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Exploring the Significance Elements of Collaborative Partnership in Successful Private Finance Initiative (PFI) Projects: A Comprehensive Review towards Sustainable Development

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ABSTRACT

The construction industry has significantly improved, especially in construction development delivery. The Private Finance Initiative (PFI) project is where private companies obtain federal government funds to complete public facilities. Private Finance Initiative (PFI) in the Malaysian construction sector under the Ninth Malaysian Plan (9MP) has encouraged Malaysia to start implementing different project procurement approaches to complete public infrastructure projects. These project procurement approaches have evolved from the concession, privatisation, public-private partnerships (PPP), and finally, the PFI to ease the burden on the government in financing infrastructure projects. Collaborative partnerships (CP) play an essential role in building industry growth, especially in PFI projects, because they involve stakeholders from the public and private sectors working together in their processes. This paper explores the significant elements of collaborative partnership in successful Private Finance Initiative (PFI) projects and their implications for sustainable development. The study reviews existing literature to identify the critical elements of CP, and the analysis focuses on how these collaborative partnerships align with and promote the sustainable development goals encompassing the sustainable pillars; environmental, social and economic dimensions. The outcome of this paper will highlight the importance of strategic focus on the activities, good working relationships, effective communication, mutual respect and equal opportunities, and ethical conduct and acknowledging honours as essential elements for successful collaborative partnerships in PFI projects. Additionally, this study will benefit the construction industry in moving towards sustainable development by integrating environmentally friendly practices and enhancing the collaborative partnerships in PFI Projects while advancing sustainable development objectives.

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1. Introduction

The nation's economy relies substantially on the building industry, which is portrayed through the development of both the infrastructure and the public facilities, as a vital driver for economic growth. The government is under pressure to develop more initiatives and expand its infrastructure. According to Chia *et al.,* [1] during the 1980s and 1990s, resource shortages and cost pressures were caused by the intensive building of mega-projects. Despite the government's primary goal of providing quality and sustainable development, efforts to achieve this goal have been hampered by several issues and limitations due to inadequate public financial resources. Thus, PFI implementation was designed to make it easier for the private sector to take over responsibility for funding and managing public sector capital investments and services. Lease rental fees will be paid to the private sector in exchange and will be proportionate with the levels, quality, and timeliness of the services provided throughout the concession term [2]. Promoting sustainable development in PFI projects, including economic growth and environmental and social inclusion, is essential.

2. Private Finance Initiative (PFI)

Private Finance Initiative (PFI) is defined as a privatisation programme created by UK Government that gives financial support for public-private partnerships [3]. Although several nations have adopted the PFI plan, each country has its implementation procedures and PFI agreements. According to Ismail and Yusof [4], prior to the introduction of the Private Finance Initiative (PFI) in the Malaysian construction sector under the Ninth Malaysian Plan (9MP), Malaysia had started a variety of project procurement methods for completing public infrastructure projects. These project procurement approaches have evolved from the concession, privatisation, public-private partnerships (PPP), and finally, the PFI to ease the burden on the government in financing infrastructure projects and providing infrastructure that is value for money (VFM) to the taxpayers.

Ownership, risk transfer, innovation, and project performance are distinctive traits that distinguish joint PFI projects [2]. During the contract term, the private sector typically holds ownership of the project before leasing it back to the client in the public sector. Risk transfer occurs in PFI projects since some risk must be passed to the private sector. The party managing the risk is the deciding factor in the risk transfer. Innovation in PFI projects happens when the public sector clients express their needs regarding the services they require using an output specification. As a result, it will give the private sector provider more flexibility to embrace innovations that improve value for money. Therefore, if these qualities are not adequately understood, they could cause problems with PFI.

To provide the service to the public sector throughout the concession time, the private sector will be responsible for financing, building, managing, maintaining, and running the facility. The private sector will get compensation from the public sector through lease rental fees proportionate to the calibre of the services rendered [3]. From pre-construction to post-construction, construction projects entail several phases and a drawn-out process. However, the most crucial time of PFI implementation is during Pre-Contract Stage [3]. Throughout these phases, various stakeholders must communicate, collaborate, and negotiate [5,6]. Due to various participation, a solid personal relationship versus organizational boundaries guides inter-organisational and interpersonal trust. Thus, trust is the critical component of collaborative relationship success.

Hence the collaboration within the organization is almost entirely manipulated by the social elements that include changing of roles among construction players, contractual, and organizational relationship and configuration processes.

2.1 Sustainable Development in PFI Projects

According to Akomea-Frimpong *et al.,* [7], the integration of sustainable practices into infrastructure projects under PFI is essential for the fulfilment of Sustainable Development Goals (SDGs). It is the world's intention to shift towards a more sustainable approach in construction. Table 1 shows the sustainable criteria highlighted [7], which include environmental, social and economic criteria.

