



17th Annual
Engineering
Project
Organization
Conference

Working Paper Proceedings

Relationship Management in Public Private Partnership Projects: Literature Synthesis and a Path Forward

Mayank Khurana; Virginia Tech, USA
Michael J. Garvin; Virginia Tech, USA

Proceedings Editors

Paul Chinowsky, University of Colorado Boulder and John Taylor, Georgia Tech

EPOC 2019 | VAIL CO

© Copyright belongs
to the authors.
All rights reserved.

RELATIONSHIP MANAGEMENT IN PUBLIC PRIVATE PARTNERSHIP PROJECTS: LITERATURE SYNTHESIS AND A PATH FORWARD

Mayank Khurana¹, Michael J. Garvin²

ABSTRACT

A public-private partnership (PPP) project generally spans across a period of 30 years or more and is exposed to uncertainties. The possibility that a PPP contract can cover all events affecting different stakeholders in the future, particularly the public agency and the concessionaire, is low. Therefore, a need to effectively manage relationships has been identified in the literature to complement contractual arrangements. Relationship Management (RM) is a relatively new approach which aims at changing the perception of an organization towards creating and maintaining relationships. RM is a more proactive approach towards developing coordination and trust within teams to achieve desired project outcomes. The aim of this paper is to review studies pertaining to RM in PPP projects through 2018 to identify research trends as well as suggest areas for future investigation. Studies examining relational contracting in construction projects were also reviewed given their relevance to the subject. Four major themes were identified in the literature review: the need for relationship management, the complementarity between contractual and relational governance, the identification of critical factors enabling or inhibiting strong relationships, and proposal of qualitative or quantitative frameworks to measure relationship strength. The four themes identified are linked in a three staged linear structure. The findings also suggest that the factors affecting relationship management can be organized into three major categories: intra-organizational, inter-organizational and other factors. Four directions of future research have also been proposed in the paper.

KEYWORDS

Public Private Partnerships, Relationship Management, Literature Synthesis, Success Factors, Future Research

INTRODUCTION

Public Private Partnerships (PPPs) have complex characteristics, including the involvement of various stakeholders (Zou et al. 2014) and a large span that ranges across 30 years or more (Nguyen and Garvin 2018). PPPs involve different phases in a project's lifecycle starting from planning and design, construction, operations and maintenance, to finally handing over the project to the public client, and each phase may require different types of interactions with different parties involved. Attitudes

¹ PhD Student, Dept. of Civil and Environmental Engineering, Virginia Tech, United States, email mayank89@vt.edu

² Associate Professor, Dept. of Civil and Environmental Engineering, Virginia Tech, United States, email garvin@vt.edu

and preferences of various stakeholders vary immensely with respect to their culture, values, background, and long-term and short-term goals. Different stakeholders have contrasting approaches towards mutual risk sharing and dispute resolution (Osipova 2015), which is very crucial for a project's success, since effective and timely risk sharing can prevent additional costs and delays. Therefore, inter-organizational as well as intra-organizational relationships become very important to cater to the heterogeneity of the stakeholders involved (Antillon et al. 2018). Strong relationships will help in the alignment of objectives of all the partners involved and in turn, achieve the desired performance.

There has been a significant discussion regarding the difference between relationship management and relational contracting in the literature. The term relational contracting has been a general term used in several fields including partnering, supply chain management, and other types of partnerships (Edkins and Smyth 2006). Relationship Management is a more comprehensive approach than relational contracting, since it includes practices and strategies aimed at improving the performance of the project and attaining a superior value through better relationships (Smyth and Edkins 2007; Zou et al. 2014). Relational Contracting is generally viewed as a strategy influenced by external factors which results in the change of behavior between the client and contractor, whereas relationship management is a proactive approach which includes change in the inherent culture of an organization (Cheung et al. 2018) towards promoting relational practices within the firm as well as at the client contractor interface (Doloi 2012; Jeffries et al. 2006; Smyth and Edkins 2007; Smyth 2008). A proactive relationship management approach aims at a continuous assessment of the current level of relationship and identifies the strengths and weaknesses of the relationships present, which in turn leads to an effective improvement (Meng 2012). There is a strong push towards introducing formal relationship management practices in the contract to enhance collaboration, including financial components related to these practices (Benitez-Avila et al. 2018, Cao and Lumineau 2015, Jeffries et al. 2006, Smyth 2008).

As mentioned earlier, there are various uncertainties involved in a PPP project and relationship management helps in mitigating the risks that evolve due to these uncertainties involved. Three principal theories are strongly connected to PPP contracts: agency theory, incomplete contracts, and transaction cost economics (Chung and Hensher 2016). *Agency theory* deals with the principal-agent relationship and suggests that the varied goals and objectives of the stakeholders involved can initiate a self-interest seeking behavior (Cheung et al. 2018; Osipova 2015). The uncertainties and complexities involved in a project are major drivers of this behavior and give rise to opportunism (Rahman and Kumaraswamy 2002). According to Lu et al. 2015, presence of relational governance plays an important part in curbing opportunism. *Incomplete contract* is another element of a PPP project which has taken a lot of researchers' attention. It is very difficult to cover all the future events affecting the stakeholders during different life cycle phases of a PPP project. Due to a lot of complications involved, some things are bound to be left out of the contract (Sakal 2005). The most common way to deal with the unforeseen future events, not covered in a contract, is renegotiation (Roberts 2015), and the presence of strong relationships aid in effective and timely renegotiations with minimum transaction costs. A transaction can be considered complete when a good or a service is

transferred between two technologically separable interfaces (Williamson 1985), and a cost is associated with every transaction. *Transaction costs* within PPPs include the cost associated with renegotiations, contract changes and rewritings, dispute resolution, and other costs. Therefore, lower number of claims reported, lesser time taken in dispute resolution, absence of third party in negotiations etc. will lead to lower transaction costs (Rahman and Kumaraswamy 2002).

Relationship Management in PPP as well as construction projects has drawn researchers' attention recently, but the literature in this field is fragmented; hence, a synthesis and assessment of this literature will exhibit current understanding of this topic and identify new areas of examination. Three main objectives of this paper are: to provide a comprehensive overview of the literature published, highlight important gaps identified through review, and suggest future avenues of investigation. To achieve these objectives, following research questions have been addressed in this research.

1. What is the current state of the literature concerning relationship management in PPP and construction projects?
2. What are the prominent themes emerging from the literature concerning relationship management?
3. How are the emerging themes related or connected to each other?
4. What are the major factors that affect relationship management in a project?
5. What are the major research gaps within these themes which can be identified as the future directions to expand the research in this area?

The paper is structured as follows: research methodology section describes the methodology used for literature review, followed by results section which presents the findings of the paper, which includes the four main themes in which the literature can be classified. Results section, also includes categorization of factors affecting relationship management into three main groups. Discussion and future research directions section of the paper provides a discussion of the review findings, research gaps identified, and future areas of study suggested, followed by the conclusion section.

RESEARCH METHODOLOGY

The methodology followed in this paper comprises six steps as shown in Figure 1. A similar approach has been proposed by Rowe (2014) and followed by Laursen and Svejvig (2016), which starts with designing and scoping the search, followed by conducting a preliminary search, selecting the targeted papers through evaluation against a selected criterion, and finally analyzing the selected literature.

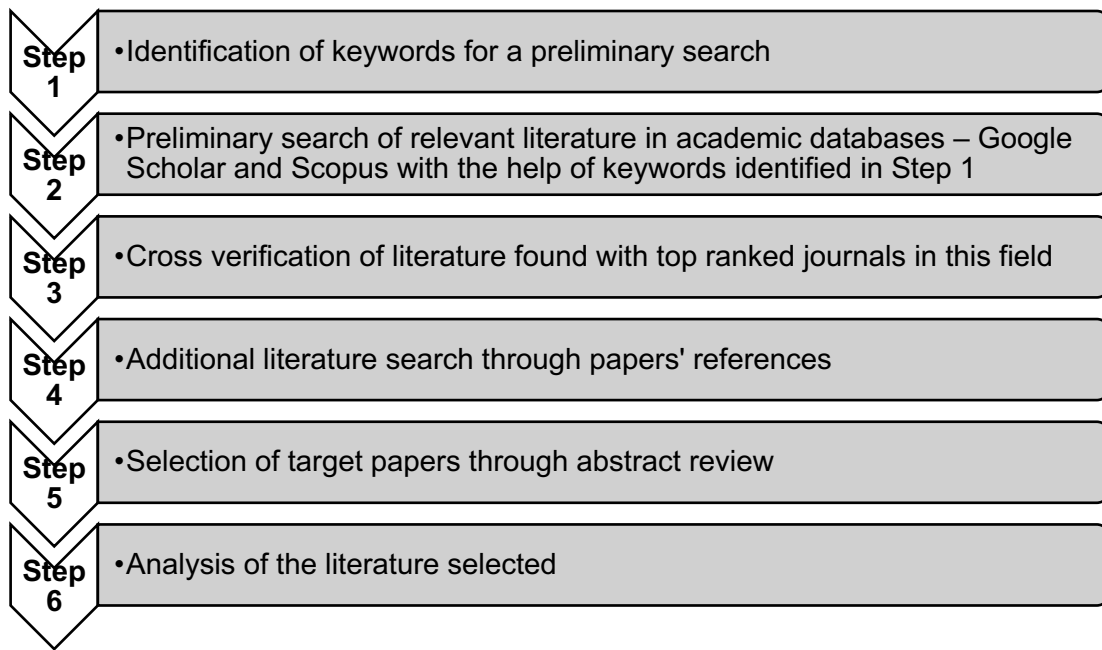


Figure 1: Steps followed in research methodology

STEP 1: IDENTIFICATION OF KEYWORDS FOR LITERATURE SEARCH

The scope of this study is, primarily, literature related to relationship management in PPP projects. A significant amount of literature examines relational contracting in construction projects, so it has important relevant information; hence, it was also included in the scope of this study. A list of keywords was identified based on the scope of this study to make this a structured and an organized search. Table 1 shows the four groups of keywords identified in this study with each row depicting a specific group. The first group represents keywords related to the type of partnership or industry such as PPPs, construction etc. The second group of keywords are related to relationships such as relationship management, relational contracting etc. The third group represents the type of infrastructure such as highways, buildings etc. The fourth group of keywords are supplementary words which can be used for a specific search such as value creation, user interests, risk management, stakeholder management etc. Different combinations of these keywords were searched in Step 2 of the research methodology.

