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DESIGNING HYBRID ORGANIZATIONAL MODELS FOR IMPROVING THE PERFORMANCE OF CONSTRUCTION BUSINESS SYSTEMS

Abstract

Purpose: The aim of this paper is to investigate the occurrence and characteristics of hybrid organizations in the Croatian construction industry and their impact on operational flexibility and enterprise performance.

Methodology: The characteristics of hybrid organizations were described through the following variables: "*Relational Governance*" (RM), "*Level of Information Sharing*" (LIS), and "*Subcontractor Network Design*" (SND). Their significance is tested by a regression model of relationships with target variables "*Operational Flexibility*" (OF) and "*Enterprise Performance*" (EP). A total of 137 construction enterprises in Croatia participated in the research.

Results: The significant positive impact of "*Relational Governance*" (RG) and "*Subcontractor Network Design*" (SND) on "*Operational Flexibility*" (OF) is observed. Furthermore, the significant positive impact of "*Level of Information Sharing*" (LIS) on "*Subcontractor Network Design*" (SND) is observed in a subsequently set regression model.

Conclusion: The results of the analysis indicate that Croatian construction companies create long-lasting hybrid organizations with their subcontractors. These organizations are significantly based on a mechanism of collaboration, which proves to be key to operational flexibility in achieving good business performance.

Keywords: Hybrid organizations, relation governance, information sharing, subcontractor network, operational flexibility

1. Introduction

There is a plethora of approaches and no consensus on the definition of the essential dimensions that determine the design of hybrid organizations. This paper promotes the idea that hybrid organizations should be established in line with the primary objectives of the business model–achieving superiority in performance. The foundation of performance excellence relies on satisfying the hybrid organization's operational flexibility requirements, which are crucial for achieving competitive advantage,

particularly in an uncertain, changing, and competitive environment. The Croatian construction sector was thus the focus of the survey, since the specifics of the industry are crucial for validating any theories about the elements affecting the formation of an organization.

The paper consists of six parts. The introduction presents the idea and context of the survey. The second part explains the concept of a hybrid organization and the research model. Parts three and four present the data collection approach and the results of factor analysis, while the fifth part elaborates on the results obtained by testing research model hypotheses. The final part discusses the interpretation of the results, implications, and research limitations.

2. Research model and theoretical perspective

Contemporary economic theory of organization identifies the market, coordinated through pricing mechanisms, and enterprises with their hierarchy, coordinated through commands, as two extremes on the continuum of organizational models. Between these extremes, there exist transaction organization structures, called hybrids, that deviate from the standard microeconomic textbooks (Stanković Moćan, 2019). Many of these business formations are based on agreements, but unified ownership of entities is not excluded in order to create a basis for harmonized sharing and exchange of technologies, products, services, and capital, which establishes a management structure that fuses aspects of price mechanisms and hierarchy.

The questions surrounding the formation, existence, and limits of firms have long been overlooked by economic theory. A firm is a tightly sealed black box of management and ownership, according to the neoclassical view, and its only aim is to maximize financial benefit. In an attempt to address the theoretical backdrop in the reality, scientists have started to critically assess the neoclassical theory framework. This serves as the basis for the development of several corporate theories, each of which examines hybrid organizational systems from a different angle. Examples of these theories include the relational view, transaction cost theory, and resource dependence theory. In the study of economic organization, transaction cost theory acknowledges the contractual idea. According to Williamson (1989, p. 139), limited rationality and opportunism assumptions help to discern among impractical and feasible types of contracting. Efficiency, or minimizing resource allocation costs, dictates how the transaction is managed. When investments between parties are specific enough to create contractual hazards without supporting the integration and considerable uncertainties require closer coordination than can be provided by markets, the result is a long-term or hybrid contractual partnership (Menard, 2008, p. 297). In situations when maintaining connections holds a significant value and partners' identities are important, transaction cost theory associates hybrids or long-term contractual relationships with transactions defined by idiosyncratic investments.

Resource dependency theory places a strong emphasis on the social context or environment. Understanding the context of an action is necessary before one can comprehend enterprise activities (Pfeffer & Salacnik, 2003, p. 1). The social context constrains the behavior of organizations, but it also provides possibilities through connections to different organizations, influencing, as well as supporting, the choices that organizations make. In accordance with this idea, companies form hybrid relationships with their environment to collect resources, stabilize results, and avoid control from the environment. Mutual dependency explains why independent entities must establish hybrid interactions with other companies. Firms will inevitably try to remain as independent as they can, which will result in significant expenses and hazards. Companies are prone to form hybrid organizations to jointly use scarce resources in an effort to decrease and control them.