Table 1
Sustainable criteria of PFI projects [7]

Environmental	Authors
Energy consumption rate	Bakar *et al.,* [8]
Waste reduced (Zero waste index)	Zaman [9], Lu, *et al.,* [10]
Green Index	Heckert and Rosan [11]
Resilience scale	Ampratwum, *et al.,* [12], Chopra, *et al.,* [13]
Carbon emissions per project	Huang, *et al.,* [14], Hoeft, *et al.,* [15]
Preservation of flora and fauna	Widman [16]
Optimisation of project resources	Zheng *et al.,* [17]

Social	Authors
Quality score	Agarchand and Laishram [18]
Customer/user satisfaction	Rohman *et al.,* [19]
Public perception index	Shin *et al.,* [20]
Disability friendly consideration	Goel *et al.,* [21]
The well-being of people and meeting the basic needs of present society	Amovic *et al.,* [22]

Economic	Authors
Lowest project costs	Osei-Kyei and Chan [23]
Rate of return on investment	Zheng, Xu, He, Fang and Zhang [24]
Affordable charges/tolls	Liu *et al.*, [25]
Solvency of the project	Goel *et al.*, [21]
Profitable (increased net revenue)	Zhang [26]
Adherence to project budget	Engel, Fischer and Galetovic [27]
Value for money (VFM)	Koops, Bosch-Rekveldt, Coman, Hertogh and Bakker [28]
Positive Net Present value (NPV)	Cheung *et al.*, [29]
Improved local economy with jobs	Liyanage and Villalba-Romero [30]
A debt service coverage ratio	Sharma [31]
Modified Internal rate of return (MIRR)	Kurniawan, Mudjanarko and Ogunlana [32]

Table 1 shows the relationship between PFI projects and sustainable development. As for the environmental criteria, PFI projects can contribute to incorporating environmentally friendly practices such as energy efficiency, waste reduction, green index implementation and other criteria that help reduce the project's carbon footprint and minimise environmental impacts. As for social criteria, PFI projects can improve people's quality of life and well-being, focusing on creating infrastructure and facilities. Additionally, in the economic criteria, PFI projects contribute to fostering economic growth and prosperity by introducing the lowest project cost, stimulating local economies, creating employment and investment opportunities, and more. Thus, the connection between PFI projects and sustainable development becomes evident as they provide opportunities to integrate environmental, social and economic sustainability into infrastructure development and contribute to long-term societal well-being.

2.2 Private Finance Initiative (PFI) Process

Pre-construction is a critical element in the proposed framework for PFI implementation. A set of principles that link each design or method of the system of the implementation process, the key traits, and success factors form the foundation of the framework's structure [33]. Therefore, all industry participants participating in the implementation of PFI projects, especially in the pre-construction phase, must comprehend and put into practice the significant components of PFI implementation to enhance its continued expansion.

Figure 1 shows the framework for enhancing the implementation of the PFI project at the pre-construction stage. According to Ismail *et al.,* [2], each implementation process of the PFI project involves the public sector in the project planning and selection stage, and the tendering stage involves both the public and private sectors. Moreover, there are many related constraints during the stages and the success factors of the implementation of PFI projects. Looking at the constraints, as highlighted by the author, there are unclear output specifications. It is stated that during the earlier stage, there are obscurity, political interference, ambiguity of the guideline and lacking framework structure, direct negotiation types of tenders, inadequate adoption of maintenance, and hard-to-understand PFI concept. Therefore, these constraints can be overcome by practicing a collaborative approach. Public and private sectors' cooperation, responsibility, commitment and good relationship are vital to ensure successful PFI projects.