Table 1: List of keywords for literature search

Keywords representing the type of partnership/industry	Public Private Partnerships, PPP, PPPs, Construction, Alliance, Alliances, Partnering
Keywords related to relationships	Relationship, Relationship Management, Relational Contracting, Relational Governance, Contractual Governance, Contracting, Contractual Management, Trust, Coordination, Integration, Teambuilding, Relational Norms
Keywords representing the type of infrastructure	Highways, Construction, Public Projects, Road, Roadways, Transportation, Toll Roads, Infrastructure, Buildings
Supplementary Words (can be used for a	Inter-Organizational, Intra-Organizational, Life Cycle, Value, Value Creation, Procurement, Incentives, Project Performance,

specific search)	User Interests, Risk Management, Risk Allocation, Stakeholder Management, Owner, Concessionaire, SPV
-------------------------	--

STEP 2: PRELIMINARY LITERATURE SEARCH IN ACADEMIC DATABASES

According to Falagas et al. (2008), Scopus has a wider journal range than other academic databases, but only covers latest articles; whereas, Google Scholar can find the most obscure information relevant to the study. Therefore, a preliminary search was conducted in these two databases. The search was first carried out with all the combinations possible from first three groups of keywords. For example, one such combination of keywords is: “Public Private Partnerships” & “Relationship Management” & “Highways”. After searching with all the combinations possible from the first three groups, a specific search was carried out with keywords from the fourth group. For example, “Public Private Partnerships” & “Relationship Management” & “Highways” & “Value Creation”. A lot of discrete papers were found through this exercise.

STEP 3: CROSS VERIFICATION WITH THE TOP RANKED JOURNALS

This step involves identification of the distribution of papers found with respect to the top ranked journals in the field of PPPs. This exercise is carried out to make sure that publications in the top ranked journals have been covered. The maximum number of papers found were published in the International Journal of Project Management (IJPM), followed by Journal of Management in Engineering (JME), Construction Management and Economics (CME), and Journal of Construction Engineering and Management (JCEM). These are some of the top ranked journals in the field of PPPs, according to Ke et al. (2009) and Wing (1997). Some of the other journals in which the papers were found are Journal of Professional Issues in Engineering Education and Practice (JPIEEP), Engineering Construction and Architectural Management (ECAM), Lean Construction Journal (LCJ) and British Journal of Management (BJM). A distribution of the papers found in different journals is shown in figure 2. The International Journal of Project Management has published the most articles while most of the authors are from universities outside the United States; consequently, a key finding from this step is that a significant amount of research related to relationship management has been done outside the United States.

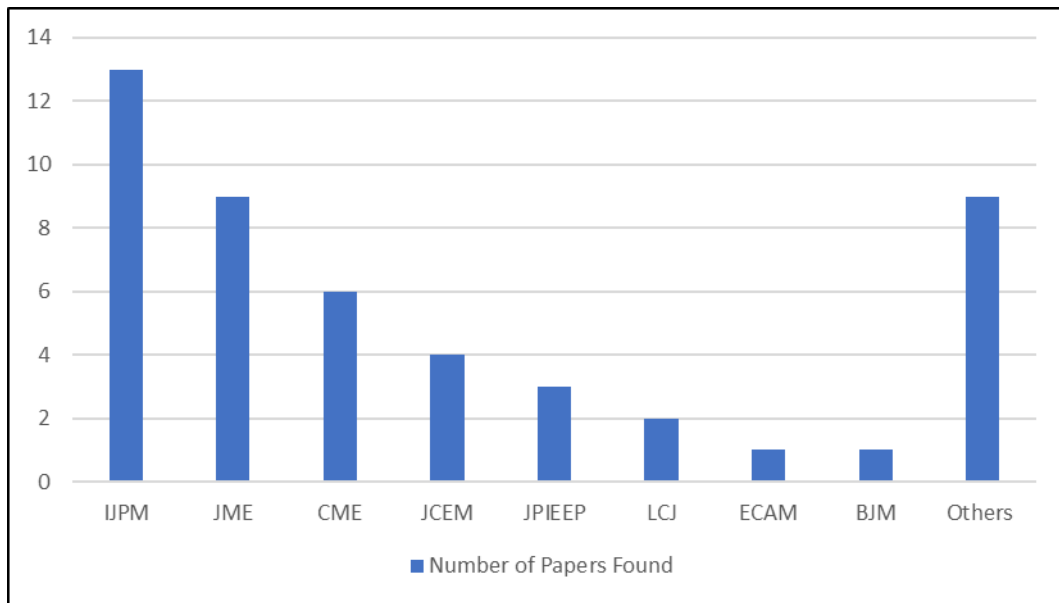


Figure 2: Distribution of papers found in different journals

STEP 4: ADDITIONAL LITERATURE SEARCH IN REFERENCES SECTION OF TOP JOURNAL PAPERS

An additional search for relevant papers related to relationship management was carried out in this step. All the papers found in step 2 in the journals - IJPM, JME, CME and JCEM were scanned for an additional literature, since these four journals had the majority of the papers found. The references section of all the papers found in the four mentioned journals was reviewed and inspected for any additional relevant papers by scanning the title of these references with the combinations of keywords identified in step 1. This step makes sure that the search carried out in this study is comprehensive.

STEP 5: SELECTION OF TARGET PAPERS THROUGH ABSTRACT REVIEW

This step involves filtration of all the papers found and selection of the final set of papers to be targeted. The selection is done through a methodical review of the abstract of all the papers as also carried out by Tang et al. (2010). All the papers were evaluated against inclusion criteria, similar to the one proposed by Roehrich et al. (2014). All papers were assessed against the following three criteria: papers related to PPP projects or construction projects, papers concerning relationship management and should be academic publications. The final number of papers targeted for this study after the filtration process are 53, which includes 48 journal papers, 4 conference papers and 1 dissertation. The papers selected for review in this paper are mostly journal papers as there were not many conference papers and thesis documents found in the literature search. Out of the 53 papers reviewed, 39 papers are related to construction projects and 14 papers are related to PPP projects. This shows that relationship management in PPP projects has been an unexplored area of research, also mentioned by Roehrich et al. (2014).

STEP 6: ANALYSIS OF LITERATURE

After the selection of the papers to be targeted, a descriptive analysis was first performed on the literature, followed by a qualitative data analysis. The descriptive analysis illustrates the quantitative representation of the number of papers found with respect to the author's origin, data collection and analysis methods used and other parameters. The qualitative data analysis involved a two-cycle coding approach as mentioned by Miles et al. (2014). The first cycle of coding aimed at identifying specific codes from the papers which led to the identification of themes, followed by a second cycle of coding which distributes the papers into different themes.

In-Vivo coding technique was adopted in the first cycle of coding wherein most repetitive phrases from each paper were given specific codes. Examples of such codes are VC (Value Creation), TB (Trust Building), AB (Alignment of Objectives), IPP (Improved Project Performance) etc. It was observed that all the codes identified from the first cycle of coding can be divided into four different groups, with codes in each group signifying a common objective. For example, codes such as VC (value creation), IPP (improved project performance) and CS (client satisfaction) can be grouped together since these codes signify the benefits achieved through employing relationship management practices and hence affirm the importance of relationship management in PPP projects. Another example would be of the codes - AB (alignment of objectives), TB (trust building), TI (team integration) which can be grouped together since these are all the factors that affect relationship management. This exercise of grouping the codes together led to the identification of four major themes in the literature (TH1, TH2, TH3 and TH4) with each theme signifying a different objective of research in the domain of relationship management: papers emphasizing the need for relationship management (TH1), papers addressing the argument concerning contractual and relational governance being complementary or substitutable (TH2), papers identifying the critical factors that enable or inhibit strong relationships (TH3) and papers proposing a qualitative or a quantitative framework to measure relationship strength (TH4). Till now, all the possible first cycle codes from the papers have been accumulated, followed by dividing these codes into four groups which led to the identification of four major themes in literature, but the papers still haven't been divided into the themes identified which will be done in the next step.

In this step of second level coding, pattern codes were generated. All the codes identified in the first cycle of coding were modified and the code of theme that they belong to was added to that code. Some examples of pattern codes are: TH1-VC (theme 1 – value creation) and TH3-AB (theme 3 – alignment of objectives). The pattern codes are basically the modified version of the codes identified in the first cycle, but they help in a quick and an organized identification of a dominating theme in a paper. The theme having the majority of the pattern codes in a paper was identified as the predominant theme in that paper. This exercise was followed to group all the papers into different themes identified. Figure 3 illustrates the qualitative data analysis method used including the two levels of coding performed.

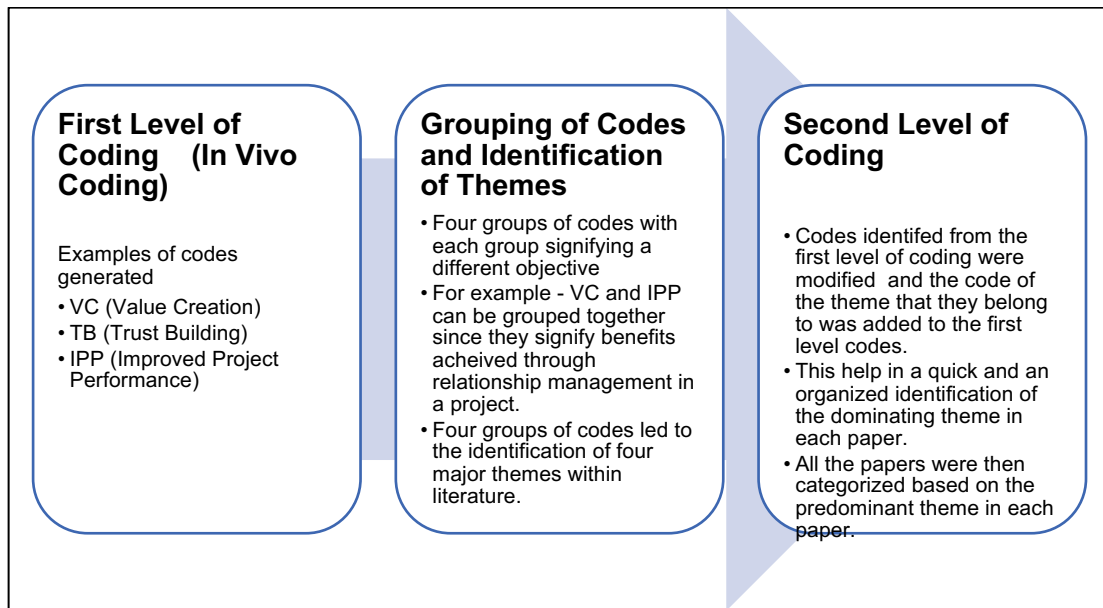


Figure 3: Qualitative data analysis method used

Before ending the research methodology section, it must be emphasized that the literature search approach adopted has identified a group of targeted papers, but it is not likely to be all-inclusive of relevant papers published in this domain to date. A similar approach has been followed by Osei-Kyei and Chan (2015). Consequently, the aim of the search approach was not to cover all the papers published in this area, but to identify a representative sample that indicates research trends and suggests areas for future research.