In relational contracting, which builds on resource theory, relationships between organizations are a crucial resource. In order to increase an enterprise's value, hybrid relationships enable access to and utilization of valuable resources beyond the organization. These resources must be uncommon, challenging to duplicate, and few in quantity. Relational rents are made possible through relational contracting between organizations. Relational rent is a surplus over the average profit obtained jointly in an exchange connection that the respective companies are unable to realize (Dyer & Singh, 1998). Relational contracting places a strong emphasis on partner trust. Relational rents are also protected by the distinctive socio-complex institutional context that emerges in hybrid interactions. It is challenging to imitate; and thus, through its formal and

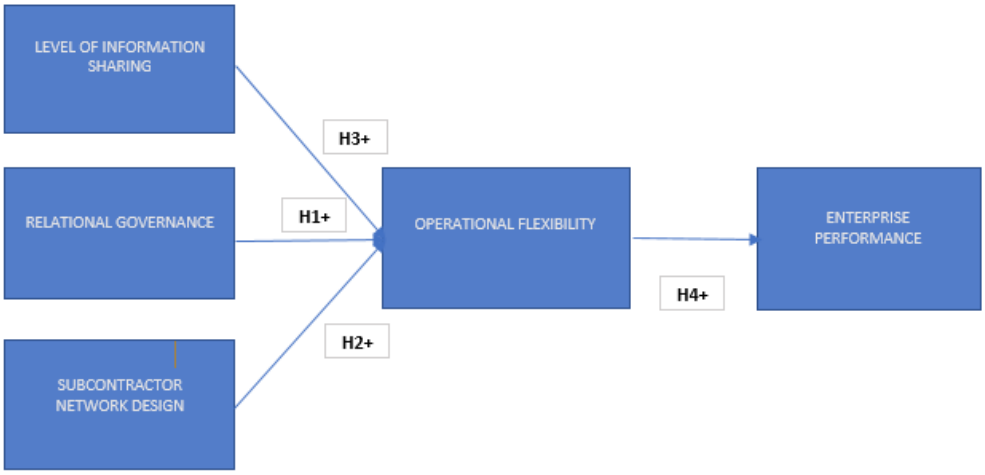
informal principles, it controls opportunism and promotes cooperation.

In order to accomplish the goals of this work, a conceptual model of HO was developed on the basis of the collaboration that hybrid organizations in the construction sector lack.

HOs built on enterprise collaboration look for ways to continuously develop and enhance the profitable delivery of goods and services to clients via the value and supply network. In order to accomplish shared and individual goals, this interdependent management calls for unification and pooling of knowledge as well as a greater degree of joint decision-making, setting of objectives, and sharing of information (Zacharia et al., 2009).

The lead contractor has to organize the upstream business network and actions, develop a system of communication that shall allow the movement and information sharing, and effectively control the connections with the subcontractor network for a business model in the construction sector to succeed. Thus, in this research model, "RG", "LIS", and "SND" are characteristics emphasized in the research as the key factors determining effectiveness in collaborative hybrid organizations. The model also assumes links to dependent variables "OF" and "EP", which are subjected to the following causal analysis test:

Figure 1 Research model



Source: Author

The model assumes that three independent variables–characteristics of a hybrid organization– affect operational flexibility. Operational flexibility can be defined as one of the essential components of the success of complex construction projects, and can be assumed to be more successful if implemented through forms of cooperation defined in the literature by the term "hybrid organization". Since operational flexibility is dominantly a technical category, a separate (fourth) hypothesis also tests the assumption that operational flexibility will have a positive impact on the economic performance of firms in the construction industry. The measurement of all variables was obtained using a 5-point Likert rating scale (with 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, and 5 = strongly agree).

