

# Management control structures and performance implications in international construction joint ventures: critical survey and conceptual framework

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## Declaration of competing interest

The authors whose names are listed above certify that the manuscript titled "Management control structures and performance implications in international construction joint ventures: critical survey and conceptual framework" has not been published neither is it under consideration elsewhere.

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### Abstract

**Purpose** – Management control is needed in international joint ventures (IJVs) for successful management and performance. While IJV management control and performance concept has been widely explored, in the construction sector, the core understanding of the design of the two concepts is still lacking. This has resulted in the neglect of important questions and directions for research and practice improvement. This study aims to conduct a critical survey of prior studies addressing the conceptualization of management control and performance in IJVs and to propose a framework for studying the performance implications of management control in international construction joint ventures (ICJVs).

**Design/methodology/approach** – Using Scopus database and search terms, a systematic desktop search was conducted to retrieve empirically related peer-reviewed papers for this study.

**Findings** – Drawing on the transaction cost, institutional and relational logic, the first inclusive hypothetical model for studying the relationship between different dimensions of management control mechanism and multiple performance criteria in ICJVs is presented. The model proposes a measurement method for both the management control and performance and explains how they can be established in ICJVs.

**Practical implications** – The proposed framework provides a methodology to understand the dynamics of management control and performance implications in ICJV. Specifically, uncovering the critical paths will assist ICJV front-liners to approach management control in a more holistic and systematic way to promote achievement of ICJV goals.

**Originality/value** – The study gives a firm ground to the construction industry, which is accurate and educational for related fields concentrating on several other forms of cooperative relationships.

**Keywords:** Construction management, international joint venture, international construction joint venture, management control; performance measures.

### 1. Introduction

International joint ventures (IJVs) are a hybrid collaborative form considered as an efficient entry mode to an overseas or highly competitive market (Chen and Messner, 2011; Liu et al. 2020). An IJV is defined as a marriage between two or more legally distinct firms with their headquarters dispersedly located (Geringer and Herbert, 1989). Once the parties engage to undertake Architectural, Engineering, and Construction (AEC) projects, then we have an international construction joint venture (ICJV) (Girmscheid and Brockmann, 2010; Hong and Chan, 2014). ICJV adoption enables the hybridization of partnering firms' technology, an opportunity to learn, minimize potential risks and challenges, access to low-cost production factors, etc. (Ozorhon et al. 2010a; Chan et al. 2020). Despite their myriad benefits and opportunities, they often do not perform as expected and fail to achieve both strategic and financial goals of partnering firms (Lin and Ho, 2012; Han et al. 2019). Their poor performance could be connected to key challenges in the complex interorganizational relationships – for example, the control structures available for use (Wang et al. 2017; Han et al. 2019). Studies have shown that with management control, firms can improve performance (Ghauri et al. 2013; Maqsoom et al. 2020), manage risks effectively (Bing and Tiong, 1999), bring to success strategic goals (Yan and Gray, 2001b), and exploit complete advantage (Ozorhon et al. 2010b). Thus, management control acts as a significant determinant of performance in ICJVs.

Management control characterizes a process through which an entity influences the behaviour and performance of another entity to varying degrees through bureaucracy, power, or informal mechanisms (Geringer and Herbert, 1989).

The concept of management control and performance relationship within IJVs is not new. While varied definitions and conceptualizations of management control and performance criteria exist, numerous frameworks and models exhibiting the correlation between the two concepts have been developed (Yan and Gray, 1994; Ding, 1998; Lin and Ho, 2012). Hence, inconsistent results have proliferated. For example, while Ding (1998) provided outcomes evidencing the altercation for one-partner-dominant, Yan and Gray (1994) found evidence supporting the shared management argument. The transaction cost and strategy-structure theoretic logic proposed by Geringer and Herbert (1989) has been adopted in many studies for investigating the performance implications of management control in IJVs, yet there exist some controversies today (Le Nguyen and Larimo, 2008; Ghauri et al. 2013). The lack of a common theoretical background has contributed to the empirical inconsistencies (Yan and Gray, 2001b). Arguably, due to the multidimensional nature of management control and performance criteria, researchers are exposed to different dimensions and measures, which makes it difficult to assess the contributions of related studies.

In ICJVs, aside from the limited number of studies, the core understanding of the design of the two concepts is still lacking. Prior related studies have transferred findings from the management field, but then failed to define, position and characterized ICJVs performance measures and management control (Luo, 2001; Ho et al. 2009a; Girmscheid and Brockmann, 2010). Besides, the conceptualized management control models borrowed from the management field present some limitations when applied to ICJVs. Thus, the models are too theoretical which Kamminga and Meer-Kooistra (2007) described as “abstract models” because they failed to consider the operational characteristics of organizations. Accordingly, an integrated perspective of mapping diverse management control to multiple performance dimensions has yet to be accomplished (Tetteh and Chan, 2019). The duration precision coupled with the complex contractual, environmental, organizational, and technical characteristics of an ICJV means different performance and management control views. Against this background, this paper aims to conduct a critical survey of prior studies addressing the conceptualization of management control and performance in IJVs, and to propose a framework for studying the performance implications of management control in ICJVs. The proposed framework has been carefully discussed to demonstrate its innovation and applicability.

This study contributes to and extends the literature examining management control and performance relationships in both IJVs and ICJVs. Drawing on the transaction-cost-economizing, institutional and relational characteristics, this study adds up to knowledge by revealing that the exercise of management control does not solely depend on transaction cost and relational characteristics; but, also rooted in the societal or institutional custom of corporations. Thus, it increases the understanding of how different mechanisms of management control can be established by drawing on these theoretical grounds. The framework proposes an assessment method for ICJV management control and performance and explains how they can be established. The first inclusive hypothetical framework for studying the interrelationship between different dimensions of management control and multiple performance criteria in ICJVs is presented. This will stimulate future research and enhance the debate on the performance implications of different management control structures of an ICJV. Specifically, subjecting the hypothetical framework to empirical tests in different locations will bring to light the critical paths that can guide managers and practitioners who are operating or intend to pursue ICJVs build their management control structures accordingly to improve their performance goal. Corollaries from obtaining this will ultimately provide support for ICJVs

during the creation and negotiation process. Further, this study may potentially help reconcile the controversy related to the management control and performance relationship in ICJVs as it would offer researchers and practitioners a framework and a methodology to understand the dynamics of the two concepts in ICJV application. Finally, the study gives a firm ground to the construction industry, which is accurate and educational for related fields concentrating on several other forms of cooperative relationships.

### 1.1 Structure of an IJV and ICJV

In the international business literature, an IJV is defined as a long-term arrangement between two or more firms from different countries who combine complementary resources to a semi-autonomous legally separate entity in pursuit of a common goal (Geringer, 1988). An IJV takes the form of an equity joint venture and independent of its parent company through the establishment of a corporate and a joint venture contract (Girmscheid and Brockmann, 2010). The goals of the venture (i.e. contract duration, amount of equity, the IJV objective, etc.) are described in the joint venture contract. With this arrangement, the key features are the long-term relationship and single (mutual) goal. Therefore, the opportunistic behaviour of corporate firms is reduced as they engage to realize a common goal and with a long-term focus. On the other hand, an ICJV is temporary and primarily used for undertaking mega infrastructure projects (Cui et al. 2019). Kreitl et al. (2002) argued that it can also be formed with a limited objective. However, Girmscheid and Brockmann (2010) emphasized that aside from the equity contract that determines the internal relations between the parties involved, there exists also an external contract signed with the client, which defines the construction contract. This contract, therefore, puts pressure on the ICJV making it project-based – ‘complete and dissolve’ in nature. In short, ICJVs directly serve two sides, the joint venture contract, and the client. Opportunistic behaviour in this hybrid arrangement is very high as a result of the goal incongruence between partnering firms. Responding to this critical concern is by motivating the other party to achieve satisfying or predetermined objectives, which management control is suggested as an important governance tool (Han et al. 2019). Certainly, this fact does not allow us to transfer findings without proof (Girmscheid and Brockmann, 2010). This information necessitates our discussion and reinforces the condition that diverse performance dimensions and management control structures are required in ICJVs. The figure below (Figure 1) displays the differences between ICJVs and IJVs. For more information about the dissimilarities, the reader is referred to Girmscheid and Brockmann (2010) and Tetteh and Chan (2019).