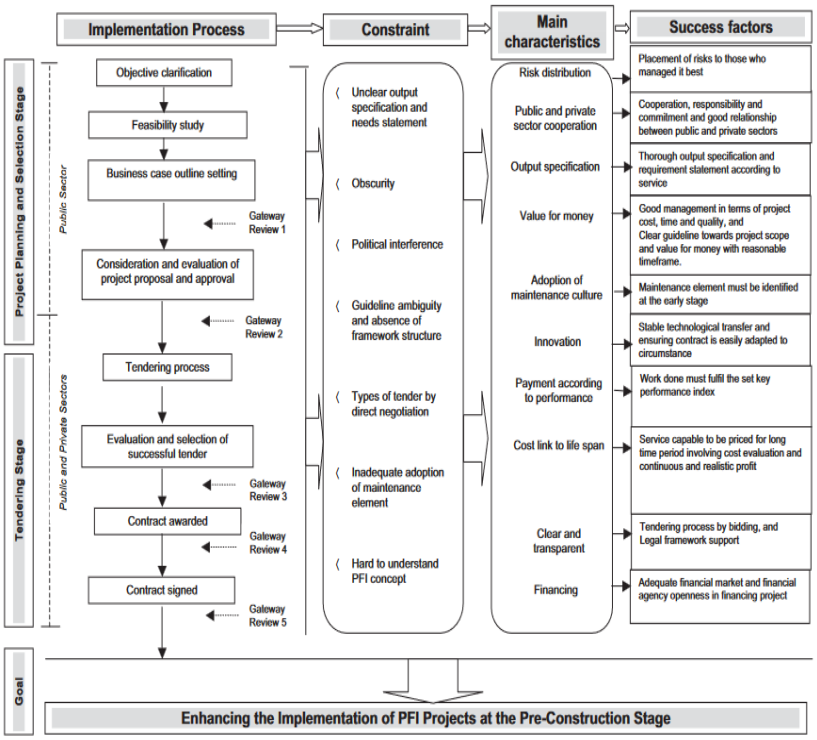

Fig. 1. Framework for enhancing the implementation of PFI projects at the pre-construction stage [2]

2.3 Collaborative Partnership in Sustainable PFI Projects

According to Vanneste [34], Inter-organizational trust between groups of individuals exists, while inter-personal trust occurs between individuals. Recently, the building technology delivery landscape has changed rapidly, emphasizing strategic alliances, joint ventures, collaborations and public or

private partnerships [35]. Collaboration is more linked to soft skills, where collaboration is informed by the deliberate nature of resources and structure, community, the development of individual skills and mindsets, and high-performance organization. Business collaboration technology offers the benefit of safe, efficient and quick exchange of information. Nonetheless, it may need more face-to-face interpersonal contact as confidence-building and relationship growth are difficult. A standard procedure and methods, and an immediate data environment with clearly defined responsibilities are essential to achieve collaborative efficiency among the various disciplines available in the organization. In addition, cooperation is very subjective because, in the industry, it can have different definitions and implementations. Any partnership, however, will include the process of cooperation as the project's needs.

3. Methodology

The complete results of the earlier investigations act as the basis of this review. The information came from a thorough assessment of the literature and was organized based on what was already known. Several databases, including Science Direct, Google Scholar, and Scopus were utilized for data searches. These databases were used to access related literature by searching for keywords such as "collaborative and partnership projects" or "PFI Projects." The review was conducted by assessing, choosing, and organizing the literature for patterns based on prior research. All studies pertaining to collaborative partnerships in the construction industry meet the inclusion criteria. The data collected was based on studies conducted between 1990 and 2022.The developed and reviewed data were the primary foundation for this paper's purpose statement and writing. In addition to detailed literature review, this paper also reviews case studies and empirical evidence related to collaborative partnerships in PFI projects. Nevertheless, the research methodology is restricted to the specific data on collaborative partnerships in PFI projects which might lead to potential bias in the selected literature.

4. Findings and Discussion

4.1 Significance Elements of Collaborative Partnership in PFI Projects

Collaboration in construction requires commitment from various parties. According to Johnson [36], “collaborative” is defined as "work" and "with", and it comes from the Latin words to refer to commitment or effort sharing in a group of individuals that will contribute to the project or work. The contribution to the works means that every party had the same agenda for that project. However, new approaches have arisen to broaden the concept of collaboration from a simple act of cooperation to a more nuanced task of interrelating different teams to generate new ideas [37]. Collaborative work is required if design and construction teams are to tackle the entire construction product lifecycle and consider not only primary functionality, but also buildability, serviceability, recyclability and productivity of the project.

According to Crouse [38], collaborative partnership involves a commitment to establish common relationships and objectives, collective authority, a jointly developed framework and shared responsibility and accountability for progress and sharing of resources and rewards. According to Akintoye and Main [35], different operators or parties in the construction industry are collaborating to deliver construction growth. This could include cooperation between contractors or with a subcontractor, consultants, customers, or suppliers, including alliances, joint ventures and long-term strategic alliances or projects [35]. Thus, effective teamwork and communication are needed to help the project's varied participants complete the task. Collaboration in managing interactions between

many stakeholders can help organisations accomplish their objectives and produce better projects. According to Crouse [38], building a partnership means building a solid relationship with all stakeholders based on trust and respect to ensure project completion. According to Akintan and Morledge [37], progress can be made in collaboration by creating an informed, experienced, and coordinated organisational ability. This will ultimately lead to strengthening community relationships and finding sustainable solutions. The communication flow between the parties involved is critical. This is because there are different parties involved in a large project, and all the decision-making must be made accordingly. Collaboration can be divided into a few categories that strategically focus on tasks, fostering working relationships, promoting equality of opportunity and respect, enhancing moral behaviour, and acknowledging honours and respect for individual and organisational styles [39].