2.1 Relational governance

Creating procedures for preserving and managing relational transactions is the fundamental goal of the majority of relational governance related research. Unlike a discrete transaction, which is short and has clear beginning and ending points, a relational transaction has a history, lasts longer, and represents a continuous process (Dwyer et al., 1987, as cited in Morgan & Hunt, 1994). Relational governance assumes the employment of tools by supply chain partners or hybrid organizations to preserve relationships on the basis of shared ob-

jectives. Examples of these mechanisms include relational norms and joint actions (Heide & John, 1992; Josi & Campbell, 2003, as cited in Wang & Wei, 2007). Through relational norms, which are essentially conjoined expectancies that transaction partners would support one another during their partnership, it influences opportunistic conduct (Larson, 1992, p. 96, as cited in Josi & Campbell, 2003). These activities aim to realize, develop, and sustain a successful relational transaction. They are grounded in formal contractual, legal, and informal psychological processes. If these processes are balanced, long-term cooperation is achieved (Handfield & Bechtel, 2002; Ring & Van de Ven, 1994). They can be observed as a set of rules which can reduce or eliminate relation risk and facilitate firm's cooperation and environmental innovation (Zhao et al., 2021; Duan et al., 2022, as cited in Sun et al., 2023). The framework of cooperative interorganizational interactions is developed by the relational management of personal relationships formed between transaction parties. A higher level of collaboration and stronger interorganizational interactions are characterized by a greater degree of trust (Johnston et al., 2004; Zaheer & Venkatraman, 1995), commitment (Kanter, 1994), by joint decision-making, and by setting common goals (Lee & Choi, 2003; Zacharia et al., 2009).

A numeric indicator containing 21 statements was used for operationalization of the "RG" variable. A total of 12 statements were derived from Wang and Wei (2007), customized for the construction sector, and then enhanced with 9 additional assertions.

2.2 Level of information sharing

In a hybrid organization, the term "LIS" refers to the quantitative component of successful information exchange between transaction partners. It denotes the degree of information exchanged between parties that can support each other's efforts (Heide & Miner, 1992, p. 275, as cited in McEvily & Marcus, 2005). A hybrid network which is successful includes information exchange, and according to Moberg et al. (2002), it is divided into strategic and operational. Short-term quantitative data that reduce order delays, influence inventory levels, or customer satisfaction are shared in operational information exchange. Sensitive qualitative long-term data about business strategies that improve collaboration between network partners are covered by strategic information sharing. In-depth partnerships typically involve the exchange of information on profitability, costs of production, strategic objectives, and organizational practices (Uzzi, 1997). Companies must share information to make use of a variety of resources that they lack within their own organization for the flow of goods and services, or the very building process, to be effective and productive. Reducing stock and making optimal use of resources are possible if information flow in the supply chain is given priority over the flow of goods (Graham & Hardaker, 2000, as cited in Sezen, 2008). Partners in the supply chain might function as a single unit when vital and confidential information is routinely shared (Stein & Sweat, 1998). Information sharing improves all three dimensions of supply chain learning which have a direct influence on flexibility performance (Huo et al., 2020). It becomes more detailed by deepening connections within the network of the main contractor and subcontractors. Participants in deeper relationships readily share knowledge about possible dangers and possibilities because they are committed to seeing their partner succeed and to preserving their relationship (McEvily & Marcus, 2005).

In this paper, the "LIS" variable was operationalized using a numerical indicator of five statements taken from Li et al. (2006) and tailored to the construction industry.

2.3 Subcontractor Network Design

The "SND" variable is one of the key elements affecting operational flexibility of the organization. It refers to the procedure of creating relationships, structuring and selecting subcontractors within hybrid networks (Stanković Moćan, 2019). There is no unique way to define this variable, and several scientists use various dimensions (Sezen, 2008). According to Choi and Kim (2008), structure can be defined by the number of suppliers and the tightness or looseness of their relationships. Thus, Sammadar et al. (2006) identify the network's vertical structure (the number of levels), horizontal structure (the number of channels), and location. Chopra and Meindl (2004), as cited in Sezen (2008), imply that decisions regarding the number of subcontractors, their closeness, selection, assessment, capacity planning, contract drafting, and response to disputes are all integral parts of supplier network design. Close and immediate contracting with subcontractors indicate flatter and thinner structures. Primary contractors turn to main suppliers, which decreases their number and streamlines the structure. This is shown by the process of subcontractor selection and their long-term cooperation (Stanković Moćan, 2023). In the construc-