RESULTS

This section will present the results of the literature analysis which starts with reporting the results of descriptive analysis performed on the group of papers selected for this study. The literature analysis led to the identification of four major themes in which the literature can be categorized. The four themes identified and the relationship between them will also be explained in detail in this section. A significant amount of literature has focused on determining the factors affecting relationship management and a detailed description will also be reported, of the three major categories in which these factors can be divided.

RESULTS OF THE DESCRIPTIVE ANALYSIS

Yearly Distribution of Papers

Figure 4 shows the yearly distribution of the literature found. A significant amount of research has been done recently, therefore a strong push for relationship management can be seen in construction as well as PPP projects.

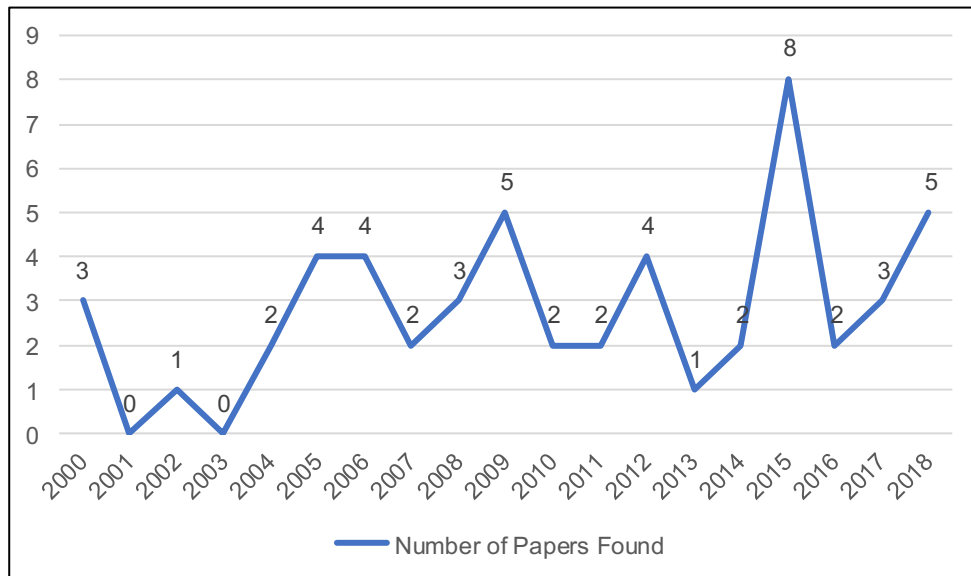


Figure 4: Yearly distribution of the literature found

Distribution of Papers with respect to Authors' Origin/ Country

The literature analysis shows that United Kingdom is leading in publishing papers related to relationship management or relational contracting in construction or PPP projects, followed by Hong Kong, United States, Singapore and China. In case of papers involving multiple authors, the first author's origin has been considered for this graph. Figure 5 shows that United States' publishing contribution is low, which is approximately 17% of the papers available in this domain.

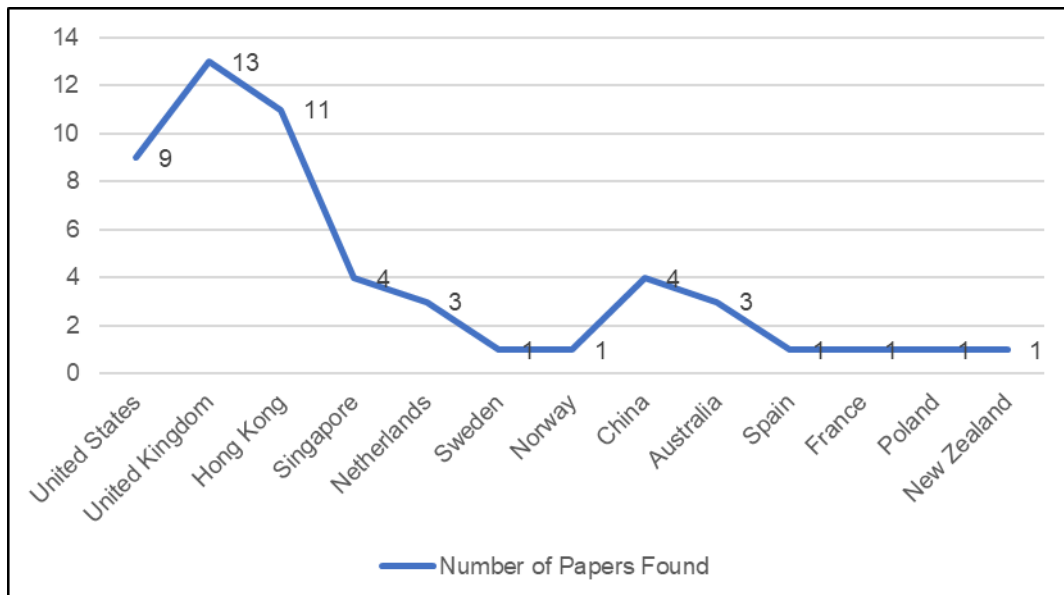


Figure 5: Distribution of papers found with authors' origin

Intra-Organizational versus Inter-Organizational Papers found

Figure 6 shows the number of papers found related to intra-organizational relationship management versus inter-organizational relationship management. This clearly shows that more emphasis has been given to inter-organizational relationships as compared to intra-organizational. Since relationship management is a proactive approach and demands a change in the inherent culture of an organization, as mentioned earlier, this is one important area in which future investigation should be performed. According to Meng and Boyd (2017), Internal Relationship Management (IRM) helps in improving project performance in terms of time, cost and quality whereas External Relationship Management (ERM) has greater impact on client satisfaction. Therefore, both IRM and ERM are indispensable for an organization and more attention is needed in intra-organizational relationship management in future.

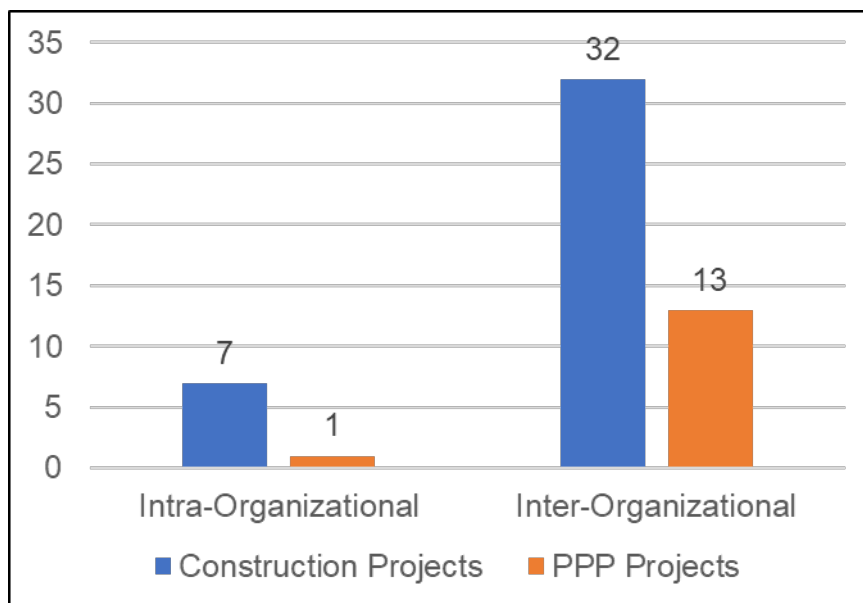


Figure 6: Intra-organizational versus inter-organizational papers found

Data Collection versus Data Analysis Method used

Figure 7 shows the distribution of papers with respect to the data collection method and data analysis technique used. Survey questionnaire, interviews or literature review techniques have been employed most frequently to collect data. One paper had secondary sources, such as contract documents, websites etc., as their source of data collection. There was an absence of experimental data or simulation data being used in the research papers as expected, since it is difficult to simulate the real-life conditions due to large complexities and uncertainties involved in the construction or PPP projects. Qualitative review stands out as the most frequent data analysis method used, followed by inferential analysis such as ANOVA analysis, correlation analysis etc. Some of the researchers have also recently used predictive or casual techniques to analyze data.

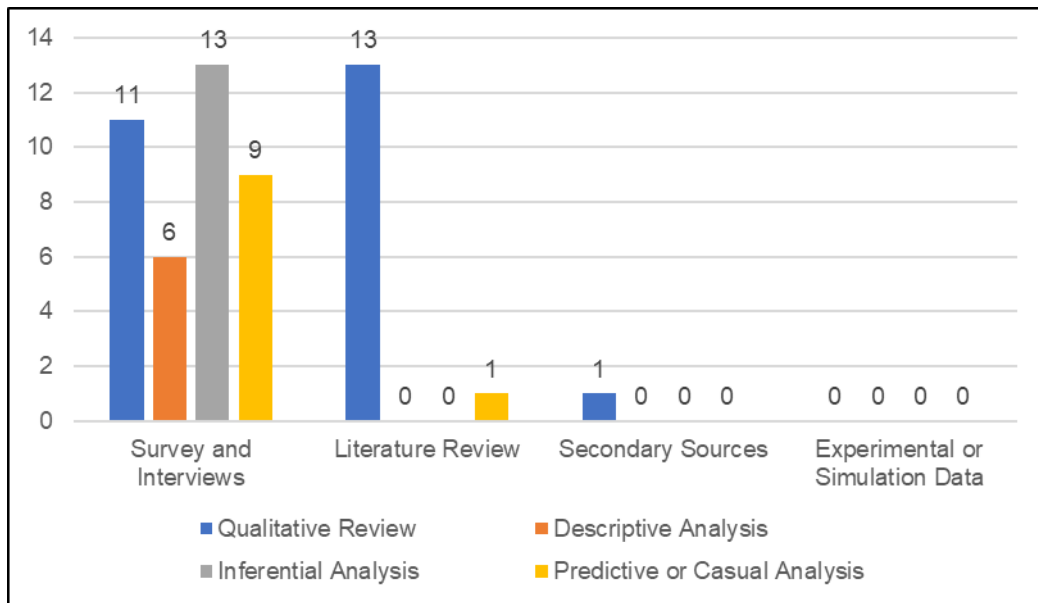


Figure 7: Data collection versus data analysis method used

Yearly Distribution of Data Analysis Method Used

Figure 8 shows the trend of data analysis methods used by the researchers over the years. Qualitative review has been a mode of analysis which has remained constant over the years, as expected in the field of relationship management. An interesting trend that can be observed from the figure is that the use of inferential techniques has decreased over the years and researchers have started using predictive or causal analysis methods recently. Most of the predictive analysis research done is related to relational contracting in construction projects due to enough information available regarding factors affecting relationships in construction projects. Therefore, researchers have started using more advanced analysis techniques which is not the case in PPP projects since there has not been much research done till now to identify factors affecting relationship management in PPP projects.