Based on the data acquired from the remarks mentioned earlier, most researchers emphasised the significance of actions that were in line with the organisation's purpose, vision, and goal. In the construction sector, all stakeholders from different organisations rely on each other to achieve the goal that the clients have established [48].

Collaboration encourages networking or professional relationships from the partnership because so many parties are engaged. This will inadvertently demonstrate the value of open and transparent communication amongst all parties. A productive collaboration, for instance, needs a set procedure for communication in between meetings. This guarantees that each team member has an equal opportunity to contribute their thoughts and opinions to the project's success. Blaming culture that may lead to construction disputes is very common due to the working environment and behavioural factors. However, in a collaborative arrangement, the problems of litigations or claims and disputes are significantly reduced through open communication and improved working relationship [40].The challenges in the construction sector include the lack of trust, unfair risk sharing and ineffective communication [48]. The collaboration will also improve the project's ethical behaviour, including honesty, integrity, fairness, transparency, and secrecy. As a result, good cooperation recognises honours and respect from the participants and emphasises teamwork, mutual respect, trust, sound decision making and knowledge sharing.

Collaboration is critical to the success of construction projects. According to Rahman *et al.,* [41], project participants understand that information and knowledge sharing are key elements of a productive contractual relationship. The use of collaborative partnerships to provide goods and services has been the focus of a great deal of study in the retail and manufacturing industries [35]. Douma *et al.,* [42] spoke about international partnerships from the viewpoint of strategic alliances. They also noticed that there was a shift from "ordinary" cost-driven alliances to knowledge-intensive alliances, where inter-partner collaboration was an important goal [42]. Having an effective partnership involves transparency and cooperation that can benefit from manipulation that helps each partner achieve its goal within its interests and needs. As such, developing mutual understanding and contributing to efficient and scalable organisation is possible. A versatile organisation is an adaptable working environment that will help all employees work effectively and make decisions quickly.

For instance, the joint inspection is conducted to ensure that all the work is in accordance with the contract and that any discrepancies can be corrected accordingly. The representative from the client, contractor and consultant will attend the joint inspection. Thus, in this situation, each party collaborates by having a professional relationship to ensure the quality and completion of the project. The overall success of a project relies on the success of collaborative partnerships. Stiles [43] indicated that successful collaborative partnerships and strategic alliances needed to be developed as part of the overall strategy of the construction organization, such as the identification of clear

goals and objectives and significant attention to the choices and types of partners. According to Crouse [38], partnerships had significant roles, listed by the apparent benefits of a healthy partnership relationship. Thus, the project team requires proper understanding and planning towards the completion of the project. The significant elements of collaborative partnership highlighted by several authors are as follows;

Table 2
Significance elements of collaborative partnership highlighted by several authors

Collaborative elements / Authors	Mission, vision and objective	Effective communication	Respect and equal opportunities	Honesty, integrity, justice, transparency and confidentiality	Teamwork, trust, respect, sound decision making and knowledge sharing
Michele and Liz, (2013) [39]	/	/	/	/	/
Lynn Cook and Hancher (1990) [40]	/	/		/	/
Crouse (1991) [38]	/	/	/		/
Stiles (1995) [43]	/	/			/
Douma *et al.,* (2000) [42]	/	/	/		/
Akintoye and Main (2007) [35]	/	/		/	/
Rahman *et al.,* (2019) [41]	/	/			/

Table 2 shows that every element has a significant role in ensuring the success of a collaboration. Based on the data collected, the most important components of a collaborative partnership are the organization's communication efficacy and its consideration towards the collaboration that includes trust, respect, sound decision-making, and knowledge sharing. Effective communication is essential in PFI projects; since the process involves various stakeholders, communication is always essential to make sure that a project is well clarified, and stakeholders must have a clear understanding of the project's objectives, timelines and deliverables. Moreover, these elements foster orientation, build trust among individuals in the organization, and enable stakeholders to work together towards a common goal and success. An organization’s strategic focus on its activities, such as mission, vision and objective are essential to ensure that the organization has a clear sense of direction and purpose for any projects. These elements are vital because it makes the collaboration more coordinated and productive. Next, clear communication allows better planning, stakeholder decision-making, and coordination throughout the construction phases. Next, acknowledgement, honors and respect are the essential elements highlighted by most of the authors in Table 2. Since the construction projects involve different stakeholders' backgrounds and expertise, honors and respect are essential because without teamwork, and trust among the stakeholders, any decision-making throughout the project will be challenging to achieve.

4.2 Impacts of Collaborative Partnership towards the Successful PFI Project

Research by Bresnen and Marshall [44] found that senior management support was critical in making a collaborative strategy both practical and legal. Sonnenberg [45] described important reasons why partnerships fail which include lack of commitment, cultural differences, poor management, poor communication, and individual relationship failure (i.e. when individuals involved in the partnership lack interpersonal skills or personal chemistry).