tion business, main contractors frequently rely on a large number of multi-level subcontractors, with their relationships mostly based on the lowest cost of work. Such practices do not foster continuous cooperation and coordination between the main parties (Spekman, 1988). Many businesses in various sectors search for less complex relationships to enhance customer service and save overall logistical expenses (Kumar, 1996, as cited in Moberg et al., 2002), and have narrowed the base of suppliers to a group of certified ones (Inman & Hubler, 1992, as cited in Ndubisi et al., 2005). As a result of this cooperation, businesses are able to identify suppliers with the greatest potential for collaboration, which reduces the overall number of suppliers. This process is known as supply base optimization (Bhote, 1987, as cited in Handfield & Bechtel, 2002). Key subcontractor selection is an essential step in narrowing down the pool of subcontractors. Relationships with these subcontractors are marked by open communication, mutual trust, dedication, joint problem solving, and shared planning (Spekman, 1988; Handfield & Nichols, 2002, pp. 15-17). Contracting one type of business with only one subcontractor (single sourcing) leads to less uncertainty and cost reduction due to economies of scale, as well as to increased cooperation and communication. Long-term connections with fewer subcontractors define cooperative relationships, which lead to a more straightforward and flattened supply chain structure. Due to the potential for retribution, extending the duration of repetitive transactions–i.e., forging long-term connections with a subcontractor network–decreases the likelihood of opportunistic behavior. According to game theory, in long-term interactions, there is an incentive for cooperation since parties share the expectation that the transactions would be repeated (Axelrod, 1984; Kreps, 1990; Telser, 1987, as cited in Sako, 1992, p. 46). For the purpose of this paper, the "SND" variable was operationalized using a numeric indicator consisting of ten statements supported by ongoing interactions with subcontractors, specific criteria for their selection, and proximity to and direct contact with them.

2.4 Operational flexibility

"OF" refers to the capacity of a focal firm to supply flexible services in the current partnership system with flexibility in terms of timelines, quality, processes, and expenses. It represents the ability to fight unanticipated fluctuations based on organizational structures or existing goals and changes in the environment (Alolayyan et al., 2022). The hybrid organization is larger than the focal company, thus its flexibility must exceed the enterprise's internal flexibility capacity. To do this, it must incorporate components of intra- and inter-organizational flexibility (Stevenson & Spring, 2007). A combination of the skills of the main contractor and its current suppliers benefits the client and has a direct impact on them.

Supply chain flexibility is one of the main responses to increasing market uncertainty and competitiveness (Merschmann & Thonemann, 2011). It enables companies to respond to frequent changes in their environment, such as customer demands, delivery locations, changes in government policies, emergence of new technologies, design changes, product demand volumes, etc. Such changes in demand and supply disruptions cause an effective adaptation of the flexible supply chain, which maintains customer satisfaction (Stevenson & Spring, 2007). With greater flexibility in offerings, partners in the supply chain achieve greater adaptability, allowing resources to be better explored and utilized (Wang & Wei, 2007).

For the purpose of this paper, the "OF" variable was operationalized using a numeric indicator consisting of 5 own statements and 4 statements taken from Wang and Wei (2007) and adapted for the construction industry.

2.5 Enterprise performance

The narrowest concept of business performance is oriented toward the use of financial indicators assumed to reflect the fulfillment of economic goals and refer to financial execution (Hofer, 1983; Venkatraman & Ramanujam, 1986, as cited in Yamin et al., 1999). However, measuring only financial indicators is insufficient because modern dynamic and uncertain markets require the measurement and monitoring of other, non-financial indicators. Therefore, the broader concept should include operational (non-financial) business performance indicators as well (Yamin et al., 1999). Operational performance, financial performance, and customer satisfaction were chosen as the three performance measuring dimensions for this model.

Customer satisfaction is defined as the level to which customers feel they have received products and services worth the price they have paid (Tracey et al., 1996, as cited in Fantazy & Salem, 2016), and it reflects the performance of the main contractor and subcontractors.

Operational performance is indicated by success in terms of product quality, service levels, and timely execution of work (Eckstein et al., 2014), while financial indicators reflect an enterprise performance. The ultimate goal of the manufacturer and its suppliers is to deliver the best product and achieve the highest level of customer satisfaction (Chu et al., 2012).

The "*Enterprise Performance*" variable was operationalized using 11 statements tailored to the construction industry. Three of them were obtained from Eckstein et al. (2014), 2 from Krohmer et al. (2002), and 1 from Chu et al. (2012) and Jin et al. (2013). Return on investment (ROI), return on assets (ROA), increased sales (the number of new contracts), and increased market share have been added to them.