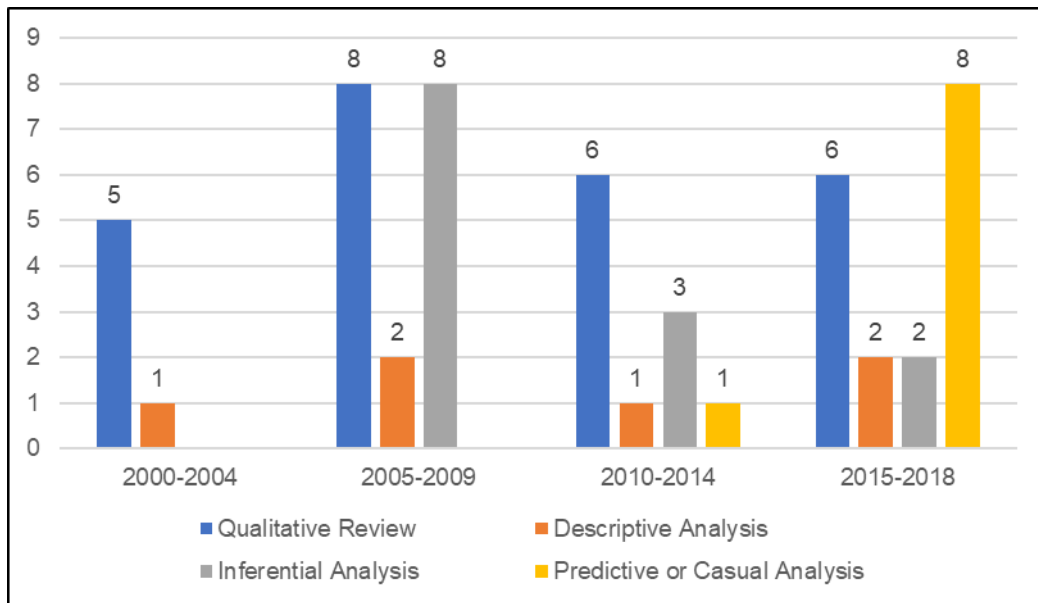


Figure 8: Yearly distribution of analysis methods

FOUR EMERGING THEMES FROM LITERATURE

Four major themes were identified from the literature review:

- (1) need for relationship management,
- (2) balance between contractual and relational governance,
- (3) factors affecting relationship management and
- (4) qualitative or quantitative frameworks to measure relationship strength.

These four were the most prevalent themes under which most of the literature can be categorized. Figure 9 shows the distribution of papers under these four major themes with respect to construction and PPP projects. One theme in which PPP projects are lacking as compared to construction projects is the papers identifying factors affecting relationship management and hence needs further investigation. PPP projects have a larger span than construction projects and hence there are some factors in PPP projects, which are different from construction projects, that affect relationships. Therefore, future research should further explore this area.

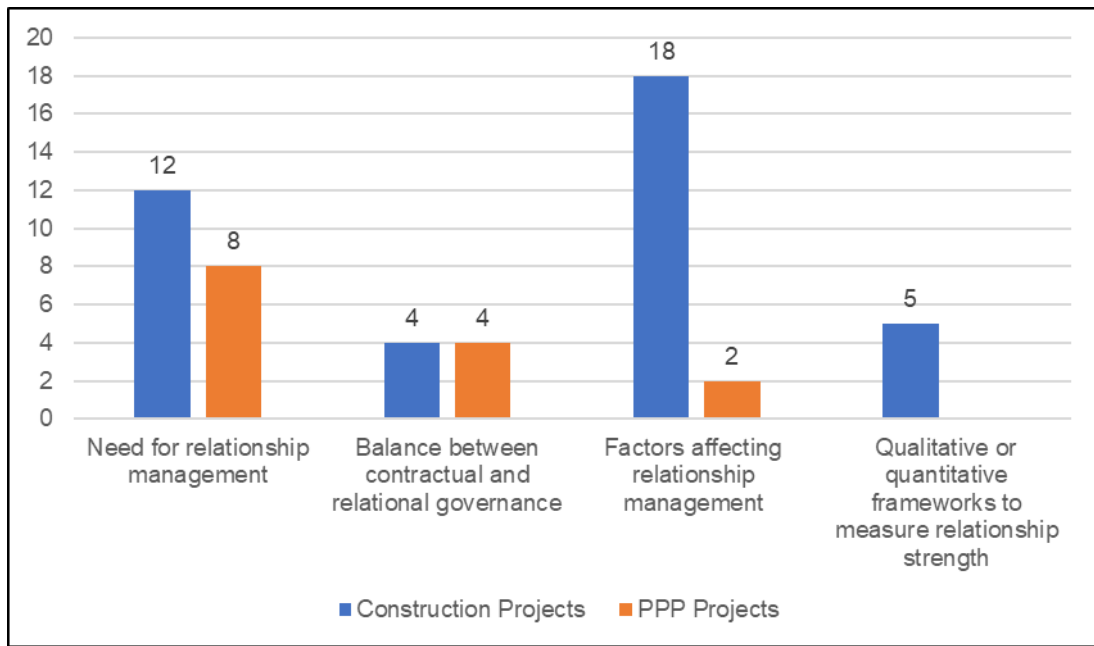


Figure 9: Distribution of Literature in Four Major Themes

Theme 1: Need for Relationship Management

This theme of papers includes publications that justify the need for relationship management in PPP or construction projects. Figure 9 shows that theme 1 has been significantly explored both in construction and PPP projects. A considerable amount of literature both in construction and PPP projects suggests the need for RM in a project.

Four categories of papers were identified which focus on a different benefit that arise from employing relationship management practices. Table 2 illustrates the four categories of papers identified in this theme.

Table 2: Four categories of papers identified in theme 1

Category	Benefit	References
1	Improved Project Performance	Bresnen and Marshall (2000, 2000a); Cheung et al. (2018); Davis and Love (2011); Dobrowolski et al. (2015); Edkins and Smyth (2006); Jeffries and Reed (2000); Jeffries et al. (2006); Meng (2012); Osipova (2015); Rahman and Kumaraswamy (2004); Rowlinson and Cheung (2004); Sakal (2005); Smyth and Edkins (2007); Suprpto et al. (2015a); Smyth (2008); Zou et al. (2014)
2	Value Created (Organizational or Social)	Caldwell et al. (2017); Colledge (2005); Kivleniece and Quelin (2012); Madhok and Tallman (1998)
3	User Interests Satisfied	Zheng et al. (2018)
4	Improved Life Cycle Decision Making	Antillon et al. (2018)

The first category of papers focusing on improved project performance have generally concentrated on reduced cost, better quality and on time delivery (Kumaraswamy et al. 2005; Ling et al. 2013, 2014; Lu et al. 2015; Meng 2012, 2015; Meng and Boyd 2017; Rahman and Kumaraswamy 2002). Some papers have also focused on improved safety (Ling et al. 2013, 2014; Meng 2015; Rahman and Kumaraswamy 2008) and client satisfaction (Ling et al. 2013, Lu et al. 2015; Meng and Boyd 2017; Rahman and Kumaraswamy 2002; Zou et al. 2014) to measure project performance. Many papers have emphasized that strong relationships improve project performance either directly or indirectly (Suprpto et al. 2015) and is a win-win situation for all the parties (Bygballe et al. 2010; Kumaraswamy et al. 2005a).

In the second category of papers which focus on value created, Caldwell et al. (2017) provides a framework to study social value creation in healthcare PPP projects. It affirms that relational elements, such as alignment of objectives and common understanding, help in creating relational coordination, and with the presence of professional embeddedness, organizational experience and ecosystem experience, social value is created through improved task performance. Laursen and Svejvig (2016) suggests that future research should focus on the value, benefits and costs in a holistic way rather than considering them individually. Also, value creation and value capture are naturally different and should be considered separately (Bowman and Ambrosini 2000; Lepak et al. 2007; Pitelis 2009), which will enable the researchers to study different stakeholders' perspective on value creation (Oliomogbe and Smith 2012).

In the third category of papers, Zheng et al. (2018) illustrates that, apart from client interests and societal interests, user interests are also important in a PPP project. User interests include involvement of the project users in strategic decisions, access to the service at reasonable fees etc. According to Zheng et al. (2018), strong relationships help in improving project performance, which in turn help in protecting user interests. Therefore, project performance acts as a mediator between relational norms and user interests. In the fourth category, Antillon et al. (2018) provides another advantage of proper development of inter-organizational coordination, which helps in improving life cycle design processes and decision making.

Theme 2: Balance between Contractual and Relational Governance

A lot of research has focused on this theme where researchers have discussed whether contractual and relational governance are complimentary or substitutable. There has also been a considerable exploration of this theme of papers in both construction projects and PPP projects, similar to theme 1 papers, as shown in figure 9.

A significant amount of literature suggests that relational and contractual governance are complimentary (Arranz and de Arroyabe 2011; Cao and Lumineau 2015; Poppo and Zenger 2002; Roehrich 2009; Zheng et al. 2008). Benitez-Avila et al. (2018) and Bygballe et al. (2014) highlight the statement that contractual elements provide the guidelines for relational elements, and then, relational governance, in turn, neutralize the limitations of contractual governance. An effective contractual design should encourage the development of relational coordination. Lu et al. (2015) provides evidence that both relational and contractual governance helps in improving project performance and supports the claim that presence of effective relational governance is associated with high level of contractual governance, and hence are

complimentary. On the other hand, Doloi (2012) emphasizes that relationship agreements provide a better delivery performance of projects and are better than the traditional contracting methods in partner selection process. Also, Meng and Boyd (2017) have suggested a potential shift from planning and control-based management to relationship-oriented project management.