According to Lynn Cook and Hancher [40], two forms of risk can lead to workplace collaborative failure: risk of execution and collaboration. Execution danger is the risk of being unable to address unforeseen problems or leverage unexpected opportunities during the execution of the project such as communication limitations, problem-solving and decision-making, inflexible project management methodology and overly narrow project objectives. On the other hand, collaborative risk is characterised as the problem arising from the additional complication of working with one or more external collaborators beyond the other risk types [40]. Mutual trust has been rated by the contractors as the most critical criteria in determining the success of collaborative relationships [46]. Meanwhile, other issues that may lead to the failure of collaborative relationships include commercial pressure, unequal reward sharing and bureaucratic organisation [43].

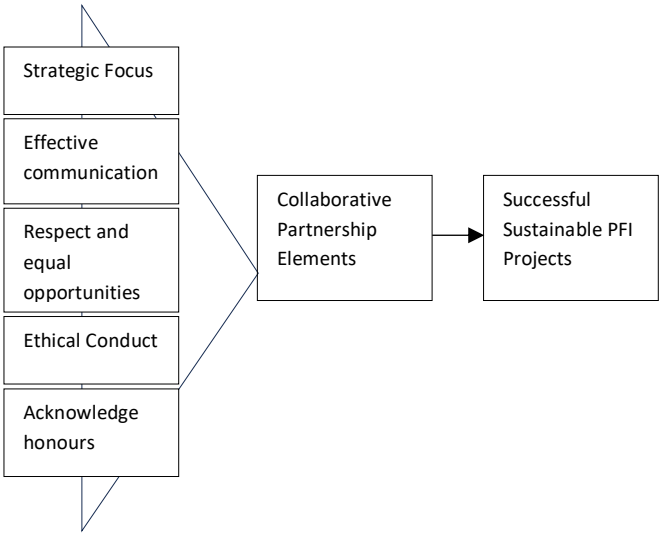

Fig. 2. Collaborative partnership elements conceptual framework towards successful PFI projects

As was previously mentioned, the degree to which the associated parties comprehend the components of a collaborative partnership will largely determine the success of PFI. Therefore, the linked parties will use methods to gauge the performance of PFI projects based on three fundamental factors: time, cost, and project quality. According to Ismail *et al.,* [2], the performance of PFI projects can be measured using payment deductions and KPIs during the operational period to ascertain whether services are being delivered in accordance with the output specification. To achieve Value for Money (VFM) and whole-life asset performance in respect to the payment mechanism, PFI is bought using performance-based output specifications. To make sure that the work can be completed in a methodical manner, it is crucial to establish the quality level or standard that must be fulfilled by the related parties.

Clifton and Duffield [47] revealed that providing high-quality service during the operating phase will have a positive impact on the effectiveness and quality of PFI projects, which will significantly

raise people's standard of living. Effective and high-quality service delivery is essential to ensuring the building's extended lifespan. A high-quality project will obviate the need for extensive future maintenance. Time is crucial in PFI projects as client is concerned on whether the project can be completed within the time stipulated [47]. Thus, to ensure the effectiveness of the project, efficient risk allocation may achieve timely and cost-effective delivery targets. This is to avoid transferring risks which will involve paying a risk premium to the contractor for taking those risks, and hence increase project costs.

There are diverse terms used to explain the PFI phases in Malaysia. Most of the literature said that, out of all the stages, the operational phases were the most crucial because they spanned the longest time in the concession's contract, and produced service delivery performance and payment conditions [2]. Therefore, the operation phase must be taken into consideration by all stakeholders in PFI projects.

5. Conclusion

The findings of this study enhance the understanding of the researcher towards the concept of collaborative relationship. As the findings are based on the significant elements required for the success of collaborative relationship, the findings can be used as guidelines for the improvement of a collaborative partnership in PFI project. Based on the information gathered from the literature review, it can be concluded that good working relationship with effective communication, acknowledging respects for each individual and organisational style, respect and equal opportunity strategic focus on the activities and ethical conduct are the most significant elements in achieving the success of collaborative partnership. In line with the fulfilment of Sustainable Development Goals (SDGs)the global awareness of the need to change to more environmentally friendly building practices is required as discussed earlier in the literature review. Several sustainable development criteria have been taken from earlier studies, and it is clear from these that PFI projects and sustainable development are related because they offer chances to incorporate social, economic, and environmental sustainability into the development of infrastructure and promote long-term societal well-being.