<Please Insert Figure 1 here>

## 2. Theoretical background of management control in IJVs

An understanding of the emergence and configuration of management control determinants in IJVs from first principles is critical in studying the performance implications. The transaction cost economics (TCE) and relational characteristics such as parental differences, trust, bargaining power, etc. have been used for providing a general knowledge base for analysing management control in IJVs. According to the TCE logic of cost minimization, management control in inter-firm relationships is greatly dependant on three transaction characteristics (asset specificity, uncertainty, and frequency) (Williamson, 1985). Investments that have a high level of asset specificity (tangible or intangible) may lose their value if the involved contracting relationship is dissolved (Kamminga and Van der Meer-Kooistra, 2007). Thus, parent



companies use management control to protect or promote their specific investments in an IJV (Yan, 2000; Chalos and O'Connor, 2004). Uncertainties arising from both behavioural risk of the transacting parties and erratic environment produces opportunistic behaviour, which requires parents to invest more management control to mitigate any potential hazards (Han et al. 2019). Transaction frequency refers to the rate of occurrence of repetitive transactions (Duan, 2007). Corporations create a strong corporate culture that generates long-term organizational commitment via control. Kamminga and Van der Meer-Kooistra (2007) mentioned that transaction frequency is an important feature when comparing governance structures, as it considers whether the frequency of transactions justifies investments in governance structures.

In addition to TCE logic, Van der Meer-Kooistra and Vosselman (2000) argue that it is the characteristics of the cooperating parties that shape control. Hence, four relational characteristics are discussed: parental differences, information asymmetry, trust, and bargaining power. With regards to parental differences, as the omnipresent, goal incongruence, between IJV parties, remains high, extra effort in terms of management control will be required to reduce the impact (Parkhe, 1991). As different yet complementary interests of parents form a successful IJV relationship, management control becomes relevant in explaining each other's interest and/or coordinating diverse parental contributions. According to Kamminga and Van der Meer-Kooistra (2007), the result of parental difference is information asymmetry, which extends management control. For example, the differences in knowledge and expertise often require tight control by parents at the expense of the venture's flexibility. In an environment with a high level of uncertainty, for example, the loss of flexibility may be a problem, since quick adjustments are highly important (Merchant, 1998). In such a case, parents must give management autonomy and exercise loose control. Trust is another relational characteristic that has received much attention in interfirm relationships (Fryxell et al. 2002; Boersma et al. 2003; Girmscheid and Brockmann, 2010). It is a useful mechanism employed to cope with uncertainty creating behavioral risks and reduce the costs of coordination in interfirm relationships (Madhok, 2006). Any interfirm relationship that is built on trust possess the spirit of awareness to become aware of rules, routines, and procedures as Gulati and Singh (1998) point out. Lastly, the extent to which parents can exercise management control over an IJV is regarded as an outcome of a bargaining process (Lu and Hebert, 2005; Li et al. 2009). According to Yan and Gray (1994), the bargaining power of a parent can be divided into two groups: context-based, and resource-based. The first derivative of the power dependency theory stresses the context-dependent relationships between the bargaining parties. It argues that the relative bargaining power of a party depends on the mutual dependence of the parties, especially, the exclusivity of the dependence; and this power is determined by the alternatives available to it, as well as the relevance of the stakes possess in the present relationship, and the potential outcome of the bargaining (Yan and Luo, 2016). In an IJV relationship, the partner having more potential or alternative for entering a market has greater bargaining power. The resource-dependent concerns the contributions or control of critical resources by parties in the venture. According to Pfeffer and Salancik (2003), the critical the resources provided by a parent to a venture, the ability to control and direct organizational action, and vice versa. Therefore, a partner's contribution to critical resources will enhance its management control. It is important to mention that these critical resources could be capital or noncapital resource-based power. Whereas capital resource-based power includes financial or their equivalent in physical or proprietary properties, noncapital resource-based bargaining power is made up of critical tacit resources like technology, management expertise, political networks, marketing channels, etc.

Notwithstanding the above, the institutional characteristics of the venture operation country also offer explanations for the levels of management control that investing companies will seek

when forming IJVs (Knoke, 2001). According to Meyer and Scott (1992), institutionalization proceeds by the amplification of legal regulations and processes in which individuals must comply to have the mandate and legitimacy. In the developing countries, for example, several factors such as regulation constraints (Local Content Policies), partner culture and strategy, and numerous contextual variables underlying the negotiation of partner's relative bargaining power influences the operational control structures. Foreign firms are forced to accept a minority position which is a frequently observed phenomenon in developing countries (Lee et al. 2003). For example, in Ghana, the Local Content and Local Participation, Regulation 2013 L.I 2204, afford the local firms maximum equity participation. Similar practices exist in Libya, where foreign companies are required to enter into joint ventures with local entities and where the foreign company is only allowed to hold a maximum of 49% equity stake. This serves them the dependence that enhances their power over the venture.

### 3. Research Methodology

This study employed the systematic mapping technique to critically survey prior studies addressing the conceptualization of management control and performance implications in IJVs and proposed a framework for studying the performance implications of management control in ICJVs. Systematic mapping is "an approach that allows for relatively high procedural and interpretive objectivity and replicability" (Ghobadi, 2015). Thus, results are easily traceable and can be reproduced. Four major sequences were followed: 1) planning the study, 2) identifying relevant publications for the study, 3) critically reviewing to survey the state-of-the-art of management control and performance implications, including gaps and future needs, and 4) propose a framework for studying performance implications of management control in ICJVs. The methodological framework for this present research is illustrated in Figure 2.

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#### 3.1 Planning the study

Due to the broad nature of IJV studies, a review protocol that clarified the phenomenon of interest was defined as "*research that empirically examines the link between management control and performance within IJVs and ICJVs*" following the goal of the study. To identify related papers and develop a new model for studying management control and performance relationship in ICJVs, a preliminary review of seminal works including that by Geringer and Hebert (1989) and Luo (2001) in the construction domain was undertaken to identify relevant and common terms. Next, a list of search terms was developed and then revised by consulting three scholars in the area of ICJV with at least two papers. This increased the comprehensiveness and minimized hypothetical preferences.

#### 3.2 Publications retrieval

With the help of Scopus, articles capturing both management control and performance in IJVs and ICJVs were analyzed in this study. The Scopus database contains many scientific publications (Hong and Chan, 2014) as compared to the other databases such as *Web of Science*, *PubMed*, *Engineering Village*, *Google Scholar*, etc. Similarly, Scopus has a comparatively quicker indexing process, widening the likelihood of obtaining current publication (Meho and Rogers, 2008), and has been extensively used in earlier review studies (Darko and Chan, 2016; Nasirian et al. 2018). Keywords used for the search was: "management control" OR "control mechanism" OR "control" OR "governance" AND "performance" and "International joint

venture" OR "Joint venture" OR "International construction joint venture", and the search domain specified as "title/abstract/keywords". The date range was set to "1990 to 2020". Note that IJVs gained prominence both in practice and academia in the early 90s (Hwang et al. 2017). As for the "document type and language", it was limited to "Article" and "English", respectively. This returned 138 papers (searched on April 24, 2020). However, not all the returned papers empirically presented studies on the management control and performance link in IJVs.