2.6 Relationship between relational governance and operational flexibility

Enterprises can achieve flexibility by structuring and coordinating their external and internal resources (Fredericks, 2005). Relational governance is positively related to flexibility, the source of which are existing suppliers, while the other source of possible adaptability of producers (Harrigan, 1988; Porter, 1985, as cited in Josi & Campbell, 2003) or partner flexibility (Stevenson & Spring, 2009) is limited due to the reduced number of alternative suppliers. A greater reliance on trust in the good intentions of the other party reduces the need for formal documents, thereby reducing transaction costs and increasing managerial flexibility (Friedman, 1991, as cited in Ring & Van de Ven, 1994). The level of collaboration influences the process of determining the flexibility of existing structures, since close long-term relationships allow for greater willingness of suppliers to cope with change (Stevenson & Spring, 2009). Enterprises rely on the fair distribution of annuities, which motivates them to create additional value beyond the original contract (Dyer, 1997) or provide a flexible response.

Based on the analyzed empirical research by Handfield and Bechtel (2002), Ferguson et al. (2005), Roath and Sinkovics (2006), Cousins et al. (2006), Wang and Wei (2007), and Chu et al., (2012), it is assumed that:

H1 ***"OF" has been positively impacted by "RG".***

2.7 Relationship between subcontractor network design and operational flexibility

Upstream activities and their configuration play a significant role in determining the flexibility of a hybrid organization. Before deciding on the selection and management of suppliers, the manufacturer (the main contractor) must identify the type of flexibility they want to achieve (Ndubisi et al., 2005) in order to benefit from a closer relationship with the supplier. Single sourcing decreases uncertainty and expenses due to economies of scale and increases communication and cooperation, so subcontractors are more willing to change their business operating methods to adapt to the requirements of the main contractor (Benton & McHenry, 2010, pp. 72-73) and the end consumer. Economies of scale and size reduce both ex ante and ex post negotiation costs by offering more options for correcting transaction irregularities (Dyer, 1997), i.e. the subcontractor is willing to act at their own expense, knowing that it will be reimbursed through another transaction. Fewer subcontractors will result in simpler networks and reduce transaction complexity, increasing supply chain responsiveness, flexibility (Handfield & Bechtel, 2002), and efficiency because maintaining relational relationships with all subcontractors would be too costly for the main contractor (Benton & McHenry, 2010, p. 52). Thin structures allow direct contact with partners in a hybrid organization, which increases connectivity and transparency of product and information flow by enabling better performance control (Zhang et al., 2014). The flexibility of the development of a new product can be improved by selecting and managing suppliers and configuring the supply network (Buganza et al., 2010).

Existing empirical knowledge and research by Sezen (2008), Gosling et al. (2009), and Zhang et al. (2014) indicates that:

H2 ***"OF" has been positively impacted by "SND".***

2.8 Relationship between the level of information sharing and operational flexibility

The flexibility of the value chain depends on the level at which information is shared through interorganizational information systems (Golden & Powell, 1999). By sharing information and acting together as one body (Stein & Sweat, 1998), partners can better understand the needs of the end consumer and therefore respond more quickly to market changes (Li et al., 2006). Coordination and sharing of information increase the ability of the supply chain to respond to sudden changes in environments with demand volatility (Lee et al., 2000, as cited in Sezen, 2008). It enables supply chain transparency and reduction of forecast errors (Zhou & Benton, 2007). Gosain et al. (2005) found that broad information sharing is detrimental to

supply chain flexibility, suggesting that the focus should be on the caliber of the information shared (time and knowledge).

A review of empirical research by Wang and Wei (2007), Zhou and Benton (2007), Fawcett et al. (2007), Sezen (2008), Jin et al. (2014), and Wu et al. (2014) indicates:

H3 ***"OF" has been positively impacted by "LIS".***

2.9 Relationship between operational flexibility and enterprise performance

Enterprises with greater operational flexibility, lower costs, and higher quality will be able to respond quickly to changes in customer requirements. They will also meet the required quality standards more easily, perform activities on time, and achieve greater customer satisfaction, ultimately leading to better performance. Flexibility improves the performance of enterprises, especially those operating in dynamic and uncertain environments. Vickery et al. (1997) indicate in their research that production flexibility significantly affects financial and marketing performance. External integration with suppliers and customers is positively associated with time-based performance. These are ultimately linked to the financial performance of the enterprise and market share (Droge et al., 2004). Benton & McHenry (2010, p. 52) agree with the aforementioned claim, pointing out that strong and healthy relationships with subcontractors provide a source of capability that enables lower costs, higher quality, and the opportunity to achieve a greater market share.