Theme 3: Factors Affecting Relationship Management

A lot of research has concentrated on identification of factors affecting relationship management in PPP or construction projects (Cheung et al. 2006, 2018; Edkins and Smyth 2006; Harper et al. 2016; Jeffries and Reed 2000; Jeffries et al. 2006; Kumaraswamy et al. 2005, 2005a, 2007; Lau and Rowlinson 2009; Ling et al. 2006, 2013, 2014; Manu et al. 2015; Meng and Boyd 2017; Meng 2012; Pal et al. 2017; Phelps and Reddy 2009; Pinto et al. 2009; Rahman and Kumaraswamy 2002, 2004, 2008; Suprpto et al. 2015, 2015a; Zheng et al. 2018; Zou et al. 2014). This theme of papers has shown the most disparity in the amount of research done in construction projects and PPP projects. Most of the literature available in this theme is related to construction projects, as shown in figure 9.

The literature review led to the identification of three major categories of factors: intra-organizational factors, inter-organizational factors and other factors. These categories have also been proposed by Meng and Boyd (2017).

Theme 4: Qualitative or Quantitative Frameworks to Measure Relationship Strength

This theme of papers, that suggest a framework to measure relationship management within teams, has not been explored profoundly. A small set of papers have either proposed a qualitative or a quantitative framework to measure the strength of the relationships present within teams (Fu et al. 2015; Harper et al. 2016; Jelodar et al. 2016; Smyth and Edkins 2007; Yeung et al. 2009). As shown in figure 9, all the literature available in this theme of papers is pertaining to construction projects. Therefore, all the information presented in this theme has been referred from the research done related to relationship management or relational contracting in construction projects.

Smyth and Edkins (2007) proposed a framework to measure relationship strength in PPP projects by using trust and confidence as the indicators. This paper identifies thirty types of relationships divided into four major categories: classic market relationships, special market relationships, mega relationships and nano relationships. These relationships are weighted, with respect to their importance, by industry experts and are mapped against trust and confidence indicators, obtained through a survey. The main finding of this study is that relationship management within the public client organization and SPV has been found to be reactive rather than proactive. It has been strongly recommended that a planned strategy is needed to promote proactive behavior to support collaborative working.

Harper et al. (2016) puts forward another framework to measure team integration in construction projects. This paper identifies eight constructs based on relational contracting norms: role integrity, reciprocity, flexibility, propriety of means, reliance and expectations, restraint of power, contractual solidarity and harmonization of conflict. An exploratory and confirmatory factor analysis is performed on the gathered data through survey to test and validate the identified constructs.

RELATIONSHIP BETWEEN THE THEMES IDENTIFIED

The four themes identified in this paper can be arranged in a three staged linear structure as shown in figure 10. Stage 1 is a precedent for stage 2, which in turn is a precedent for stage 3. Stage 1 includes theme 1 papers which emphasize the need for relationship management. This stage sets up the foundation for this area of research by identifying the importance of relationship management in PPP and construction projects and therefore enables the researchers to explore this field further. This leads to stage 2 which includes the next two themes of papers – theme 2 which addresses the balance between contractual and relational governance and theme 3 which identifies the factors affecting relationship management. Stage 2 can be considered an in-depth research in this field which explores the extent to which relational governance is needed and what are the factors that enable growth of strong relationships between teams. This sets up the foundation for stage 3 which includes theme 4 papers. Theme 2 and theme 3 papers can be considered as a prerequisite for theme 4 papers which involve development of frameworks that can measure the strength of the relationships present.

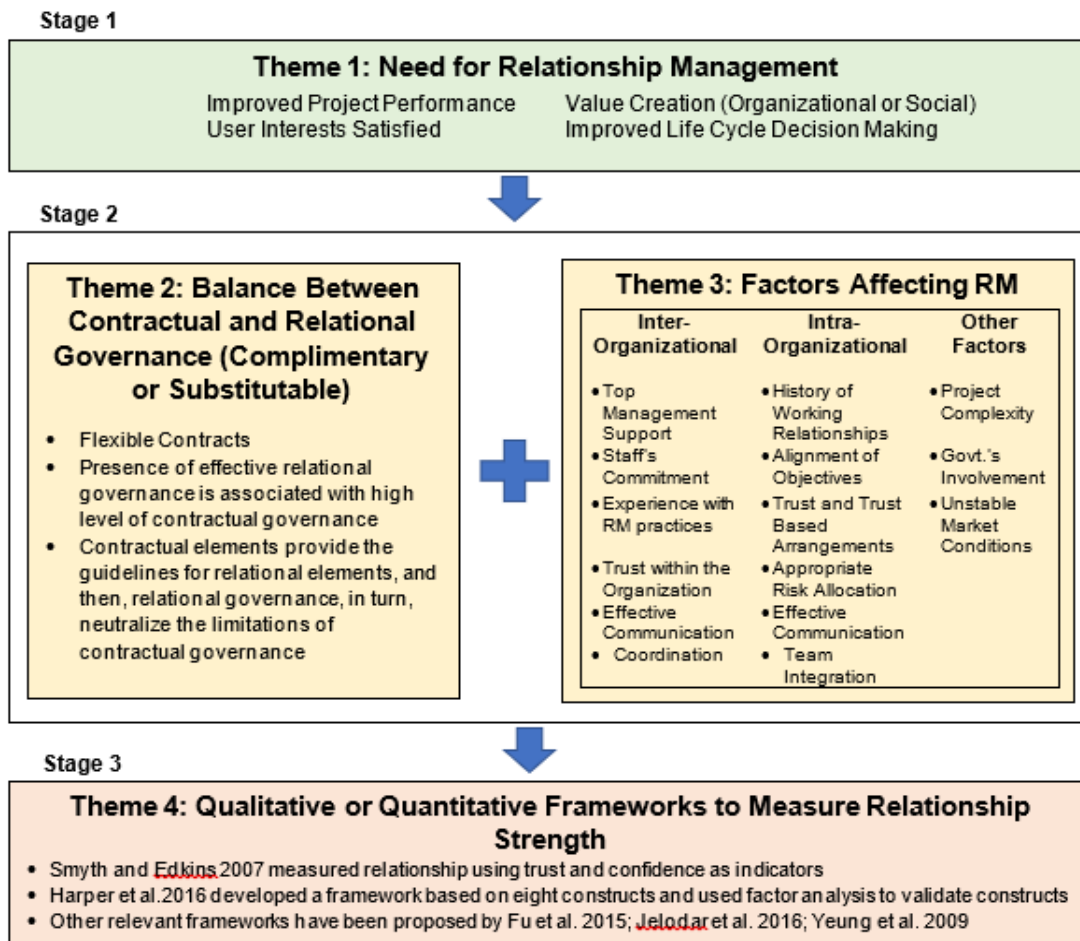


Figure 10: Relationship between four themes identified

FACTORS AFFECTING RELATIONSHIP MANAGEMENT

As mentioned earlier, there has been a notable amount of research done to identify the factors affecting strong relationships. These factors can be divided into three major categories as shown in figure 11.

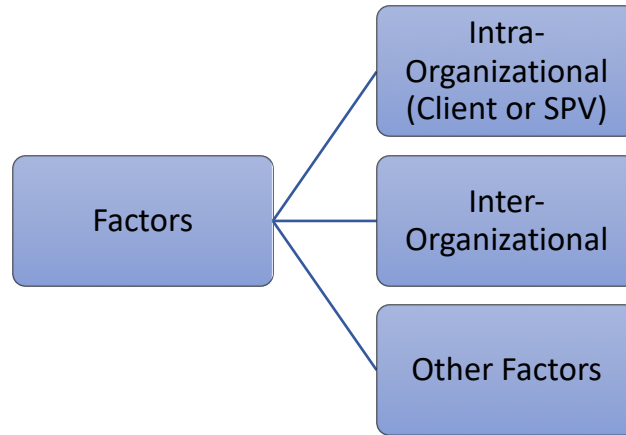


Figure 11: Division of factors affecting relationship management into three major categories

Intra-Organizational Factors Affecting Relationships

Intra-Organizational factors affect relationships among the individuals or teams within the public client organization or within the special purpose vehicle (SPV). These factors are: top management support, staff’s commitment, organization’s experience with relationship management practices, trust, effective communication and effective coordination within the organization. Table 3 shows the list of intra-organizational factors affecting relationship management. The first column in table 3 represents the factor, followed by the second column which represents the indicators which can confirm the presence of these factors within the organization, followed by the third column which lists down the references mentioning the factor, or the indicators mentioned in column 2. The indicators can also be interpreted as strategies in certain cases, which can help in development of these factors.

Table 3: List of Intra-Organizational Factors Affecting Relationship Management

No.	Factors	Indicators/Strategies	References
1	Top Management Support	Presence of Relationship Management Training Programs	Zou et al. (2014); Rahman and Kumaraswamy (2002, 2004, 2008); Kumaraswamy et al. (2005a); Suprpto et al. (2015, 2015a); Meng and Boyd (2017); Harper et al. (2016); Ling et al. (2006)
2	Staff's Commitment	--	Zou et al. (2014); Edkins and Smyth (2006); Caldwell et al. (2017); Jeffries et al. (2006); Kumaraswamy et al. (2005, 2005a); Rahman and Kumaraswamy (2004, 2008); Suprpto et al. (2015); Ling et al. (2013); Meng

			and Boyd (2017); Harper et al. (2016)
3	Experience with Relationship Management Practices	Any Previous Projects with Relationship Management Approaches	Ling et al. (2006); Suprpto et al. (2015a)
4	Trust within the Organization	--	Meng and Boyd (2017)
5	Effective Communication within the Organization	Involvement of all team members in key decisions	Meng and Boyd (2017)
6	Effective Coordination within the Organization	--	Meng and Boyd (2017); Ling et al. (2006, 2013); Suprpto et al. (2015a); Rahman and Kumaraswamy (2004)

Most papers, mentioned in table 3, have identified top management support as one of the top ranked factors that affect relationship management. Enlightened, knowledgeable and experienced senior management of the client and SPV are some of the characteristics mentioned in the literature that are necessary for effective integration. Presence of relationship management training programs within the client organization or SPV is a strong indicator of the senior management support towards relationship management. Staff’s commitment towards increasing collaboration is the second factor mentioned in table 3 and is another highly ranked factor that affects strong relationships. Staff’s commitment can also be interpreted as positive attitude towards continuous improvement. Experience with relationship management practices is the third factor mentioned in table 3 that affects strong relationships and the involvement of client or SPV in any previous projects where these practices were employed, certainly influences the presence of strong relationships in the current project. Trust and effective communication within the organization are the fourth and fifth factors mentioned in table 3. Involvement of all the team members in key decisions strongly indicates the presence of effective communication. Effective coordination within teams is the last factor mentioned in table 3 that affects strong relationships. Combined responsibility of all the team members and learning environment between teams are strong characteristics of this factor.