### 3.2.1 Selection of Relevant Papers

Articles resulting from the combination were filtered initially with title, abstract, and keywords and. When needed, the introduction and the conclusion were closely examined to determine whether they served the purpose of this review. Likewise, duplicated papers were eliminated. Note that solely peer-reviewed articles were considered for this study. Thus, book reviews, conference papers, editorials, etc. were discarded as they do not go through a comprehensive examination, and thus, limit their wider dissemination in the academic community (Drott, 1995, Tetteh and Chan, 2019). Peer-reviewed articles characterize the most influential and reputable research (Silva et al. 2019) and have been classified as "certified knowledge" (Ramos-Rodríguez and Ruíz-Navarro, 2004). They are largely recognized in the academic certain and useful for first-hand researchers to assess and gain knowledge of research advancements on a selected research interest for exploration (Tsai and Lydia Wen, 2005). After this preliminary screening, a total of 98 articles were retained for further analysis. To facilitate the identification of the most relevant articles, the criteria were that: 1) exclusively and wholly published papers examining the connection between management control and performance in IJVs were considered, and 2) articles must be grounded on empirical arguments (i.e. articles must be based on either qualitative and/or quantitative data collection from the industry via questionnaire survey, case studies and interviews). Literature review grounded on empirical papers provide an understanding of the real-life situation as they are based mainly on the opinions of experts and/real-world issues (Darko et al. 2017). A total of 26 papers were found valid following the above inclusion parameters. The next step involved the snowballing sampling technique (i.e. checking the reference lists of the retained papers against the selection criteria to identify papers that were not found using the search string previously). Note that already identified papers were not included in this round. This resulted in including an additional five papers. Therefore, 31 papers were used in this study. Table 1 provides the journal information of selected papers for the review.

The 31 papers objectively stand in a better position to provide an understanding of management control and performance relationship in IJVs, as it is comparable to other literature review studies in the construction management field. For instance, using 26 articles, Yu et al. (2018) developed a conceptual framework for analyzing key issues of social responsibility in PPP projects. Similarly, Dwaikat and Ali (2016) analyzed empirically related issues of green building costs using 17 papers. Also, using 27 publications, Osei-Kyei and Chan (2015) methodologically reviewed studies on the critical success factors for implementing PPP projects. Therefore, it merits the attention that the 31 papers reliably and conclusively provided knowledgeable information and gaps in this study.

<Please Insert Table 1 here>

## 4. The hypothetical model configuration

### 4.1 Background of management control patterns in IJVs



The conceptualization and operationalization of management control in IJVs is problematic, due to the unparalleled and multivariate nature of the control concept. Generally, management control in IJVs' studies can be viewed from two different perspectives. Whereas some scholars investigate the determinants of management control (e.g., Tomlinson, 1970; Stopford and Haberich, 1976; Yan and Gray, 2001b; Chalos and O'Connor, 2004), the mechanisms of management control have also been studied (e.g., Ouchi and Maguire, 1975; Flamholtz et al. 1985; Geringer and Herbert, 1989). Geringer and Herbert (1989) conclude that IJV management control has been studied from three different perspectives: mechanism of control, the focus of control, and extent of control. The *mechanism* refers to how control is exercised. From this perspective, earlier research stressed the control determinants (e.g., ownership and voting rights), and other non-equity mechanisms which include cultural, behavioral, and outcome control (Groot and Merchant, 2000; Whitelock and Yang, 2007). Also, subsequent works have widened the breadth of control mechanisms to include socialization practices, IJV board of directors' role, staffing, etc. (Yan and Gray, 2001b; Chalos and O'Connor, 2004). Several studies have defined these as either positive or negative mechanisms depending on the purpose of control (Schaan, 1988; Kamminga and Meer-Kooistra, 2007). Geringer and Herbert (1989) further classified the mechanisms of control into three groups. They include content-oriented mechanisms – more direct and reliant on top managers or key members on board; context-oriented mechanisms – informal and cultural means to achieve strategic objectives of firms; and process-oriented mechanisms – influencing IJV planning and decision-making process by supporting and reporting relationships. Huang et al. (2015) represented these mechanisms as formalization, socialization, and centralization, respectively. Ghauri et al. (2013) concluded that aside from the direct reliant on key personnel, strategic institutional or systematic implanted strategies, which are partially reliant on the individuals themselves (policy mechanisms), can relate to the process or way the IJV is conducted.

The *focus* of control represents the area or scope of activities over which an IJV partner exercise control. The application is either in a broad aspect or more specific, i.e. narrow, focus (Ghauri et al. 2013). Kauser and Shaw (2004) viewed the focus of control as either strategic or operational. Whereas strategic control focuses on specific activities at the IJV management level, operational control focuses on the day-to-day activities, making decisions at the operational level, regulating across functional areas, etc. (Whitelock and Yang, 2007).

The degree of control exerted over a specific control mechanism denotes the *extent* of control. Thus, for each specific or operational area individual partners may exercise control on a range from “none” to “total” or “loose” to “tight”. Following this definition, Killing (1983) defined joint ventures (JVs) grounded on the amount of control shared with an IJV partner. They include management shared by the parents, management dominated by a single parent, and management independent of both parents. Split control was added by Choi and Beamish (2004) to represent the control over distinct functional activities. Recognizing the complex, dynamic and multidimensional nature of management control, Geringer and Herbert (1989) concluded that studying IJV control as an integrative concept in which the three dimensions incorporated could provide a solid explanation to the performance implications of control. Figure 3 shows the interrelationships between the three dimensions of control.

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#### 4.2 Management control and performance relationship in IJVs

The control exercised by corporate firms over an IJV significantly determines its performance (Yan and Child, Liu et al. 2014). Aside from the direct impact of management control on performance within IJVs, there is also a realization of competitive advantage by partnering

firms within their market (Le and Nhu, 2009). Management control becomes particularly important when studied in parallel with performance as the structures implanted by corporate firms provide the direction of the venture. Where control is lacking over an IJV can limit, respectively, partners' ability to completely exploit and successfully implement their resources and strategy (Ghauri et al. 2013). Thus, management control in IJVs is very important in explaining IJVs performance and success. Performance implications of management control have been an extremely interesting topic for researchers and practitioners alike. However, the complete understanding and design of the two concepts have yet to be achieved. Consequently, this has yielded conflicting and non-comparable results. The interpretation of this situation is a result of the use of different constructs of management control and performance measures (Table 2 summarizes a list of research on management control and performance relationship within IJVs). Also, previous studies have partially considered the three control dimensions (Luo, 2001). Another questionable concern is from whose perspective (general managers, foreign or local partners), and which type of industry is studied. Interestingly, even studies in the same country have produced noncomparable results. For example, in Taiwan, Lee et al. (2011), Lin and Ho (2012), and Huang and Chiu (2014) found results supporting the performance implication of control, however, with different constructs and from different perspectives. Whereas some used jointly and separately managed JVs as control constructs, and client satisfaction as performance construct, others employed desired and exercise control, and overall satisfaction, respectively. Similarly, in China, while Yan and Gray (1994) found evidence supporting the shared management argument, Ding (1997; 1998) provided results supporting the argument for one-partner-dominant. Further, some studies have also built their argument using different theoretical underlying concepts, which makes it difficult to compare results. Geringer and Herbert (1989); Zhang and Li (2001) and Choi and Beamish (2004) elaborate more on these critical issues in previous studies.

In the construction environment, aside from the very few related studies, the core design of management control and performance is incomplete. For example, Luo (2001) examined the interconnection between management control and performance in Sino-foreign construction joint ventures in China by mapping management control to performance goals (profitability, and government satisfaction) condemned to be inappropriate in reflecting the overall ICJVs success. Grounded on Ho et al.'s (2009) contingency factor approach in determining the governance structure (jointly and separately managed JVs) of ICJVs, Lin and Ho (2012) empirically examined its impact on client satisfaction as the major proxy for the performance in ICJVs, which is also judged to represent a minute of ICJVs performance. In short, a complete understanding of the performance implication of management control within ICJVs has yet to be established, tested, and explained.

<Please Insert Table 2 here>

#### 4.2 IJVs performance evaluation

The incomplete picture of IJV performance evaluation criteria coupled with the fragmented status of related studies co-exists, yielding a unanimous conclusion. The case is worse in the construction setting due to the complex contractual structures and dynamic environmental conditions. Researchers and practitioners always find it difficult to assess the performance of ICJVs. Whereas practitioners find it difficult considering the angle from which measure performance, researchers are always challenged with factors to use as indicators (Ozorhon et al., 2007a). Earlier studies used either subjective, objective, or both measures for evaluating ICJVs performance (Mohamed, 2003; Lin and Ho, 2012). Yet, these indicators poorly mirror the overall goal of ICJVs (Ozorhon et al., 2007). Important exceptions are that by Ozorhon et

al. (2010a; 2010b) which is considered the multidimensional goal of ICJVs. These studies classified ICJVs performance measures into four constructs, namely: company/partner performance, the performance of ICJV management, perceived satisfaction, and project-based performance. Overall, while these indicators may partially or wholly reflect the operational success of ICJVs, Tetteh et al. (2019) argued that a holistic ICJVs performance assessment is still lacking. They proposed a fifth dimension called socio-environmental performance (corporate sustainability measures) to reflect an all-inclusive performance goal of ICJVs.