The benefits arising from supply chain flexibility are seen in the creation of meaningful strategies that improve the overall performance of the enterprise (Duclos et al., 2003).

Based on existing empirical research by Merschmann and Thonemann (2011), Omar et al. (2012), Eckstein et al. (2014), and Mandal (2015) it is assumed that:

H4 ***"EP" has been positively impacted by "OF".***

3. Instrument and structure of the research sample

In order to test the research hypotheses, an empirical study was conducted on certain construction enterprises in the Republic of Croatia. The construction industry is cyclical, labor-intensive, project-based, highly fragmented and competitive, and characterized by offering jobs with the lowest cost model recurring throughout the supply chain.

This paper deals only with enterprises engaged in construction, excluding those involved in building material production, design, technical testing, analysis, and supervision. The Amadeus database list of Croatian construction companies served as the basis for the sample. The database contained 1,623 businesses, 200 of which were selected because their management was thought to be prepared to take part in the study. They were either emailed or personally contacted. After completing the survey, participants were asked to share it with their colleagues at other construction companies. A total of 132 survey questionnaires were collected, even though a significant portion of respondents were reluctant to participate. The review of the collected survey questionnaires revealed that two questionnaires were incomplete and were thus excluded from further analysis. In addition, seven questionnaires were received from the same company, so those from the respondent in the higher position within the hierarchy were selected for further statistical analysis.

The research instrument used to gather primary data consists of two components.

The results from the first section of the survey were employed for the quantitative analysis of the conceptual model. It operationalizes the variables "RG", "LIS", "SND", "OF", and "EP".

Questions 14-23 in the second section of the survey were used to gather general data about the participants (name and position within the enterprise), the enterprises (establishment year, number of employees, and headquarters), and information about the core field of the enterprise (building or infrastructure facilities, supply chain position, and corporate geography).

The respondents who completed the questionnaire were primarily members of senior management (board members, sector directors, department heads), making up 62.6% of the sample. The majority of the companies were headquartered in Zagreb (26.0%), followed by Karlovac County (19.5%), Primorje-Gorski Kotar County (7.3%), Split-Dalmatia County (6.5%), Osijek-Baranja County (6.5%), and Zagreb County (5.7%).

Table 1 Function of respondents in enterprises

Function	F	%
Sen. Mng.	77	62.6
Mid. Lev. Mng.	32	26.0
Low. Lev. Mng.	14	11.4
Σ	123	100.0

Source: Author

Table 2 Distribution of enterprise headquarters

Headquarters	F	%
Zagreb	32	26.0
Karlovac County	24	19.5
Primorje-Gorski Kotar County	9	7.3
Split-Dalmatia County	8	6.5
Osijek-Baranja County	8	6.5
Zagreb County	7	5.7
Istria County	6	4.9
Brod-Posavina County	5	4.0
Bjelovar-Bilogora County	4	3.2
Vukovar-Syrmia County	4	3.2
Zadar County	4	3.2
Požega-Slavonia County	3	2.4
Varaždin County	3	2.4
Šibenik-Knin County	2	1.6
Dubrovnik-Neretva County	1	.8
Koprivnica-Križevci County	1	.8
Krapina-Zagorje County	1	.8
Sisak-Moslavina County	1	.8
Σ	123	100.0

Source: Author

Of the total of 123 companies in the research sample, 76.4%, 19.5%, and 4.1% were limited liability companies, joint stock companies, and craft enterprises, respectively (Table 3). According to the number of employees, the sample was divided into three equal subgroups: 0-40 (32.5%), 40-100 (34.1%), and above 100 employees (33.3%), as can be seen in Table 4. A total of 68.3% of respondents declared that they primarily perform most of their business activities as main contractors, while 31.7% do so as subcontractors (Table 5).

Table 3 Legal structure of the enterprise

Legal entity	F	%
LLC	94	76.4
JSC	24	19.5
Other	5	4.1
Σ	123	100.0

Source: Author

Table 4 Size of the enterprise (number of employees)

Enterprise size (number of employees)	F	%
0-40	40	32.5
40-100	42	34.1
100+	41	33.3
Σ	123	100.0

Source: Author

Table 5 Status of the contractor in the value chain structure

Contractor status in the value chain	F	%
Lead contractor	84	68.3
Subcontractor	39	31.7
Σ	123	100.0

Source: Author

Table 6 Type of construction projects enterprises participate in

Project type	F	%
Buildings	35	28.5
Infrastructure facilities	86	70.9
Other	2	1.6
Σ	123	100.0

Source: Author

Table 7 Location of construction projects enterprises participate in

Project location	F	%
Local	60	48.8
Croatia	53	43.1
Croatia and abroad	10	8.1
Σ	123	100.0

Source: Author

A total of 70.9% of respondents base their business primarily on infrastructure construction, while for 28.5% of respondents, building construction is the dominant activity (Table 6). Slightly less than half of the respondents perform construction work locally, in the area of their headquarters (48.8%), while 43.1% carry out projects across the Republic of Croatia, and only 8.1% engage in export activities by performing work abroad (Table 7).