Inter-Organizational Factors Affecting Relationships

Inter-organizational factors affect relationships at the client-SPV interface. A substantial amount of studies has concentrated on identifying these factors and how they affect relationships. Six major inter-organizational factors have been identified through literature review and are discussed in table 4 below. The first column in the table mentions the indicator, the second column describes any indicators related to the factor and the third column provides the references for the factor.

Table 4: Inter-Organizational factors affecting relationship management

S.No.	Factor	Indicators	References
1	History of Working Relationships	<ul style="list-style-type: none"> Any previous projects between the public client and SPV 	Cheung et al. (2018); Kumaraswamy et al. (2005, 2005a); Ling et al. (2014);

			Rahman and Kumaraswamy (2004, 2008); Suprpto et al. (2015)
2	Alignment of Objectives	--	Cheung et al. (2018); Caldwell et al. (2017); Kumaraswamy et al. (2005a); Ling et al. (2013, 2014); Rahman and Kumaraswamy (2004, 2008); Suprpto et al. (2015, 2015a); Harper et al. (2016); Meng and Boyd (2017)
3	Trust and Trust Based Arrangements	<ul style="list-style-type: none"> • Mutually Agreed Issue Resolution Mechanisms • Mutually Agreed Performance Appraisal Mechanisms • Presence of Flexibilities in contract to address uncertainties • Presence of Relationship Management Training Programs • Absence of "Price Only" selection methods 	Cheung et al. (2018); Rahman and Kumaraswamy (2002, 2004, 2008); Zheng et al. (2018); Edkins and Smyth (2006); Osipova (2015); Caldwell et al. (2017); Jeffries et al. (2006); Kumaraswamy et al. (2005, 2005a); Ling et al. (2006, 2013, 2014); Smyth and Edkins (2006); Suprpto et al. (2015,2015a); Doloi (2012); Colledge (2005); Jeffries and Reed (2000); Lu et al. (2015); Harper et al. (2016); Meng and Boyd (2017); Meng (2015); Manu et al. (2015); Pal et al. (2017)
4	Appropriate Risk Allocation	<ul style="list-style-type: none"> • Presence of Risk Sharing Mechanisms • Presence of Joint Risk Management • Inclusion of all key parties in risk-reward plans 	Ling et al. (2013); Doloi (2012); Rahman and Kumaraswamy (2004); Osipova (2015); Ling et al. (2006); Pal et al. (2017)
5	Effective Communication	<ul style="list-style-type: none"> • Stakeholder Involvement 	Zou et al. (2014); Zheng et al. (2018); Osipova (2015); Kumaraswamy et al. (2005, 2005a); Ling et al. (2014); Rahman and Kumaraswamy (2004, 2008); Antillon et al. (2018); Suprpto et al. (2015, 2015a); Doloi (2012), Lu et al. (2015); Harper et al. (2016), Meng and Boyd (2017); Pal et al. (2017)
6	Team Integration	<ul style="list-style-type: none"> • Formation of a Single Integrated Project Team • Regular Team Building Activities • Presence of Coordination Monitoring Plans • Time Taken in Dispute Resolution • Absence of Third Party 	Suprpto et al. (2015, 2015a); Doloi (2012); Ling et al. (2006, 2013); Colledge (2005); Rahman and Kumaraswamy (2002, 2004, 2008); Meng and Boyd (2017); Cheung et al. (2018); Zheng et al. (2018); Osipova (2015); Caldwell et al. (2017); Kumaraswamy et al. (2005, 2005a); Smyth and Edkins (2006); Harper et al. (2016); Pal

<p>in case of Dispute Resolution</p> <ul style="list-style-type: none"> • Absence of “Price Only” selection methods • Early Involvement of Contractor during front end development 	<p>et al. (2017)</p>
--	----------------------

The first inter-organizational factor, history of working relationships, illustrates that if the client and SPV have worked together in the past, it directly affects their current relationship. A previous project experience leads to a better mutual understanding between the parties which can help in curbing opportunism, effective handling of future uncertainties and effective conflict resolutions.

The second factor, alignment of objectives between the client and concessionaire, is another important factor affecting the presence of strong relationships. The client and SPV involved generally have different commercial motives related to the project. Client’s objectives are more inclined towards cost savings and fulfilling societal and user interests whereas concessionaire is generally looking for an increase in the profit (Zou et al. 2014). A set of common objectives should be established to fulfill the needs of both parties involved and curb opportunism. Clarity of project scope, goals and responsibilities among the team members can also lead to proper alignment of objectives. This would reduce the uncertainty regarding an individual’s scope of work and can help in timely delivery of services with minimum conflicts.

Presence of trust, the third inter-organizational factor, has been identified as the most important factor in the literature affecting the development of strong relationships between the client and the concessionaire. The two components of trust, mentioned by Smyth and Edkins (2007), are expectations from the other party to perform and confidence in the abilities of the other party. Long term commitment and no blame culture are some of the strong traits of trust between two parties. Presence of relationship management training programs, issue resolution mechanisms, performance appraisal mechanisms, flexibilities in contracts and use of procurement methods other than price only methods are some strategies that can be employed to increase trust between the client and SPV.

PPP or construction projects are inherently risk bearing and therefore, presence of proper risk allocation mechanisms, which is the fourth factor identified, can lead to strong relationships between the client and SPV. Osipova (2015) suggests that collaborative environment is imperative to promote joint risk management (JRM). JRM is a robust strategy that deals with inappropriate risk allocation and includes ways to efficiently cater to unforeseen events and risks. Frequent joint risk workshops are one of the essential elements of JRM.

Proper communication between the client and SPV, identified as the fifth factor, can lead to minimum conflicts and development of strong relationships. Transparency and no delay communication, between the client and the concessionaire, are some of the important traits of this factor. Early involvement of stakeholders has been suggested as an effective strategy to foster trust and coordination among the teams.

Team integration, the sixth factor identified through literature review, has been recognized as one of the most important inter-organizational factors that affect relationship management. Proper coordination, willingness to cooperate, appropriate

project planning and respecting cultural differences are some of the important characteristics of team integration.

Other Factors Affecting Relationships

There are factors outside the scope of the public client organization and the SPV that can certainly affect the relationship strength between these two parties. These factors include project complexity (Benitez-Avila et al. 2018; Rahman and Kumaraswamy 2002; Osipova 2015; Ling et al. 2014; Antillon et al. 2018), government's involvement (Benitez-Avila et al. 2018; Rufin and Rivera-Santos 2012; Ling et al. 2014; Suprpto et al. 2015), and unstable market conditions. Inexperience of the client and SPV with the main technology involved in the project and challenging or inaccessible project site, have been identified as strong indicators of the project complexity in the literature (Suprpto et al. 2015). Challenging country's regulations hampering project's operations is a major facet of government's involvement factor. Also, Suprpto et al. (2015) has mentioned unfavorable exchange rate is an indicator of unstable market conditions which can affect the relationships between the client and SPV.

DISCUSSION AND FUTURE RESEARCH DIRECTIONS

Based on the literature review, four directions of future research have been proposed in this paper and explained in detail in this section. The future directions are shown in figure 12, where each research direction has been shown to fall underneath a particular theme of papers. As shown, future direction 1 can be included under theme 1 and 2 of the literature, direction 2 and 3 falls under theme 3 of the literature and direction 4 has been shown beneath theme 4 of the literature.

DIRECTION 1: PROACTIVE APPROACH TOWARDS RELATIONSHIP MANAGEMENT

Public Private Partnership projects are inherently complex and uncertain (Zou et al. 2014) and require long term relationships to cater to the unforeseen events and risks. PPP contracts cannot cover all the future events that can affect the project (Sakal 2005) and therefore both, intra-organizational and inter-organizational relationships are imperative (Antillon et al. 2018) to achieve the desired project outcomes. Strong relationships help in building trust and coordination which in turn curbs opportunism, helps in healthy renegotiations with future risks and therefore helps in reducing transaction costs (Nguyen and Garvin 2018).

Relationship Management is a relatively new approach which is broader than relational contracting and aims at changing the inherent culture of an organization, as a proactive approach, to focus on improving collaboration in projects. There is a need to promote relationship management practices in projects to achieve the desired performance. The descriptive analysis also showed that there is a lack of studies concentrating on intra-organizational relationships. Moreover, Smyth and Edkins (2007) conducted a survey with more than 300 executives and managers in the private sector and the findings suggest that the private sector is currently reactive rather than proactive in relationship management. Therefore, future research should concentrate on improving intra-organizational relationships and changing the inherent attitude of an organization towards relationship management practices. This will lead to a

proactive management of relationships instead of a reactive management. A strong support from the executive management in the company should set the tone for this cultural change.

DIRECTION 2: UNEXPLORED DATA COLLECTION AND ANALYSIS METHODS

The descriptive analysis of the literature showed that, in general, there is a lack of research done in PPP projects related to relationship management, as compared to research done in construction projects. A PPP project is comprised of different life cycle phases: planning and design, construction, operations and maintenance and finally handing over the asset to the client. Most of the studies have concentrated on the first two phases of the life cycle and the interaction between teams is still unexplored in the O&M phase. One possible reason for this scenario can be the unavailability of data in terms of formal documentation in the O&M phase. Also, there seems to be a shortage of managers and executives having significant experience related to operations and maintenance phase of a PPP project. This phase is the largest spanning phase in a PPP project and therefore, it is important that the future research should also focus on the relationship dynamics in this phase of the life cycle. Another interesting path to investigate in this regard would be to analyze the change in the relationship of the client and SPV with time, and in different life cycle phases, and what different strategies are needed to cater to that changing behavior.