#### 4.3 Conceptual model development

Of critical importance to the management of IJVs are how control is acquired, how it is exercised, and how it influences IJV performance (Yan and Gray, 2001a). Notwithstanding, in the management domain, previous studies have laid a rich conceptual foundation on which management control and performance link research in IJVs has increased. Drawing on these theoretical grounds to provide an explanation for related issues in the construction industry is not wrong as the literature of existing construction-related studies is firmly grounded or established on these studies (e.g., Luo, 2001; Girmscheid and Brockmann, 2010; Ozorhon et al., 2010a; 2010b). It is important to note that IJV is a generic concept. Thus, it could be adopted by different industries focussing on diverse operations or services such as research, manufacturing, agriculture, etc. In the construction industry, the only difference is that it is project-based – ‘complete and dissolve’ in nature as explained in detail (see, Section 1.1). Generally, borrowing a theory from a different field with a clear definition and position of its applicability in a different context to explain a phenomenon important to the field is not wrong (Murray and Evers, 1989). The IJV concept has long existed and practiced in the management fields and theories abound within these settings and the youth of interdisciplinary fields such as construction or the infrastructure sector has benefited more from such disciplines. An integrative approach for studying management control and performance relationship in ICJVs from first principles is presented.

The exercise of management control and performance implication in IJV has been studied from the following theoretical backgrounds: transaction-cost, , strategy-structure approach, and relational characteristics (resource dependency, bargaining power). For instance, an early framework by Geringer and Herbert (1989) was built on the transaction-cost and strategy-structure approach. From the perspective of power dependence, agency and transaction cost theories, and theories about trust, Yan and Gray (2001a) proposed a model of control in IJVs. Likewise, from an integrated view, Kamminga and Meer-Kooistra (2007) proposed a management control model by considering four relational characteristics (parental differences, information asymmetry, trust, and bargaining power – both context- and resource-based) and transaction cost approach. Although these studies have provided much theoretical insight into IJV management control, they overlooked the fact that a complete theoretical explanation for the determinants of control in IJV also relies on the institutional or the environmental context in which the venture operates. Exceptional studies include the one by Luo et al. (2001) and Lee et al. (2003) which considered the regulatory constraints and state-owned firms in host countries as an institutional norm to determine management control in IJVs. These studies, however, ignored the integrated view of the other theoretical stance in explaining management control.

Practically, the need for control is not symmetric as Lee et al. (2003) emphasized. The institutional norms and environment setting interact to create a unique set of managerial values and control (Luo et al. 2001). In developing countries, for example, apart from the government restrictions on ownership divisions, the local content and local participation regulation ensure that the number of the local workforce in IJVs operations exceeds that of the foreign firms.

This regulation is more pronounced in the construction industry and often makes the level of management control and performance more predictable. Acknowledging that both management control and performance are multidimensional phenomena, relying on this fundamental idea, a theoretical framework of management control determinants and performance in ICJVs is first presented (Figure 4).

<Please insert Figure 4 here>

#### 4.3.1 Constructs definition

By focusing on zone B of the theoretical framework presented above (Figure 4), a practical translation of (the relationship between management control and performance) has been presented in figure 5. In this study, the dimensions of control proposed by Geringer and Herbert (1989) provided a useful understanding of management control dynamics in IJVs (i.e., mechanism, focus, and extent). Also, since performance in ICJVs is a multivariate construct and cannot be represented by a single indicator, a multidimensional performance criterion established by Tetteh et al. (2019) was adopted. In considering the legal, physical, or administrative means that a partner uses to provide direction, personnel, and policy-driven mechanisms proposed by Ghuari et al. (2013) were adopted. Fryxell et al. (2002) pointed out that the most common or likely response to a fall in performance expectations is an adjustment of the control mechanisms. Thus, the control mechanism represents an important dimension of management control of an IJV by determining who is perceived to be in control of which function (scope/area of activities). Primarily, in IJVs, as Giacobbe and Booth (2009) highlighted, partners normally agree on the operational areas that they can control effectively, and some critical areas in construction include procurement, general management, and operation, supervision, etc. Above all, the tightness, or loose extent of control within IJVs present to be subjective and overlooked in extant literature. To stimulate future research studies, the extent of control could represent the number of people and how experienced they are in every specific operation. This may give a direct linkage to measurements that are precise and objective in ICJVs. Consequently, the interwoven between the two concepts as proposed remains to be tested and discussed in the global construction environment, to further enhance the development of the IJV theory.

##### 4.3.1.1 Personnel driven mechanisms

Ghuari et al. (2013) defined this construct as the staffing of key members on board, or place in positions from which they can exercise direct influence, both managerial and operational. Generally, most direct, and persuasive positions are on the board of directors, and through strategic, organizational, and operational decisions, they provide directions and facilitate monitoring and coordination, which determines the IJV position. As rooted under managerial control functions, the knowledge and skill-sets ability (both technical and managerial) of partners play an important role in deciding on who should exercise this role (Park, 2010). In the construction environment, for example, apart from staffing top management positions, key functional and operational areas that are based upon the daily routines and performance-based activities influence the venture goal massively. Certainly, this is one key area that does not need or relate to the majority position in the venture, however, contingent on a clear area of focus to be managed and influenced by the partners (e.g., daily supervision of construction work, and workers on-site).

##### 4.3.1.2 Policy-driven mechanisms



Ghauri et al. (2013) concluded that aside from the direct reliant on key personnel, strategic institutional or systematic implanted strategies that are less reliant on the individuals themselves are used. This creates a natural separation between the personnel provided to the IJV and the manner or process in which the venture is operated. This construct is defined by support in the policy and planning process, as well as training and learning opportunities. In the construction environment, providing support in making development plans, human right policies during project planning, monitoring and reporting project performance, reporting on construction progress and schedules, provision of knowledge about host country's culture and government issues, etc. can be captured under Geringer and Herbert's (1989) process-oriented and context-oriented mechanisms.

#### 4.3.1.3 Project-based performance

Because ICJVs are launched on a project basis, project goal indicators are normally used to measure their operational success (Ozorhon et al. 2007). The most commonly recognized project goals indicators include cost, time, quality, and client/customer satisfaction (Ozorhon et al. 2010a). Moving beyond the traditional measures of assessing project performance, McLeod et al. (2012) mentioned that other premeditated objective measures such as excellent records related to management, profits, etc. should be included. In this regard, maintaining excellent safety performance, excellent risks and issues management, and financial stability (profitability) has become relevant to organizations. Likewise, Almohsen and Ruwanpura (2016) pointed out that the number of occurrences of dispute resolution in an organization may represent a sustainable measure, which cannot be influenced by human perception at the project level.

#### 4.3.1.4 Company/partner performance

The conflicting goals of partnering firms in ICJV clearly show that ICJVs performance relates directly to the partner firms (Han et al. 2018). Therefore, this perspective is viewed as the extent to which pre-set company's goals are successfully realized dependent on the ICJV project undertaken (Ozorhon et al., 2010a). Apart from bringing to success the traditional project objectives including operational or financial objectives, distinct firms join hands to learn from each other, become local champions, to be internationally recognized, share financial risks, acquire both technical and managerial skills, build a strong company reputation, (Girmscheid and Brockmann, 2010), etc. An empirical investigation showed that partner performance remains critical among the other constructs defining the multidimensionality of ICJV performance.

#### 4.3.1.5 Performance of the ICJV management

This perspective of measuring ICJVs performance characterizes the success of controlling ICJVs operation (Ozorhon et al. 2010b). Thus, the power of participating in official duties related to management and contingent on superiority in management and technical skills of partners. Based on Yan and Gray (2001a) definition of management control, Ozorhon et al. (2010b) used operational control which defines control at the general management level, strategic control at the board of directors' level, and organizational control by the daily routines and processes. While many studies view strategic control to be influenced by dominant ownership (Fryxell et al., 2002; Lee et al., 2011), operational and organizational control does not require dominant ownership within the IJV.