4. Factor analysis

In the next step, factor analysis of the research variables was performed. The validity and reliability of the questionnaire were assessed by factor analysis and the Cronbach α test. The reliability of the measurement scales is acceptable since for all Cronbach's constructs $\alpha > 0.7$. Kaiser-Meyer-Olkin's measure of sampling adequacy was 0.909 for "*Relational Governance*", 0.829 for "*Subcontractor Network Design*", 0.732 for *"Level of Information Sharing"*, 0.913 for "*Operational Flexibility*", and 0.872 for "*Enterprise Performance*", which indicates that factor analysis will be useful. Furthermore, the Bartlett test examines the hypothesis that the correlation matrix is an identity matrix, which would indicate that the variables are unrelated and unsuitable for detecting latent structures. For all observed variables, the p-value was 0.00.

Factor analysis produced four factors of the variable "*Relational Governance*": the first, "Confidence", which includes five items (with factor loadings ranging from .636 to .752); the second, "Commitment", which includes two items (with factor loadings ranging from .554 to .787); the third, "Coordination", which includes five items (with factor loadings ranging from .563 to .720); and the fourth, "Joint problem solving", which includes five items (with factor loadings ranging from .534 to .816).

The "*Subcontractor Network Design*" variable consists of two factors: the first, "Bond intensity", which includes six items (with factor loadings ranging from .422 to .800), and the second, "Selection criteria", which includes four items (with factor loadings ranging from .411 to .737).

The "*Level of Information Sharing*" and "*Operational Flexibility*" variables did not exhibit a latent structure. Factor loadings of "*Level of Information Sharing*" and "*Operational Flexibility*" range from .606 to .884 and from .647 to .746, respectively.

Factor analysis of the "*Enterprise Performance*" variable produced two factors: "Operating performance", which includes seven items (with factor loadings ranging from .735 to .870), and "Financial performance", which includes four items (with factor loadings ranging from .762 to .949).

5. Research results

The testing of models and hypotheses was performed using the multiple linear regression method (hypotheses H1, H2, and H3) and the simple linear regression method (hypothesis H4). The influence of factors resulting from the previously conducted factor analysis on the variables representing "Relational Governance" and "Subcontractor Network Design" was tested before testing the model that includes all independent variables. After evaluating the model, it can be concluded that the independent variables do not have a significant impact on the dependent variable, as indicated by the value of the coefficient of determination.

Since the excluded factors of the variables "Relational Governance" and "Subcontractor Network Design" were not significant and the level of reliability of the group variables is high (.940) and (.847), they were tested without factors in a linear multiple regression model.

Due to the problem of multicollinearity, the standardization of dependent and independent variables was performed.

The analysis of the standardized model indicates that the standardized independent variable "Level of Information Sharing" was not a significant variable in the model ($p = .6078$). The standardized independent variables "Relational Governance" and "Subcontractor Network Design" are significant model variables ($p = .000$, $p = .0036$), and their coefficients are positive. The interpretation of the model is 67.40%.

Table 8 Estimated model of standardized variables OF, RG, LIS and SND

VARIABLE					
OF	**β**	**p**	**r**		
RG	**0.670659**	**0.0000**	0.777	Coefficient of determination R^2	0.674043
LIS	-0.039056	0.6078	0.559		
SND	**0.228237**	**0.0036**	0.660		

Source: Author

Here, the fourth hypothesis was tested using a single linear regression model. The standardized independent variable "Operational Flexibility" is a significant variable in the model (p = .000), and its coefficient is positive. The interpretation of the model is 37.20%.