The data collected in most of the literature, as shown in the descriptive analysis, is through a questionnaire or personal interviews conducted with experts. Other documents such as request for qualifications, request for proposal, submitted proposal, contract document, changes to contract and secondary sources such as project website, press release etc. are relevant sources of data, which haven't been explored much to gather information regarding client and concessionaire attitude towards relationship management, or a comparison of relationship management strategies mentioned in the contract document with the strategies actually employed during different life cycle phases. As far as analysis of the data is concerned, there is a visible shift in the analysis methods used by the researchers in the literature, from inferential analysis to predictive or casual analysis.

DIRECTION 3: DEVELOPMENT OF COMPREHENSIVE FRAMEWORKS

There were four major themes of literature identified from the review. There has been a strong case made in the literature, regarding the importance of relationship management in PPP or construction projects. A balance between the contractual and relational governance has also been investigated to promote formal relationship management strategies in the contract documents. A substantial amount of literature has also focused on determining the factors that aid in developing strong relationship within teams. But, the literature is lacking in terms of qualitative or quantitative frameworks proposed to measure the relationship strength within the teams and therefore, suggest strategies according to the level of strength present and also with respect to different life cycle phases where relationship strength can vary. Different type of practices can be employed with respect to the level of integration present within the teams. Zou et al. (2014) also suggested that future research should focus on developing a framework for PPP relationship management using factors that are considered to affect relationships. Moreover, the frameworks suggested in literature

have considered only one or two indicators such as trust, confidence, etc., to assess the relationship strength. More indicators should be used in future to assess the relationship which will provide a more comprehensive framework. Also, the practices can vary with respect to the size of the organization and the resources available to employ those practices, which should be considered in the frameworks proposed. Since the relationship management strategies can vary from project to project, therefore a case study analysis can also be a good avenue of research to perform a cross and within case analysis (Meng and Boyd 2017).

DIRECTION 4: VALIDATION OF FRAMEWORKS

Validation of results is an important step in the development of a framework. This direction proposes a validation strategy for frameworks in this area. As mentioned earlier, presence of strong relationships leads to achievement of desired performance, creation of economic and social value, fulfillment of user interests and lower transaction costs. If the presence of these benefits can be verified, this can lead to the validation of the framework proposed. This would mean that presence of strong relationships can act as a mediator between the framework and the benefits mentioned above.

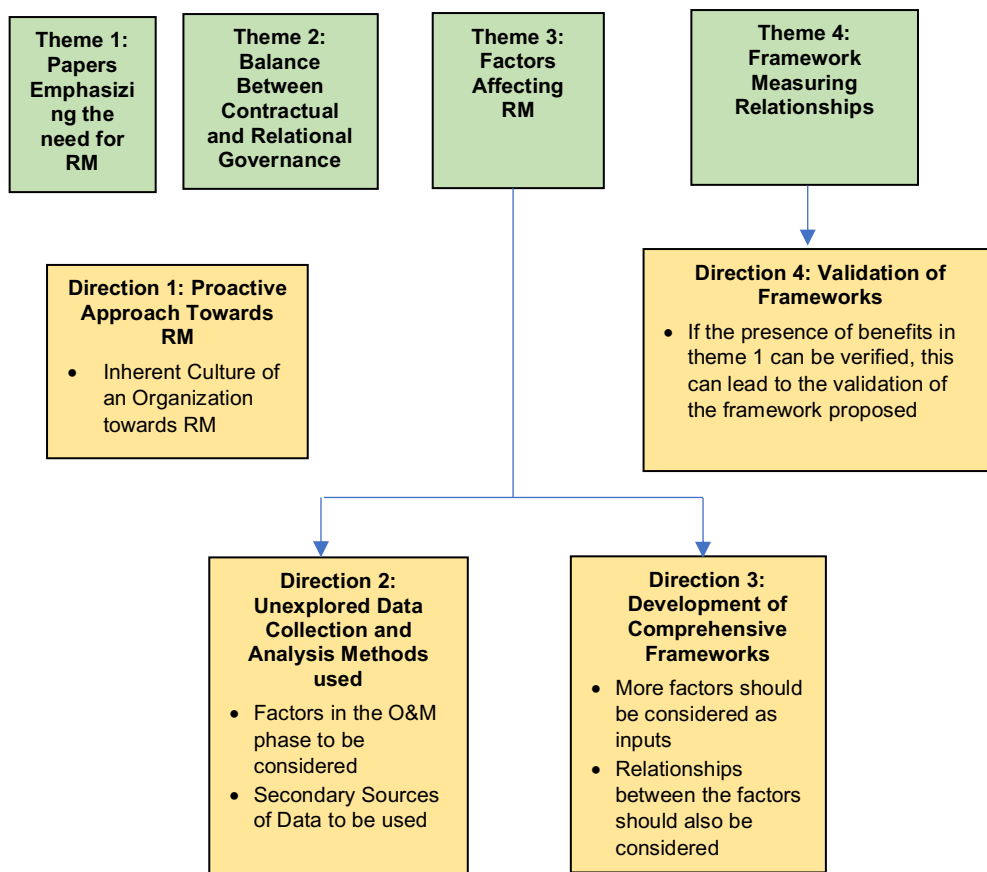


Figure 12: Four directions of future research proposed

CONCLUSIONS AND LIMITATIONS

This paper aimed at reviewing literature related to relationship management in PPP projects, also referring to relevant information regarding relational contracting in construction projects. The findings from the review were synthesized and significant research gaps were identified. Based on the gaps distinguished, guidelines for future areas of investigation have been provided. One of the main contributions of this paper is that it acts as a starting foundation for the future researchers in this area since it provides the current scenario and a comprehensive synthesis of the literature available in this area. Also, the findings of this paper have provided a solid platform for the future research in terms of unexplored data sources, analysis methods and development of more robust frameworks.

The methodology of the review started with identifying the keywords for a preliminary search of the relevant literature, followed by conducting the search in Google Scholar and Scopus. The next step involved checking the distribution of papers found with the journals in the field of PPPs. It was found that most of the papers found were published in the top ranked journals. The next step in the methodology involved searching for additional literature through references of the publications found with maximum citations. The next step was filtration and the final selection of papers through abstract review. The final step included the analysis of the selected papers, which included both descriptive as well as in-depth analysis.

The descriptive analysis included yearly distribution of papers found, distribution of papers with respect to authors' origin/country, number of papers found related to intra-organizational relationships versus inter-organizational relationships, distribution of papers with respect to data collection versus data analysis method used and yearly distribution of papers with respect to analysis methods used. The in-depth analysis of the literature resulted in recognition of four major themes emerging from the literature: papers emphasizing the need for relationship management, papers focusing on the balance between contractual and relational governance, papers determining factors affecting relationship management, papers proposing a qualitative or a quantitative framework to measure relationship strength. The four themes identified from the review have also been arranged in a three staged linear structure which illustrates the relationship between the themes. The factor affecting relationship management were divided into three major categories: intra-organizational, inter-organizational and other factors.

The findings suggested that there is a need for a proactive approach towards relationship management and changing the inherent culture of an organization towards relationship management. The future research should also focus on the operations and maintenance phase of the life cycle which can present the changing dynamics of relationships over the life cycle of a project. The literature review also suggested that future research should focus more on developing frameworks that can assess the level of relationships. The frameworks should consider more factors that affect relationships and their interdependencies to develop a more comprehensive framework.

Although the literature review conducted in this paper contributes significantly towards the research in this field, it still has some limitations which need to be addressed in future research. The literature search in this study was only confined to Google Scholar and Scopus and other search engines and databases can be used in

future to extract any relevant literature not included in this study. Also, software packages such as NVivo can be used in future to complement this study to validate the themes identified in this study and recognize any other emerging themes from the available literature.

REFERENCES

- Antillon, E., Garvin, M., Molenaar, K. and Javernick-Will, A. (2018). "Influence of Interorganizational Coordination on Lifecycle Design Decision Making: Comparative Case Study of Public-Private Partnership Highway Projects." *Journal of Management in Engineering*, 34(5), 05018007.
- Arranz, N. and de Arroyabe, J. (2011). "Effect of Formal Contracts, Relational Norms and Trust on Performance of Joint Research and Development Projects." *British Journal of Management*, 23(4), 575-588.
- Benítez-Ávila, C., Hartmann, A., Dewulf, G. and Henseler, J. (2018). "Interplay of relational and contractual governance in public-private partnerships: The mediating role of relational norms, trust and partners' contribution." *International Journal of Project Management*, 36(3), 429-443.
- Bowman, C. and Ambrosini, V. (2000). "Value Creation Versus Value Capture: Towards a Coherent Definition of Value in Strategy." *British Journal of Management*, 11(1), 1-15.
- Bresnen, M. and Marshall, N. (2000). "Partnering in construction: a critical review of issues, problems and dilemmas." *Construction Management and Economics*, 18(2), 229-237.
- Bresnen, M. and Marshall, N. (2000a). "Building partnerships: case studies of client-contractor collaboration in the UK construction industry." *Construction Management and Economics*, 18(7), 819-832.
- Bygballe, L., Dewulf, G. and Levitt, R. (2014). "The interplay between formal and informal contracting in integrated project delivery." *Engineering Project Organization Journal*, 5(1), 22-35.
- Bygballe, L., Jahre, M. and Swärd, A. (2010). "Partnering relationships in construction: A literature review." *Journal of Purchasing and Supply Management*, 16(4), 239-253.
- Caldwell, N., Roehrich, J. and George, G. (2017). "Social Value Creation and Relational Coordination in Public-Private Collaborations." *Journal of Management Studies*, 54(6), 906-928.
- Cao, Z. and Lumineau, F. (2015). "Revisiting the interplay between contractual and relational governance: A qualitative and meta-analytic investigation." *Journal of Operations Management*, 33-34, 15-42.

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.

Cheung, S., Zhu, L. and Lee, K. (2018). "Incentivization and Interdependency in Construction Contracting." *Journal of Management in Engineering*, 34(3), 04018010.

Colledge, B. (2005). "Relational contracting: creating value beyond the project." *Lean Construction Journal*, 2(1), 30-45.

Chung, D., and Hensher, D. (2016). *Risk-sharing in public-private partnerships: a contractual economics perspective*. Handbook on Transport and Urban Planning in the Developed World, Northampton, Massachusetts, 254–273.

Davis, P. and Love, P. (2011). "Alliance contracting: adding value through relationship development." *Engineering, Construction and Architectural Management*, 18(5), 444-461.

Doloi, H. (2012). "Empirical analysis of traditional contracting and relationship agreements for procuring partners in construction projects." *Journal of Management in Engineering*, 29(3), 224-235.