<Please Insert Figure 5 here>

#### 4.3.1.6 Perceived satisfaction

This is one of the most frequently adopted performance measures in IJV literature. It measures the extent of attaining the overall objectives of an ICJV (including survival, monetary, or growth, or any other objectives) (Ozorhon et al., 2007). This construct is treated as a compilation of IJV performance measures in extant literature. Nonetheless, Ren et al. (2009) emphasized that this measure of success for an ICJV is biased towards objectivity because a stand-alone entity raises the threat of validity. This is because different respondents perceive satisfaction differently. Hence, reflecting firms' representative perception about the IJVs, Ozorhon et al. (2010b) proposed that "overall satisfaction" may represent the satisfaction of corporate organizations with the venture. Thus, it gives an overall impression of an ICJV success beyond all monetary and objective measures.

#### 4.3.1.7 Socio-environmental performance

Among the five constructs, this construct measures the extent to which an ICJV organization has realized its corporate sustainability potentials (Tetteh et al. 2019). Whereas the social feature reflects the satisfaction of the community, stakeholder engagement, sustainable job creation, labour practice/relation, capacity development, health, and safety performance, etc., environmental focus underlines compliance to environmental performance, environmental reporting, pollution, etc. The pressure on corporations to embrace social and environmental development in their operational routines necessitate great attention and must form part of ICJVs' goal.

#### 4.4 The innovation of the proposed framework

Generally, in IJV studies, the complete design of management control and performance relationship is limited, and a worse case is seen in the construction domain. The innovativeness of this study is that it provides a conceptual model to systematically address these three issues. Thus, this study helps to project what functions would be most critical to a venture's overall success. First, the model helps to overcome the controversy and extend extant literature about how management control is acquired, how it is exercised, and how it impacts ICJV performance by building on the transaction cost, institutional, and relational logic. Second, an integrative definition and measurement method of the two concepts practically reflect the nature of management control dynamics and performance implication in ICJVs. Third, the paper proposes hypotheses regarding multiple performance implications of diverse management control in ICJVs, which remains to be tested and discussed. This may stimulate future research and enhance the debate on the performance implication of different management control aspects of an ICJV. Invariably, more generalizable findings may be achieved, which may potentially help reconcile the controversy related to the management control and performance relationship.

### 5. Future research directions

As a key direction for future research, the established hypotheses are yet to be tested and explained. Thus, future studies could empirically test and analyze the performance implications of management control with complete measurement items to understand and build up the objectivity of the research findings. This could be achieved through multiple case studies and

quantitative research designs while incorporating a greater volume of secondary data from multiple completed and ongoing ICJV projects to drive a better triangulation of the results. By doing so, more rigorous statistical methods and analytical tools such as the Partial Least Squares – Structural Equation Modelling (PLS-SEM), Artificial Neural Network (ANN), etc. could also be employed in testing and validating the established framework. Second, the stagewise progression of ICJVs growth means dynamic control mechanisms and performance implications. Therefore, in future research, it may be interesting to examine the management control and performance link against the dynamic growth stages using simulation-based techniques such as system dynamics. Third, the existing literature empirically presents many views on this study from the foreign partners' perspective and has neglected the overall influence of local partners in ICJVs operations. Therefore, considering the views of the local partners in ICJVs studies is a promising research focus. This would help draw objective conclusions, to develop a comprehensive framework that provides guidelines and reference to construction stakeholders on how best to control ICJVs operations to enhance the overall performance. Finally, the nonlinear link of management control and performance in IJV studies can also suggest that it is influenced by other moderating variables. Thus, exploring their moderating roles would probably refine the understanding of the linkage between management control and performance.

## 6. Conclusions and Limitations

The lack of a complete understanding of management control and performance concept in ICJVs, explains the increasing controversy in the extant literature on their interrelation. In this study, an extensive review of the pertinent literature was conducted to synthesize prior studies addressing the conceptualization, and interrelationship between management control and performance in IJVs. Also, a conceptual model for studying the performance implications of management control in ICJVs is presented. The model shows how control is acquired, how it is exercised, and how it impacts ICJV performance. This study contributes to knowledge and practice. Drawing on the transaction cost, institutional, and relational logic, this study adds to knowledge by revealing that the exercise of management control does not solely depend on transaction cost and rational characteristics; but, also rooted in the societal or institutionalized custom of corporations in IJVs. The first inclusive hypothetical model for studying the relationship between different dimensions of management control and multiple performance criteria in ICJVs is presented. This study also has important implications for ICJV front-liners – policymakers to keep up and improve overall performance. The assessment of the hypothesized model will bring to light the control structures having the greatest paths that can be employed to boost the performance of ICJVs. Thus, uncovering the critical paths will assist front-liners to approach management control holistically and systematically to promote the achievement of ICJV goals, and enhance the understanding of the decisions they make about the activities to control and mechanisms to use. This will not only provide a strategic advantage by helping them to understand the complexities of their venture but will also allow them to critically evaluate their current management practices and policies and to develop alternatives for improving overall performance and increasing the chances of success.

This study is not without limitations. First, whereas the process of identifying relevant publications may be considered a restriction, the cross-systematic mapping technique warranted wide exposure of the relevant literature. The method also contributed to the validity of extensive coverage of high-impact peer-reviewed journals. Second, the keywords used may be regarded as another limitation. However, based on the methodological approach and the criteria for selecting relevant papers, the review highly stands in a better position to provide an understanding of the management control and performance concept in ICJVs. Third, while this

study puts forward a hypothetical framework for studying management control and performance relationships, critical variables operationalizing the measurement and evaluation of the developed constructs are needed before the usefulness of the framework can be fully appreciated. Although drawing on the transaction cost, institutional and relational logic the framework appears particularly relevant for examining this relationship, there could be other relevant theoretical bases which this study did not touched on. It is, therefore, in the remit of further research to identify other relevant theories to support and enhance the development of ICJV theory. Finally, another limitation worth mentioning is the validation of the framework. As validation is key in demonstrating the applicability of the established framework; however, it must be clarified that this is a conceptual study, which aims to develop a framework for studying management control and performance implications in ICJVs. This limitation of the study is, therefore, acknowledged and demonstrated how such a move could be achieved in the previous section.