In conclusion, diverse projects that require a lot of participation require an effective collaborative partnership moving towards the same goal. Collaborative partnership means creating a solid relationship with all stakeholders based on trust and respect for project completion. By creating an informed, experienced, and coordinated organizational ability, progress can be made in a collaboration. This will ultimately lead to strengthening community relationships and finding sustainable solutions. Communication flow in building process is critical due to various involvements, especially in a large project., Thus, all the decision-making must involve all the related parties accordingly. A genuine collaborative relationship should consider all the factors involved in construction development supply and demand chains to reap the benefits. To achieve a successful collaborative partnership, all parties should ensure that any decision is made clearly and fast. Sound decision-making can help to increase the effectiveness and productivity of the project. Findings from the research provide practical recommendations for the project stakeholders to determine the most significant elements of collaborative partnerships in sustainable PFI projects.

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References

[1] Chia, Fah Choy, Martin Skitmore, Goran Runeson, and Adrian Bridge. "Economic development and construction productivity in Malaysia." *Construction Management and Economics* 32, no. 9 (2014): 874-887. https://doi.org/10.1080/01446193.2014.938086

[2] Ismail, Kharizam, Yuhainis Abdul Talib, Noraini Salleh, and Afiqah Japri. "Critical Success Factors in Operation Phase of Private Finance Initiative (PFI) Projects." *Sciences* 8, no. 1 (2018): 878-888. https://doi.org/10.6007/IJARBSS/v8-i1/3894

[3] Khaderi, Shamsida Saidan, Abdul Rashid Abd Aziz, and Ani Saifuza Abd Shukor. "A framework structure to enhance the implementation of private finance initiative (PFI) projects in Malaysia at pre-construction stage: a methodological development." *Built Environment Journal (BEJ)* 15, no. 1 (2018): 23-32.

[4] Ismail, S. and Yusof, A. "Private finance initiative in Malaysia: Barriers to Integrated Project Delivery in Malaysia View Project Residential Construction Project Performance," 2010. https://www.researchgate.net/publication/286618884, 2010

[5] Cheeks, J. Richard. "Multistep dispute resolution in design and construction industry." *Journal of Professional Issues in Engineering Education and Practice* 129, no. 2 (2003): 84-91. https://doi.org/10.1061/(ASCE)1052-3928(2003)129:2(84)

[6] Winch, Graham M. *Managing Construction Projects: An Information Processing Approach (2nd ed.).* Wiley-Blackwell, 2010.

[7] Akomea-Frimpong, Isaac, Xiaohua Jin, and Robert Osei-Kyei. "Mapping Studies on Sustainability in the Performance Measurement of Public-Private Partnership Projects: A Systematic Review." *Sustainability* 14, no. 12 (2022): 7174. https://doi.org/10.3390/su14127174

[8] Bakar, Nur Najihah Abu, Mohammad Yusri Hassan, Hayati Abdullah, Hasimah Abdul Rahman, Md Pauzi Abdullah, Faridah Hussin, and Masilah Bandi. "Energy efficiency index as an indicator for measuring building energy performance: A review." *Renewable and Sustainable Energy Reviews* 44 (2015): 1-11. https://doi.org/10.1016/j.rser.2014.12.018

[9] Zaman, Atiq Uz. "Measuring waste management performance using the 'Zero Waste Index': the case of Adelaide, Australia." *Journal of Cleaner Production* 66 (2014): 407-419. https://doi.org/10.1016/j.jclepro.2013.10.032

[10] Lu, Weisheng, Xi Chen, Yi Peng, and Liyin Shen. "Benchmarking construction waste management performance using big data." *Resources, Conservation and Recycling* 105 (2015): 49-58. https://doi.org/10.1016/j.resconrec.2015.10.013

[11] Heckert, Megan, and Christina D. Rosan. "Developing a green infrastructure equity index to promote equity planning." *Urban Forestry & Urban Greening* 19 (2016): 263-270. https://doi.org/10.1016/j.ufug.2015.12.011

[12] Ampratwum, Godslove, Vivian WY Tam, and Robert Osei-Kyei. "Critical analysis of risks factors in using public-private partnership in building critical infrastructure resilience: a systematic review." *Construction Innovation* 23, no. 2 (2023): 360-382. https://doi.org/10.1108/CI-10-2021-0182

[13] Chopra, Shauhrat S., Trent Dillon, Melissa M. Bilec, and Vikas Khanna. "A network-based framework for assessing infrastructure resilience: a case study of the London metro system." *Journal of The Royal Society Interface* 13, no. 118 (2016): 20160113. https://doi.org/10.1098/rsif.2016.0113

[14] Huang, Lizhen, Guri Krigsvoll, Fred Johansen, Yongping Liu, and Xiaoling Zhang. "Carbon emission of global construction sector." *Renewable and Sustainable Energy Reviews* 81 (2018): 1906-1916. https://doi.org/10.1016/j.rser.2017.06.001