Table 9 Estimated model of standardized EP and OF

VARIABLE					
EP	**β**	**p**	**r**		
OF	**0.578463**	**0.0000**	0.667	Coefficient of determination R^2	0.372062

Source: Author

Following the rejection of hypothesis H3, a new model was developed (Figure 2). This model investigates the direct impact of the independent variables "*RG*", "*LIS*", and "*SND*", without the mediation of the "*Operational Flexibility*" variable.

Table 10 Estimated model of standardized variables EP, RG, LIS, and SND

VARIABLE					
EP	**β**	**p**	**r**		
RG	**0.197794**	**0.0237**	0.657	Coefficient of determination R^2	0.591533
LIS	**0.184159**	**0.0051**	0.605		
SND	**0.474340**	**0.0000**	0.701		

Source: Author

In this model, the independent variables "*RG*" (p = .0237), "*LIS*" (p .0051), and "*SND*" (p = .0000) were significant, and their coefficients were positive. Although all three variables are significant, it can be seen that the *"SND"* variable has the strongest impact on "*EP*". The interpretation of the model is 59.15%.

Table 11 Summary of all coefficients of determination

	Model 1	**Model 2**	**Model 3**
RG	0.670659	-	0.197794
LIS	-0.039056	-	0.184159
SND	0.228237	-	0.474340
OF	-	0.578463	-
R^2	**0.674043**	**0.372062**	**0.591533**

Source: Author

As can be seen in Table 11, the interpretation of models 1, 2, and 3 is 67%, 37%, and 59%, respectively.

6. Conclusion

The regression model results shows that both variables, "*RG*" and "*SND*", are significant. However, it can be seen that the "*RG*" variable has a stronger influence on "*OF*". Thus, construction enterprises should prioritize relational governance practices when managing transactions, and then dedicate themselves to subcontractor network design to attain operational flexibility and improve business performance. Relational governance needs to be built on cooperation, dedication, trust, and mutual problem-solving to provide a foundation for subcontractor network integration. The subcontractor network or the whole supply channel must be well and appropriately designed so that it can be quickly adapted to meet every requirement of the end consumer. By ensuring both relational governance and network design processes, enterprises will be able to use their specific resources efficiently, thus achieving a competitive advantage and improved business outcomes. Contrary to the author's predictions and earlier theoretical research, the assumption of a positive impact of "*LIS*" on "*OF*" was not supported. Although information is exchanged among members of a hybrid organization, this communication does not exclusively lead to operational flexibility. Even though the third hypothesis was not supported by this sample, it remains significant and may be supported by a different sample of enterprises engaged in construction. Moreover, a closer examination of the sample reveals that senior management constitutes the majority of respondents, which may imply that the information provided reflects higher-level perspectives and therefore does not directly influence the operational level of the firm. The significance of "*LIS*" is reflected in a later model, where, together with the "*RG*" and "*Subcontractor Network Design*" variables, it significantly and favorably affects business performance of construction companies in the Republic of Croatia.

According to the findings of this study, construction enterprises in the Republic of Croatia form tight, continuous hybrid organizations with their subcontractors. These organizations are often based on a collaborative mechanism that proves to be key to achieving operational flexibility. Such supply networks are flexible in terms of meeting the requirements of individual construction projects, which ultimately leads to positive changes in the quality of business performance.

Recommendations for future research are based on the limitations of the conducted research. The first limitation of this study is related to the sample size and the data collection technique, which restrict the ability to extrapolate the research findings to the entire population, while leaving room for certain specific conclusions to be drawn.

Furthermore, the fact that the constructs were assessed using respondents' views poses another limitation. The research relied on the assessment of a single respondent within each organization, which may result in a skewed and subjective representation of the situation. This issue is especially evident when measuring company performance, as in that case, each manager essentially evaluates themselves and their work. Therefore, future research should consider measuring company performance using more appropriate and objective performance indicators.

This research tested the impact of a collaborative hybrid organization, so future research could focus on some other determinants of hybrid organizations, particularly the role of power.

Empirical research has investigated the relationships between model variables and thus confirmed and expanded existing knowledge. Both the positive effects of collaborative hybrid organizational structures on operational flexibility and the benefits of operational flexibility in relation to enterprise performance were observed. The confirmed hypotheses also clarify how the process of forming a hybrid organization and exploiting their specifics improves company performance, which has not been explained in the literature so far.

Owners and managers of construction enterprises should consider organizing transactions in a hybrid manner, in light of empirical findings on the benefits of collaborative hybrid organizations. In other words, enterprises should strategically approach the design and management of their subcontractor networks, aiming for effectiveness rather than just efficiency.

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