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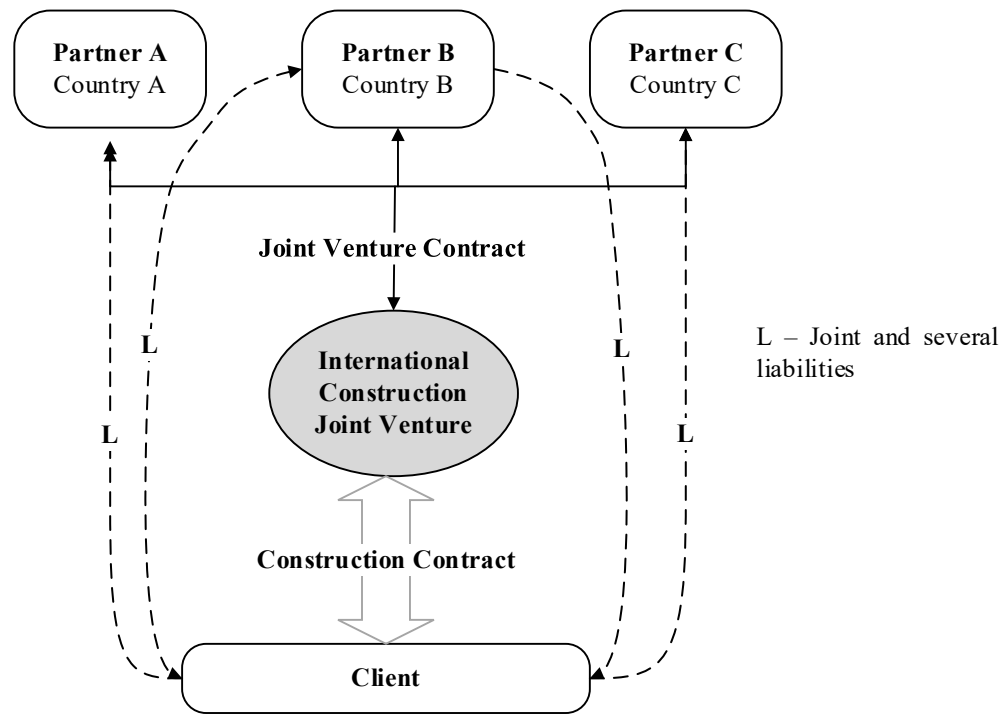
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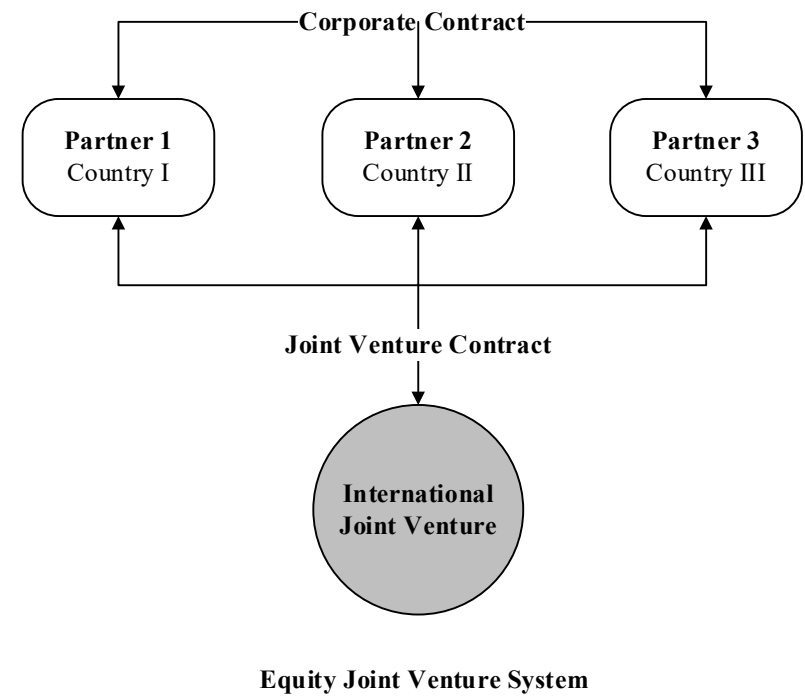
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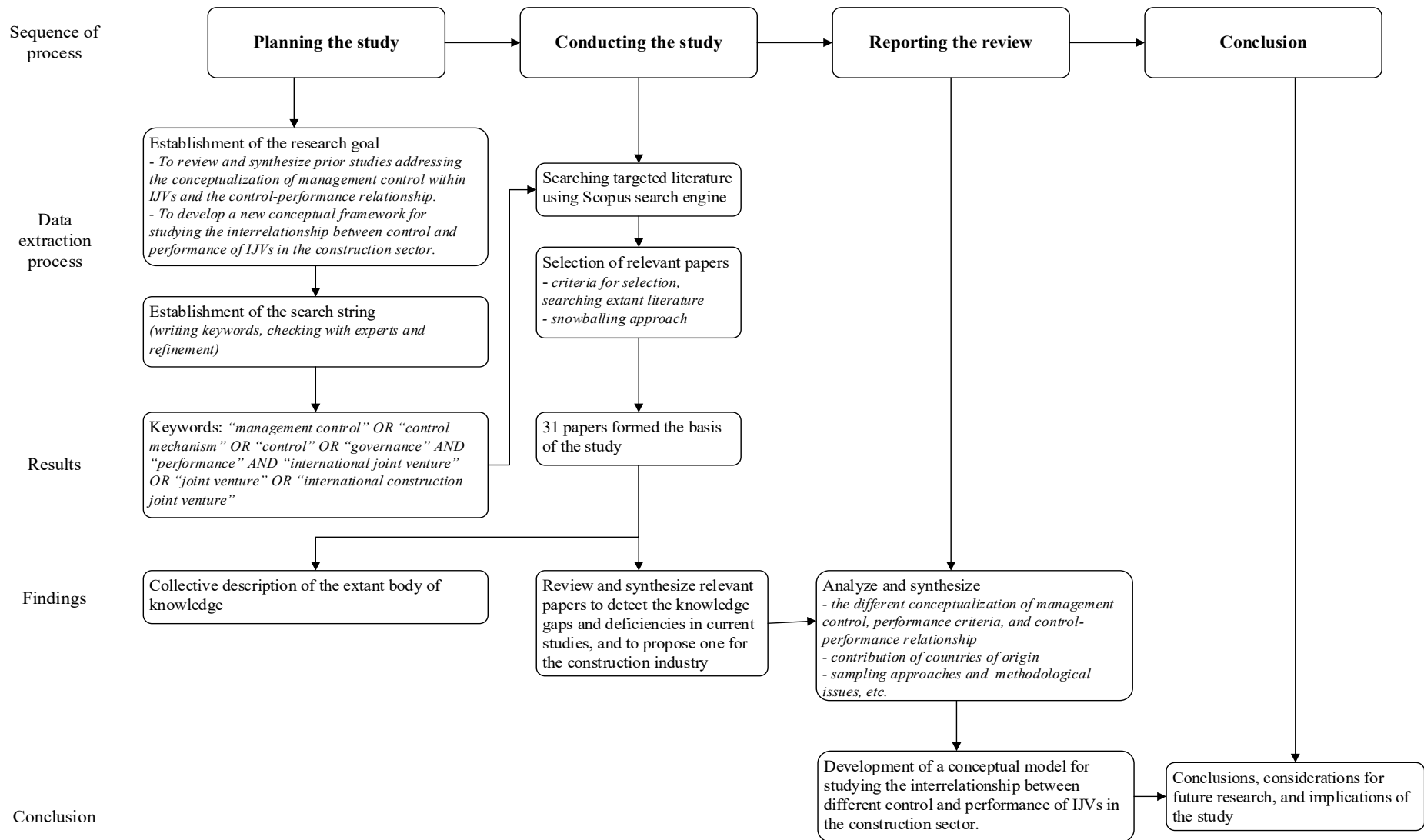
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**Construction Joint Venture Ssystem**