[15] Hoeft, Madeleine, Marianne Pieper, Kent Eriksson, and Hans-Joachim Bargstädt. "Toward life cycle sustainability in infrastructure: the role of automation and robotics in PPP projects." *Sustainability* 13, no. 7 (2021): 3779. https://doi.org/10.3390/su13073779

[16] Widman, Ulrika. "Exploring the role of public–private partnerships in forest protection." *Sustainability* 8, no. 5 (2016): 496. https://doi.org/10.3390/su8050496

[17] Zheng, Xiaoxiao, Yisheng Liu, Jun Jiang, Linda M. Thomas, and Nan Su. "Predicting the litigation outcome of PPP project disputes between public authority and private partner using an ensemble model." *Journal of Business Economics and Management* 22, no. 2 (2021): 320-345. https://doi.org/10.3846/jbem.2021.13219

[18] Agarchand, Nilesh, and Boeing Laishram. "Sustainable infrastructure development challenges through PPP procurement process: Indian perspective." *International Journal of Managing Projects in Business* 10, no. 3 (2017): 642-662. https://doi.org/10.1108/IJMPB-10-2016-0078

[19] Rohman, Mohammad Arif, Hemanta Doloi, and Christopher Andrew Heywood. "Success criteria of toll road projects from a community societal perspective." *Built Environment Project and Asset Management* 7, no. 1 (2017): 32-44. https://doi.org/10.1108/BEPAM-12-2015-0073

[20] Shin, Nina, Jung-Sang Yoo, and Ik-Whan G. Kwon. "Fostering trust and commitment in complex project networks through dedicated investment in partnership management." *Sustainability* 12, no. 24 (2020): 10397. https://doi.org/10.3390/su122410397
[21] Goel, Ashish, L. S. Ganesh, and Arshinder Kaur. "Social sustainability considerations in construction project feasibility study: a stakeholder salience perspective." *Engineering, construction and architectural management* 27, no. 7 (2020): 1429-1459. https://doi.org/10.1108/ECAM-06-2019-0319
[22] Amović, Goran, Rado Maksimović, and Sonja Bunčić. "Critical success factors for sustainable public-private partnership (PPP) in transition conditions: An empirical study in Bosnia and Herzegovina." *Sustainability* 12, no. 17 (2020): 7121. https://doi.org/10.3390/su12177121
[23] Osei-Kyei, Robert, and Albert PC Chan. "Evaluating the project success index of public-private partnership projects in Hong Kong: The case of the Cross Harbour Tunnel." *Construction Innovation* 18, no. 3 (2018): 371-391. https://doi.org/10.1108/CI-08-2017-0067
[24] Zheng, Shengqin, Ke Xu, Qing He, Shaoze Fang, and Lin Zhang. "Investigating the sustainability performance of ppp-type infrastructure projects: A case of China." *Sustainability* 10, no. 11 (2018): 4162. https://doi.org/10.3390/su10114162
[25] Liu, Junxiao, Peter ED Love, Michael CP Sing, Jim Smith, and Jane Matthews. "PPP social infrastructure procurement: Examining the feasibility of a lifecycle performance measurement framework." *Journal of Infrastructure Systems* 23, no. 3 (2017): 04016041. https://doi.org/10.1061/(ASCE)IS.1943-555X.0000347
[26] Zhang, Xueqing. "Financial viability analysis and capital structure optimization in privatized public infrastructure projects." *Journal of Construction Engineering and Management* 131, no. 6 (2005): 656-668. https://doi.org/10.1061/(ASCE)0733-9364(2005)131:6(656)
[27] Engel, Eduardo MRA, Ronald D. Fischer, and Alexander Galetovic. "The economics of infrastructure finance: Public-private partnerships versus public provision." *EIB papers* 15, no. 1 (2010): 40-69.
[28] Koops, Leonie, Marian Bosch-Rekveldt, Laura Coman, Marcel Hertogh, and Hans Bakker. "Identifying perspectives of public project managers on project success: Comparing viewpoints of managers from five countries in North-West Europe." *International journal of project management* 34, no. 5 (2016): 874-889. https://doi.org/10.1016/j.ijproman.2016.03.007
[29] Cheung, Esther, Albert PC Chan, and Stephen Kajewski. "Enhancing value for money in public private partnership projects: Findings from a survey conducted in Hong Kong and Australia compared to findings from previous research in the UK." *Journal of Financial Management of Property and Construction* 14, no. 1 (2009): 7-20. https://doi.org/10.1108/13664380910942617
[30] Liyanage, Champika, and Felix Villalba-Romero. "Measuring success of PPP transport projects: a cross-case analysis of toll roads." *Transport reviews* 35, no. 2 (2015): 140-161. https://doi.org/10.1080/01441647.2014.994583
[31] Sharma, Chandan. "Determinants of PPP in infrastructure in developing economies." *Transforming government: people, process and policy* 6, no. 2 (2012): 149-166. https://doi.org/10.1108/17506161211246908
[32] Kurniawan, Fredy, Sri Wiwoho Mudjanarko, and Stephen Ogunlana. "Best practice for financial models of PPP projects." *Procedia Engineering* 125 (2015): 124-132. https://doi.org/10.1016/j.proeng.2015.11.019
[33] Kato, Koji. "Private finance initiative and major construction firms in Japan." PhD diss., Massachusetts Institute of Technology, 2001.
[34] Vanneste, Bart S. "From interpersonal to interorganisational trust: The role of indirect reciprocity." *Journal of Trust Research* 6, no. 1 (2016): 7-36. https://doi.org/10.1080/21515581.2015.1108849
[35] Akintoye, Akintola, and Jamie Main. "Collaborative relationships in construction: the UK contractors' perception." *Engineering, construction and architectural management* 14, no. 6 (2007): 597-617. https://doi.org/10.1108/09699980710829049
[36] Johnson, Kent. "Behavioral education in the 21st century." *Journal of Organizational Behaviour* Management 35, no. 1-2 (2015): 135-150. https://doi.org/10.1080/01608061.2015.1036152
[37] Akintan, Obafemi A., and Roy Morledge. "Improving the collaboration between main contractors and subcontractors within traditional construction procurement." *Journal of Construction Engineering* 2013, no. 281236 (2013): 1-11. https://doi.org/10.1155/2013/281236
[38] Crouse, Henry J. "The power of partnerships." *Journal of Business Strategy* 12, no. 6 (1991): 4-8. https://doi.org/10.1108/eb039448
[39] Michele, M. and Liz, G. "Research Report Family Literacy Support Network Important Findings: Family Literacy Support Network (FLSN) Division of Curriculum and Instructional Services Los Angeles County Office of Education (LACOE)," 2013. http://fsn.lacoe.edu.
[40] Cook, E. Lynn, and Donn E. Hancher. "Partnering: contracting for the future." *Journal of management in engineering* 6, no. 4 (1990): 431-446. https://doi.org/10.1061/(ASCE)9742-597X(1990)6:4(431)