Edkins, A., & Smyth, H. (2006). "Contractual management in PPP projects: evaluation of legal versus relational contracting for service delivery." *Journal of Professional Issues in Engineering Education and Practice*, 132(1), 82-93.

Falagas, M., Pitsouni, E., Malietzis, G., & Pappas, G. (2008). "Comparison of PubMed, Scopus, web of science, and Google scholar: strengths and weaknesses." *The FASEB journal*, 22(2), 338-342.

Fu, Y., Chen, Y., Zhang, S., & Wang, W. (2015). "Promoting cooperation in construction projects: An integrated approach of contractual incentive and trust." *Construction Management and Economics*, 33(8), 653-670.

Harper, C., Molenaar, K., & Cannon, J. (2016). "Measuring constructs of relational contracting in construction projects: The owner's perspective." *Journal of Construction Engineering and Management*, 142(10), 04016053.

Jeffries, F., & Reed, R. (2000). "Trust and adaptation in relational contracting." *Academy of Management Review*, 25(4), 873-882.

Jefferies, M., Rowlinson, S., & Cheung, Y. (2006). "Relationship management in the Australian construction industry: a catalyst for cultural change." *Joint International Conference on Construction Culture, Innovation and Management on Sustainable Development through Culture and Innovation*, Dubai Knowledge Village, Dubai, 474-483.

- Jelodar, M., Yiu, T., & Wilkinson, S. (2016). "A conceptualisation of relationship quality in construction procurement." *International Journal of Project Management*, 34(6), 997-1011.
- Ke, Y., Wang, S., Chan, A., & Cheung, E. (2009). "Research trend of public-private partnership in construction journals." *Journal of Construction Engineering and Management*, 135(10), 1076-1086.
- Kivleniece, I. and Quelin, B. (2012). "Creating and Capturing Value in Public-Private Ties: A Private Actor's Perspective." *Academy of Management Review*, 37(2), 272-299.
- Kumaraswamy, M., Ling, F., Rahman, M., & Phng, S. (2005). "Constructing relationally integrated teams." *Journal of Construction Engineering and Management*, 131(10), 1076-1086.
- Kumaraswamy, M., Rahman, M., Ling, F., & Phng, S. (2005a). "Reconstructing cultures for relational contracting." *Journal of Construction Engineering and Management*, 131(10), 1065-1075.
- Kumaraswamy, M., Rahman, M., Palaneeswaran, E., Ugwu, O., Anvuur, A., Yogeswaran, K. (2007). "Multidisciplinary and multi-functional teams in PPP procurement and delivery." *Proceedings, CIB W092 Procurement Systems Symposium*. University of Newcastle, Newcastle, Australia, 250–262.
- Lau, E., & Rowlinson, S. (2009). "Interpersonal trust and inter-firm trust in construction projects." *Construction Management and Economics*, 27(6), 539-554.
- Laursen, M. and Svejvig, P. (2016). "Taking stock of project value creation: A structured literature review with future directions for research and practice." *International Journal of Project Management*, 34(4), 736-747.
- Lepak, D., Smith, K., & Taylor, M. (2007). "Value creation and value capture: a multilevel perspective." *Academy of management review*, 32(1), 180-194.
- Ling, F., Rahman, M., & Ng, T. (2006). "Incorporating contractual incentives to facilitate relational contracting." *Journal of Professional Issues in Engineering Education and Practice*, 132(1), 57-66.
- Ling, F., Ke, Y., Kumaraswamy, M., & Wang, S. (2013). "Key relational contracting practices affecting performance of public construction projects in China." *Journal of Construction Engineering and Management*, 140(1), 04013034.
- Ling, F., Ong, S., Ke, Y., Wang, S. and Zou, P. (2014). "Drivers and barriers to adopting relational contracting practices in public projects: Comparative study of Beijing and Sydney." *International Journal of Project Management*, 32(2), 275-285.

- Lu, P., Guo, S., Qian, L., He, P. and Xu, X. (2015). "The effectiveness of contractual and relational governances in construction projects in China." *International Journal of Project Management*, 33(1), 212-222.
- Madhok, A. and Tallman, S. (1998). "Resources, Transactions and Rents: Managing Value Through Interfirm Collaborative Relationships." *Organization Science*, 9(3), 326-339.
- Manu, E., Ankrah, N., Chinyio, E. and Proverbs, D. (2015). "Trust influencing factors in main contractor and subcontractor relationships during projects." *International Journal of Project Management*, 33(7), 1495-1508.
- Meng, X. and Boyd, P. (2017). "The role of the project manager in relationship management." *International Journal of Project Management*, 35(5), 717-728.
- Meng, X. (2012). "The effect of relationship management on project performance in construction." *International Journal of Project Management*, 30(2), 188-198.
- Meng, X. (2015). "The Role of Trust in Relationship Development and Performance Improvement." *Journal of Civil Engineering and Management*, 21(7), 845-853.
- Miles, M., Huberman, A. and Saldaña, J. (2014). *Qualitative Data Analysis: A Methods Sourcebook*. Sage, Thousand Oaks, CA.
- Nguyen, D. and Garvin, M. (2018). "Lifecycle Contract Management Strategies in US Highway Public-Private Partnerships: Public Control or Concessionaire Empowerment?." *Journal of Management in Engineering*, in press.
- Oliomogbe, G. and Smith, N. (2012). "Value in Megaprojects." *Organization, Technology & Management in Construction: An International Journal*, 4(3), 617-624.
- Osei-Kyei, R., & Chan, A. (2015). "Review of studies on the Critical Success Factors for Public-Private Partnership (PPP) projects from 1990 to 2013." *International Journal of Project Management*, 33(6), 1335-1346.
- Osipova, E. (2015). "Establishing cooperative relationships and joint risk management in construction projects: Agency theory perspective." *Journal of management in engineering*, 31(6), 05014026.
- Pal, R., Wang, P., & Liang, X. (2017). "The critical factors in managing relationships in international engineering, procurement, and construction (IEPC) projects of Chinese organizations." *International Journal of Project Management*, 35(7), 1225-1237.

- Phelps, A., & Reddy, M. (2009). "The influence of boundary objects on group collaboration in construction project teams." *In Proceedings of the ACM 2009 International Conference on Supporting Group Work*, 125–128. ACM.
- Pinto, J., Slevin, D., & English, B. (2009). "Trust in projects: An empirical assessment of owner/contractor relationships." *International Journal of Project Management*, 27(6), 638-648.
- Pitelis, C. (2009). "The co-evolution of organizational value capture, value creation and sustainable advantage." *Organization studies*, 30(10), 1115-1139.
- Poppo, L., & Zenger, T. (2002). "Do formal contracts and relational governance function as substitutes or complements?." *Strategic management journal*, 23(8), 707-725.
- Rahman, M., & Kumaraswamy, M. (2002). "Joint risk management through transactionally efficient relational contracting." *Construction Management & Economics*, 20(1), 45-54.
- Rahman, M., & Kumaraswamy, M. (2004). "Potential for implementing relational contracting and joint risk management." *Journal of Management in Engineering*, 20(4), 178-189.
- Rahman, M., & Kumaraswamy, M. (2008). "Relational contracting and teambuilding: Assessing potential contractual and noncontractual incentives." *Journal of Management in Engineering*, 24(1), 48-63.
- Roberts, M. (2015). "The role of dynamic renegotiation and asymmetric information in financial contracting." *Journal of Financial Economics*, 116(1), 61-81.
- Roehrich, J., Lewis, M., & George, G. (2014). "Are public–private partnerships a healthy option? A systematic literature review." *Social Science & Medicine*, 113, 110-119.
- Roehrich, J. (2009). "The dynamics of inter-organisational governance: contractual and relational mechanisms in public-private supply arrangements." PhD, University of Bath.
- Rowe, F. (2014). "What literature review is not: diversity, boundaries and recommendations." *European Journal of Information Systems*, 23(3), 241-255.
- Rowlinson, S., & Cheung, F. (2004). "A review of the concepts and definitions of the various forms of relational contracting." *Proc., Int. Symp. of the CIB W92 on Procurement Systems 'Project Procurement for Infrastructure Construction,'* Chennai, India.

- Rufin, C., & Rivera-Santos, M. (2012). "Between commonweal and competition: Understanding the governance of public–private partnerships." *Journal of Management*, 38(5), 1634-1654.
- Sakal, M. (2005). "Project alliancing: A relational contracting mechanism for dynamic projects." *Lean Construction Journal*, 2(1), 67-79.
- Smyth, H., & 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. (2008). "The credibility gap in stakeholder management: ethics and evidence of relationship management." *Construction Management and Economics*, 26(6), 633-643.
- Suprpto, M., Bakker, H., Mooi, H., & Moree, W. (2015a). "Sorting out the essence of owner–contractor collaboration in capital project delivery." *International Journal of Project Management*, 33(3), 664-683.
- Suprpto, M., Bakker, H., & Mooi, H. (2015). "Relational factors in owner–contractor collaboration: The mediating role of teamworking." *International journal of project management*, 33(6), 1347-1363.
- Tang, L., Shen, Q., & Cheng, E. (2010). "A review of studies on public–private partnership projects in the construction industry." *International Journal of Project Management*, 28(7), 683-694.
- Williamson, O. (1985). *The economic institutions of capitalism*. The Free Press. New York.
- Wing, C. (1997). "The ranking of construction management journals." *Construction Management and Economics*, 15(4), 387-398.
- Xue, X., Shen, Q., & Ren, Z. (2010). "Critical review of collaborative working in construction projects: business environment and human behaviors." *Journal of Management in Engineering*, 26(4), 196-208.
- Yeung, J., Chan, A., & Chan, D. (2009). "Developing a performance index for relationship-based construction projects in Australia: Delphi study." *Journal of Management in Engineering*, 25(2), 59-68.
- Zheng, J., Roehrich, J., & Lewis, M. (2008). "The dynamics of contractual and relational governance: evidence from long-term public–private procurement arrangements." *Journal of purchasing and supply management*, 14(1), 43-54.

Zheng, X., Yuan, J., Guo, J., Skibniewski, M., & Zhao, S. (2018). "Influence of Relational Norms on User Interests in PPP Projects: Mediating Effect of Project Performance." *Sustainability*, 10(6), 2027.

Zou, W., Kumaraswamy, M., Chung, J., & Wong, J. (2014). "Identifying the critical success factors for relationship management in PPP projects." *International Journal of Project Management*, 32(2), 265-274.