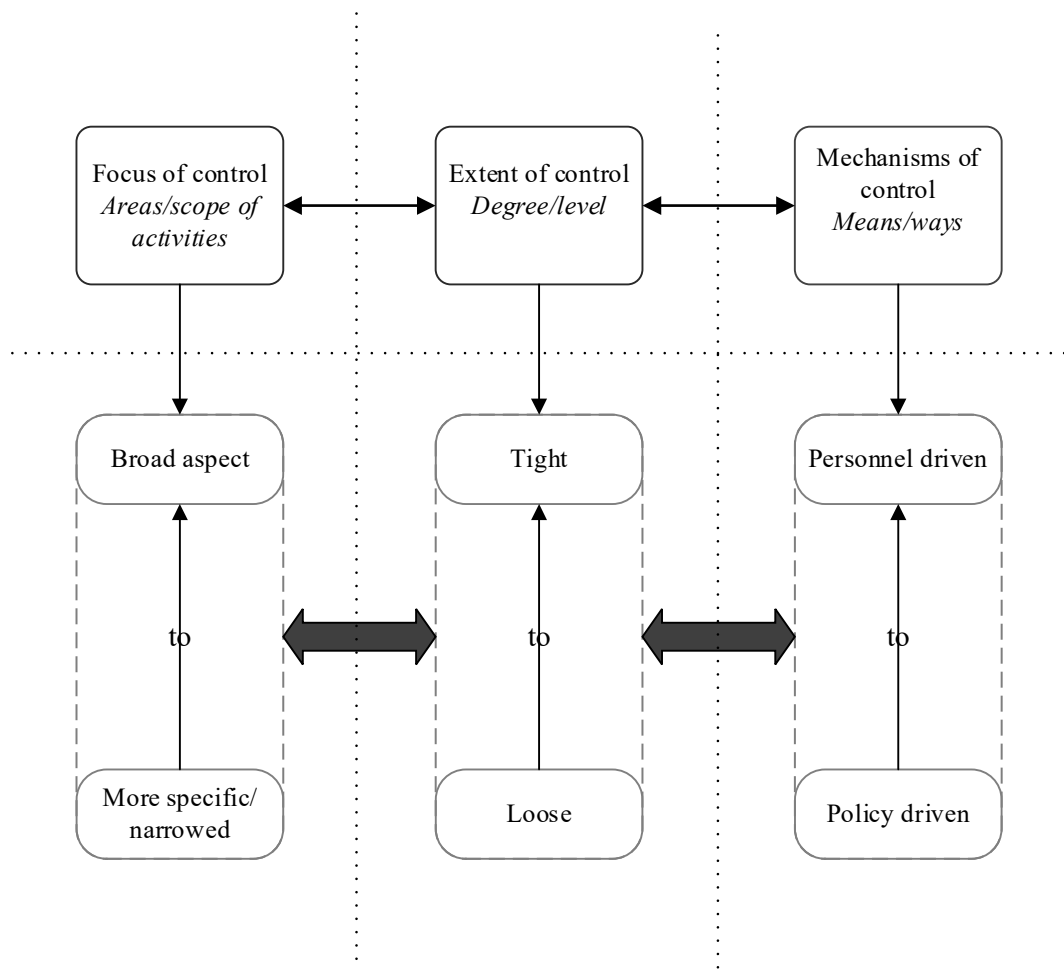


**Figure 1.** Structure of an ICJV and IJV (Adapted from [Girmscheid and Brockmann \(2010\)](#) and [Tetteh and Chan \(2019\)](#))



**Figure 2.** Research methodological framework

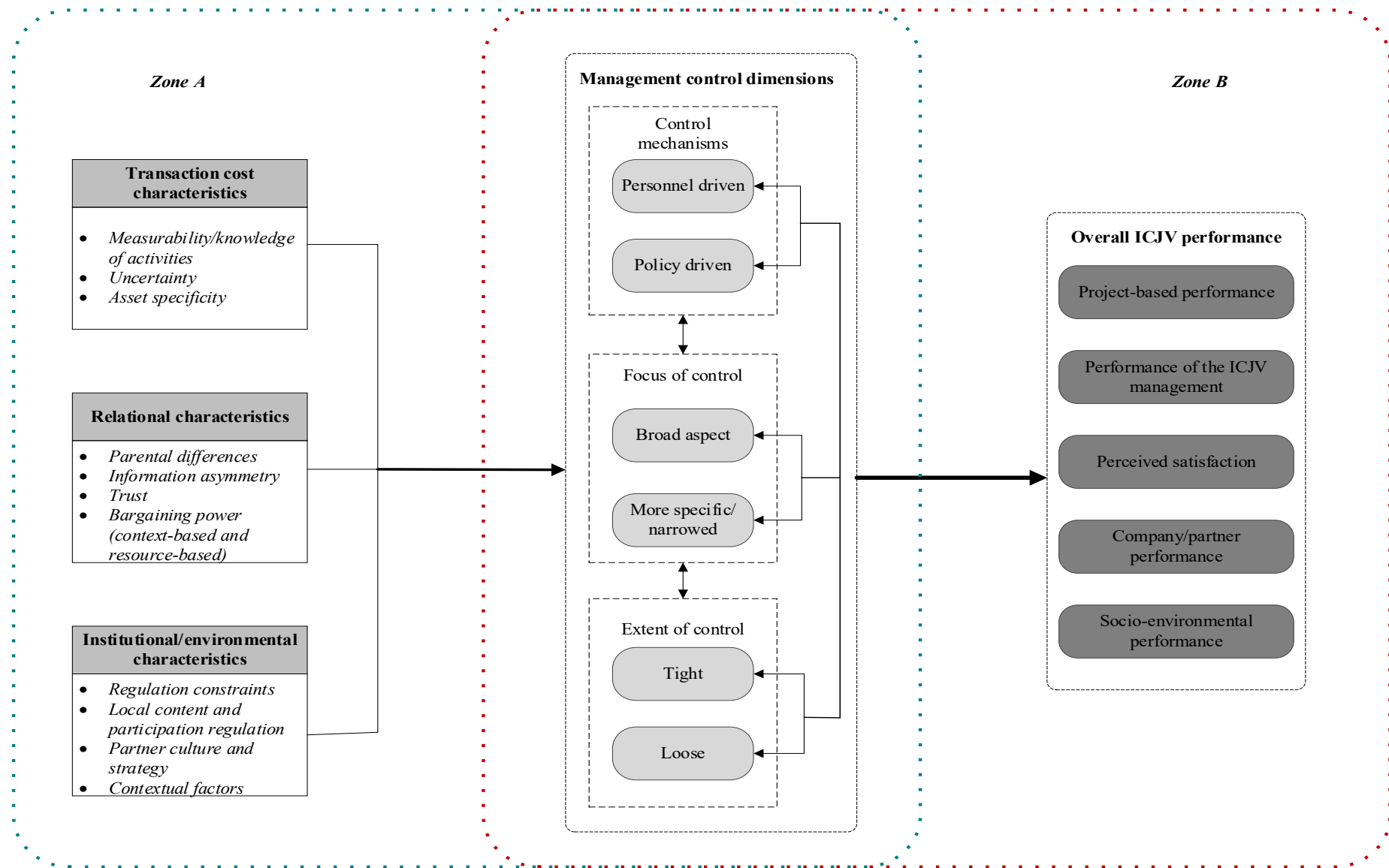




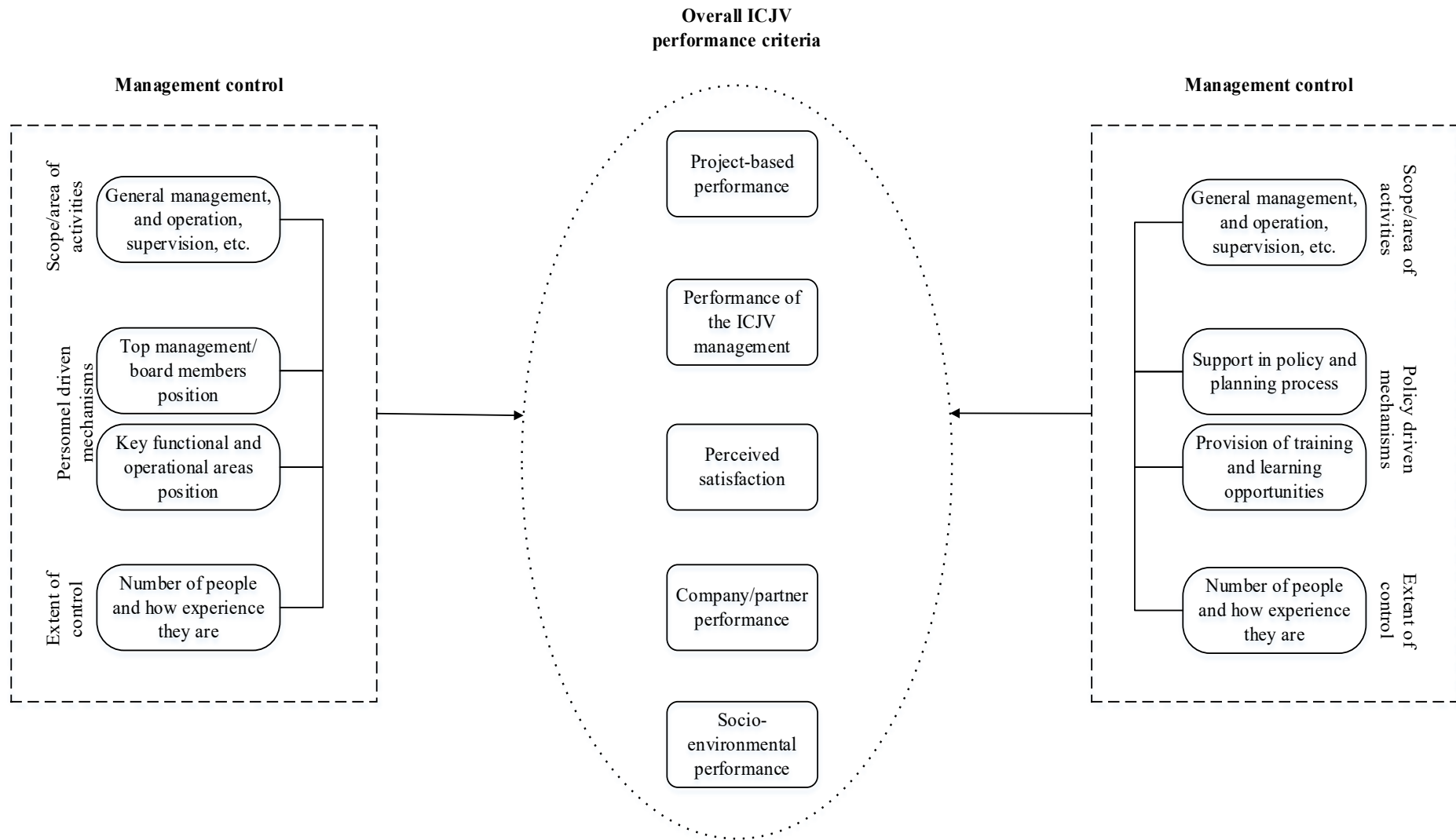
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**Figure 3.** Dimensions of IJV control (adapted from Giacobbe and Booth, 2009)