[41] Rahman, Siti Hamidah Abdull, Intan Rohani Endut, Nasruddin Faisol, and Soleyman Paydar. "The importance of collaboration in construction industry from contractors' perspectives." *Procedia-Social and Behavioral Sciences* 129 (2014): 414-421. https://doi.org/10.1016/j.sbspro.2014.03.695
[42] Douma, Marc U., Jan Bilderbeek, Peter J. Idenburg, and Jan Kees Looise. "Strategic alliances: managing the dynamics of fit." *Long range planning* 33, no. 4 (2000): 579-598. https://doi.org/10.1016/S0024-6301(00)00062-5
[43] Stiles, Jan. "Collaboration for competitive advantage: the changing world of alliances and partnerships." *Long range planning* 28, no. 5 (1995): 109-112. https://doi.org/10.1016/0024-6301(95)00043-I
[44] Bresnen, Mike, and Nick Marshall. "Building partnerships: case studies of clientcontractor collaboration in the UK construction industry." *Construction management and economics* 18, no. 7 (2000): 819-832. https://doi.org/10.1080/014461900433104
[45] Sonnenberg, Frank K. "Partnering: entering the age of cooperation." *Journal of Business Strategy* 13, no. 3 (1992): 49-52. https://doi.org/10.1108/eb039494
[46] Wong, Peter S., Sai On Cheung, and Peter K. Ho. "Contractor as trust initiator in construction partnering—Prisoner's dilemma perspective." *Journal of construction engineering and management* 131, no. 10 (2005): 1045-1053. https://doi.org/10.1061/(ASCE)0733-9364(2005)131:10(1045)
[47] Clifton, Chris, and Colin F. Duffield. "Improved PFI/PPP service outcomes through the integration of Alliance principles." *International Journal of Project Management* 24, no. 7 (2006): 573-586. https://doi.org/10.1016/j.ijproman.2006.07.005
[48] Liu, Yan, Sander Van Nederveen, and Marcel Hertogh. "Understanding effects of BIM on collaborative design and construction: An empirical study in China." *International journal of project management* 35, no. 4 (2017): 686-698. https://doi.org/10.1016/j.ijproman.2016.06.007
[49] Faris, Hazhar, Mark Gaterell, and David Hutchinson. "Investigating underlying factors of collaboration for construction projects in emerging economies using exploratory factor analysis." *International journal of construction management* 22, no. 3 (2022): 514-526. https://doi.org/10.1080/15623599.2019.1635758
[50] Kożuch, Barbara. "The culture of collaboration: theoretical aspects." *Journal of intercultural management* 1, no. 2 (2009): 17-29