An analysis of Dutch cases. *Public Money and Management* 23(3): 137–146.
- Kort IM, Verweij S and Klijin EH (2016) In search for effective public–private partnerships: An assessment of the impact of organizational form and managerial strategies in urban regeneration partnerships using fsQCA. *Environment and Planning C: Government and Policy* 34(5): 777–794.
- Lebart L, Salem A and Berry L (1998) *Exploring Textual Data*. Dordrecht: Kluwer Academic Publishers.
- Loader K (2005) Supporting SMEs through government purchasing activity. *The International Journal of Entrepreneurship and Innovation* 6(1): 17–26.
- Loader K (2013) Is public procurement a successful small business support policy? A review of the evidence. *Environment and Planning C: Government and Policy* 31(1): 39–55.
- Morledge R, Knight A and Grada M (2009) The concept and development of supply chain management in the UK construction industry. In: Pryke S (ed.) *Construction Supply Chain Management*. Chichester: Wiley-Blackwell, pp. 23–41.
- Nootboom B (1992) Towards a dynamic theory of transactions. *Journal of Evolutionary Economics* 2: 281–299.
- Nootboom B (2000a) Learning by interaction: Absorptive capacity, cognitive distance and governance. *Journal of Management and Governance* 4: 69–92.
- Nootboom B (2000b) Institutions and forms of co-ordination in innovation systems. *Organization Studies* 21(5): 915–939.
- Nootboom B, Van Haverbeke W, Duysters G, et al. (2007) Optimal cognitive distance and absorptive capacity. *Research Policy* 36(7): 1016–1034.
- Oberoi P and Saviotti P (2011) Impact of cognitive distance between firms on the likelihood of alliance formation: A study in biotechnology-pharmaceutical industry. Paper presented at the DRUID-DIME Winter Conference 2011, Aalborg.
- Pickernell D, Kay A, Packham G, et al. (2011) Competing agendas in public procurement: An empirical analysis of opportunities and limits in the UK for SMEs. *Environment and Planning C: Government and Policy* 29(4): 641–658.
- Powell WW (1998) Learning from collaboration. *California Management Review* 40(3): 228–240.
- Pryke S (2009) *Construction supply chain management: Concepts and Case studies*. Chichester: Wiley-Blackwell.
- Pryke S and Smyth H (2012) *The Management of Complex Projects: A Relationship Approach*. Chichester: John Wiley & Sons.
- Roberts DJ and Siemiatycki M (2015) Fostering meaningful partnerships in public–private partnerships: innovations in partnership design and process management to create value. *Environment and Planning C: Government and Policy* 33(4): 780–793.
- Ruska I and Teigland R (2009) Ensuring project success through collective competence and creative conflict in public–private partnerships – A case study of Bygga Villa, a Swedish triple helix e-government initiative. *International Journal of Project Management* 27(4): 323–334.

- Sedita S and Apa R (eds) (2014) *Traiettorie evolutive della filiera allargata delle costruzioni edili: il partenariato pubblico-privato come leva competitiva. Alcune evidenze empiriche relative all'analisi dell'area transfrontaliera Italia-Slovenia*. Padova: CLEUP.
- Smyth H (2008) The credibility gap in stakeholder management: Ethics and evidence of relationship management. *Construction Management and Economics* 26(6): 633–643.
- Smyth H and Edkins A (2007) Relationship management in the management of PFI/PPP projects in the UK. *International Journal of Project Management* 25(3): 232–240.
- Smyth H and Pryke S (2008) *Collaborative relationships in construction: Developing Frameworks and Networks*. Chichester: Wiley-Blackwell.
- Teicher J, Alam Q and Van Gramberg B (2006) Managing trust and relationships in PPPs: Some Australian experiences. *International Review of Administrative Sciences* 72(1): 85–100.
- Termeer CJ (2009) Barriers to new modes of horizontal governance: A sense-making perspective. *Public Management Review* 11(3): 299–316.
- Thomson AM, Perry JL and Miller TK (2009) Conceptualizing and measuring collaboration. *Journal of Public Administration Research and Theory* 19(1): 23–56.
- Tomasello M (2009) *The cultural origins of human cognition*. Cambridge: Harvard university press.
- van Buuren A and Edelenbos J (2004) Why is joint knowledge production such a problem? *Science and Public Policy* 31(4): 289–299.
- van den Hurk M (2015) Bundling the procurement of sports infrastructure projects: How neither public nor private actors really benefit. *Environment and Planning C: Government and Policy*. Epub ahead of print 24 November 2015. DOI: 10.1177/0263774X15614672.
- Vygotsky LS (1980) *Mind in society: The development of higher psychological processes*. Cambridge: Harvard university press.
- Walker D and Hampson K (eds) (2008) *Procurement Strategies: A Relationship-Based Approach*. Chichester: John Wiley & Sons.
- Weick KE (1995) *Sensemaking in Organizations*. Thousand Oaks: Sage.
- Weick KE, Sutcliffe KM and Obstfeld D (2005) Organizing and the process of sensemaking. *Organization Science* 16(4): 409–421.
- Wuyts S, Colombo MG, Dutta S, et al. (2005) Empirical tests of optimal cognitive distance. *Journal of Economic Behavior & Organization* 58(2): 277–302.
- Zou W, Kumaraswamy M, Chung J, et al. (2014) Identifying the critical success factors for relationship management in PPP projects. *International Journal of Project Management* 32(2): 265–274.

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