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1040 **Figure 4.** A theoretical framework of management control determinants and performance in ICJVs



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1042 **Figure 5.** A conceptual model for control and performance relationship within ICJVs

1043 Table 1. Journal information of selected papers

Selected journal	Number of papers
International Business Review (IBR)	4
Journal of International Marketing (JIM)	3
Journal of International Business Studies (JIBS)	3
Asia Pacific Management Review (APMR)	2
Journal of Business Research (JBR)	2
Financial Management (FM)	1
Journal of Cleaner Production (JCP)	1
Critical Perspectives on International Business (CPIB)	1
The Service Industries Journal (TSIJ)	1
Journal for Global Business Advancement (JGBA)	1
European Management Journal (EMJ)	1
Organization Science (OS)	1
Asia Pacific Journal of Marketing and Logistics (APJML)	1
Construction Management and Economics (CME)	1
Journal of Asia-Pacific Business (JAPB)	1
Management International (MI)	1
Journal of Management Studies (JMS)	1
Journal of construction engineering and management (JCEM)	1
Journal of Applied Management and Entrepreneurship (JAME)	1
Strategy and Governance of Networks (SGN)	1
Academy of Management Journal (AMJ)	1
Managerial Finance (MF)	1
Total	31

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Authors	Conceptualization of management control	Measures of performance	Country	Industry	Perspective/Focus area	Management control-performance relationship
Mantecon et al. (2016)	Dominant- and shared-control	Return on assets	USA	Manufacturing	Parents firms	A positive relationship, however, shared control highly correlate with performance
Huang et al. (2015)	Centralization, formalization, and socialization	Strategic goal achievement, cooperative relationship with IJV's partners, willingness to continue this cooperative relationship	China	Multiple industries including the manufacturing, machinery, etc.	Foreign partners	A direct effect of formalization and socialization on IJV performance. No significant relationship between centralization and performance.
Shah (2015)	Strategic control by equity shares, and specific control by appointments	Internal and external environmental orientation, and corporate and functional strategic focus	Trinidad and Tobago	Oil, gas and chemical sector	Top firm managers	Direct influence
Huang and Chiu (2014)	Desired and exercise control	Overall performance	Taiwan	Manufacturing, financial, and human resource management	Parent firms	Both positively influence performance.
Ghauri et al. (2013)	Personnel and policy control mechanisms	Overall satisfaction, profit, and growth	South Korea	Multiple industries	Foreign partners (CEOs)	While personnel control influence satisfaction, policy control impact both financial and growth measures.
Lee et al. (2011)	Human resource, cultural, and performance control mechanisms	Economic, competency-based, and synthetic performance	Taiwan	Service industry	Foreign parents (MNCs)	-
Porporato (2009)	Strategic, managerial, and operational control	Financial, operating, and subjective indicators	Canada	Motor/auto parts industry	IJV managers	Positive influence
Selekler-Gökşen and Uysal-Tezölmez (2007)	Strategic and operational control	Financial returns and goal achievement	Turkey	Manufacturing	Local parent	Both positively influence financial returns. No variation in terms of goal achievement.
Mjoen and Tallman (1997)	Specific and equity control	Overall IJV goal	Norway	Multi-industrial sectors including, construction, engineering, etc.	Local firms	Strongly and positively related
Whitelock and Yang (2007)	Strategic and operational control	Market-developing, efficiency-seeking, and knowledge-acquiring objectives	China	Multiple industries (machinery, textiles, electronics, etc.)	Parent firms	Direct impact
Pangarkar and Klein (2004)	Extent of control	Overall success, stability, sales growth, market share, and profitability	Singapore	-	Foreign parents	Partial support for a contingent control-performance link
Choi and Beamish (2004)	Split control, shared management, MNE-partner-dominant, and local-partner-dominant	Overall satisfaction	Korea	Manufacturing	Parent firms	A direct link between split control and performance. No significant relationships among the remaining three types of control.
Lee et al. (2003)	Asymmetry of governance structure (either local or foreign partner dominance)	Overall performance (profitability)	China	Manufacturing enterprises	Top firm managers	Asymmetry governance reveals no significant relationship with profitability compared to those operating under an asymmetric structure.



Yan and Gray (2001a)	Strategic, operational, and structural control	Strategic objectives	-	-	-	-
Zhang and Li (2001)	Shared management, dominant type, and independent type	Productivity, product competitiveness, innovativeness, partner harmony, achieving partner's objectives, profitability, and growth and expansion	China	Manufacturing industries	Local general managers	Contingent on the evolutionary control design process
Luo (2001)	Strategic, operational, and structural control	Profitability, and government satisfaction	China	Construction	Foreign partners	Positive and significant correlations were found among the three control and performance measures
Luo et al. (2001)	Overall, and specific control	Overall satisfaction	China	Manufacturing industries	Parent firms	Strong positive relationship
Ramaswamy et al. (1998)	Equity control	Return on assets, return on equity and return on sales	India	Manufacturing industries	Longitudinal	The curvilinear relationship between control and performance
Wang et al. (1998)	Control mechanisms	Growth, profitability, and overall performance	Singapore	Multi-industrial sectors including, construction, engineering, etc	Local partners	Positive relationship exists
Glaister and Buckley (1998)	Mechanism, extent, and focus control	Subjective and objective measures	UK	Manufacturing and tertiary sector	Foreign partners	Objective measures significantly correlate with the dimensions of control than that of subjective measures of performance
Ding (1998)	Dominant- and shared-control	The financial, non-financial, and combined performance	China	Multiple industries	Foreign partners	Different performance impact of control among local and foreign firms
Ding (1997)	Dominant- and shared-control	Financial and non-financial measures	China	Multiple industries	Foreign partners	Dominant control positively influences performance.
Hebert (1996)	Dominant- and shared-control	Satisfaction, and business performance	Canada	Manufacturing	Parent firms	Shared-control exhibited significant higher performance than dominant-control.
Yan and Gray (2001b)	Strategic, operational, and structural control	Strategic objectives	China	Multiple industries	Top firm managers	Operational control positively influences performance.
Lin and Ho (2012)	Jointly managed JVs, and separately managed JVs	Client satisfaction	Taiwan	Construction	Project managers	No significant relationship between the two other controls and performance.
Lu and Hebert (2005)	Equity control	IJV survival	Taiwan	Construction	Project managers	Jointly managed JVs correlates more positively with performance than the separately managed
Duan and Chuanmin (2007)	Strategic and operational control	Can be measured from a different perspective of JV partners	International survey	-	Foreign partners	Positive
Le Nguyen and Larimo (2008)	Mechanism, extent, and focus control	Overall satisfaction	China	Manufacturing industries	Top firm managers	Direct
Yan and Gray (1994)	Mechanism, extent, and focus control	Strategic objectives	Finland	-	-	Direct
Chalos and O'Connor (1998)	Outcome and behavioural control	Strategic objectives	China	Multiple industries	Parent firms	Direct
			International survey	Manufacturing industries	Top firm managers	-

