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Factors affecting the success of construction projects: a case study of the social development fund (SFD), Mukalla branch in Yemen

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Abstract. The success of the individual projects undertaken by construction businesses determines the health of the construction sector. The purpose of this study is to increase understanding of the changing environment of development and economic stability within the construction industry. It emphasises how important it is to develop plans and policies for national building and economic planning initiatives. The building industry in Yemen is beset by enduring difficulties that lead to project failures in the administrative, economic, and social spheres. Inadequate planning, coordination, communication, and use of technology are frequently the cause of these failures. In light of this, we investigate the various aspects that contribute to the success of building projects. Using the Social Fund for Development (SFD)-Mukalla Branch in Yemen as a case study, this research aims to develop a conceptual framework that clarifies how organisational, management, functional, and environmental factors affect project effectiveness. The scope includes appropriate agents from the sponsoring authority, engineers, and contractors connected to the SFD-Mukalla Branch. The SFD-Mukalla Branch has demonstrated success by finishing 66 projects in a variety of governorates, including as Hadhramut, Shabwah, AlMahrah, and Sokatra. These initiatives were a success because to the joint efforts of 66 contractors and 140 engineers. This paper uses a quantitative questionnaire approach in terms of methodology, which is consistent with the descriptive nature of the study. This strategy aids in the creation of the conceptual framework intended to pinpoint crucial elements that conceptually influence Yemen's construction industry's success. The research holds great importance as it can serve as a catalyst for additional scientific investigation and establish a fundamental framework for other studies. In this case, the research goals might be summed up as follows: Using data from SFD-Mukalla Branch in Yemen, develop a conceptual framework that shows how functional and management elements relate to the conceptual success of building projects. Explain the theoretical relationship between organisational, environmental, and construction project success at SFD's Mukalla Branch in Yemen. Create a model that outlines the conceptual success elements based on the SFD-Mukalla Branch case study. Finally, the goal of this conceptual project is to add to the body of knowledge that serves as the basis for developments in Yemen's building industry. The goal of this study is to conceptualise the elements that lead to project success in order to facilitate more resilient and successful construction projects.

1. Introduction

The function of contractors is one of several aspects that affect the success of building projects [1,2]. The building sector is essential to the stability and prosperity of society [3, 4], yet because of its particular qualities, it faces several difficulties [5, 6]. The results of individual projects managed by



construction businesses [7, 8] determine the industry's success, and these results are impacted by a number of elements, including internal communication [9, 10].

One of the poorest nations on earth, Yemen, is struggling with technological and economic issues that are made worse by political unrest and civil unrest [11]. In addition to legal and financial challenges, Yemen's construction industry suffers obstacles such as institutional flaws, bureaucracy, corruption, and a lack of necessary infrastructure [11]. Local investments and construction activities are greatly impacted by this volatility [11]. Yemen's building industry has played a significant role in the country's growth and job possibilities [12], but after 2011 it faced difficulties and collapsed, in part because of a lack of planning, analytical tools, and scientific methodology.

Yemen's construction industry is severely impacted by low productivity, management challenges, delays, and excessive costs [13], which causes frequent project delays. Socioeconomic development is further hindered by political instability resulting from civil conflict [13].

1.1. Problem Statement

The building sector in Yemen faces formidable obstacles, leading to project failures in the administrative, economic, and social domains [14]. Inadequate planning, collaboration, communication, and lack of cutting-edge technology are major causes of project failure [15]. The industry's shortcomings have been ascribed by academics to problems like intricate designs, continuous modifications, inadequate construction supervision, halts in work, scarcity of materials, poor performance by contractors, late payments, inadequate remuneration for workers, and inadequate financial oversight [16].

Notably, Yemen has received relatively little attention in recent decades from writers on construction project management [7]. The literature that already exists frequently focuses on the reasons why projects fail in Yemen's precarious political environment. Studies on prosperous construction projects in stable areas, like Mukalla state in southern Yemen, where construction is still going strong, are scarce, nevertheless. By highlighting the elements that contribute to project success in Yemeni regions that are politically stable, this study aims to close this gap.

Mukalla State manages and finances its construction sector in partnership with foreign institutions such as the World Bank and the United Nations Industrial Development Organization (UNIDO). This is similar to other Yemeni governments. This kind of cooperation is demonstrated by the Yemeni Social Fund for Development (SFD), which is in charge of many building projects around the country, including Mukalla state. The SFD - Mukalla Branch has remarkably consistently completed projects successfully.

The outstanding project success of the SFD - Mukalla Branch serves as the driving force for this study. The objective is to identify the contributing elements to this achievement and develop a model that can direct such programmes throughout Yemen in the future. The goal of the study is to pinpoint the crucial components that the SFD - Mukalla branch's projects need in order to succeed. It also aims to assess the effect factors in the construction sector and ascertain whether these aspects are related to the success of projects.

In conclusion, this paper explores the difficulties Yemen's building sector faces, paying special attention to achievements in stable areas like Mukalla state. Through comprehending the elements that propel project success, the study seeks to provide insightful information for next projects in Yemen and possibly beyond.

1.2. Research Objectives

- Establish a conceptual framework illustrating the correlation between functional and management factors and the conceptual success of construction projects within SFD-Mukalla Branch, Yemen.
- Formulate a model delineating conceptual success factors grounded in the case study of SFD-Mukalla Branch.

1.3. Significance of this Research

This study is extremely important when considering Yemen's construction sector. This study opens the door to better project outcomes across the country by examining the elements that lead to the successful completion of construction projects in stable regions, as demonstrated by the accomplishments of the SFD - Mukalla Branch. Future initiatives in Yemen will benefit from well-informed decision-making and strategic planning thanks to the development of a complete model based on the success criteria found in this study. The research findings have the capacity to improve project management methodologies and augment the probability of triumphant project implementation, hence promoting economic expansion and stability in the Yemeni construction domain.

2. Literature review

2.1. Yemeni Social Fund for Development (SFD)

With the World Bank's financial and technical assistance, the Yemeni Social Fund for Development (SFD) was founded in 1997 as a semi-autonomous government entity under Law No. 10 (1997). It rose to prominence as the leading organisation in promoting the collection of funds from a wide range of sources. As part of its efforts to create social safety nets in response to its economic structural adjustment plans, the government developed the SFD. Since its founding, the government and donors have raised over US\$1.98 billion to fund SFD initiatives, with US\$1.2 billion being disbursed overall. For the first and second phases, the World Bank served as the main source of funding. It provided about 30% of SFD's money, with the Government of Yemen providing the remaining 19% of the budget during the third phase, which was when it became the main source of funding [17].

Operating outside of the traditional ministerial system of Government, the SFD is financially and administratively independent. Nonetheless, the prime minister chairs the board of directors, which also consists of six other cabinet members and representatives from the business and civil society sectors. Social Affairs & Labor, Planning & International Cooperation, Finance, Local Administration, Education, and Technical & Vocational Training are the six ministries with representation on the board. Additionally, SFD operates under four programmes: Small and Microenterprise Development (SMED), Labour-Intensive Works Programme (LIWP), Community and Local Development (CLD), and Capacity Building (CB) [17].

Because the SFD is exempt from standard public service employment regulations, it is able to offer competitive hiring practises and attractive salary. Depending on the goals of each project, there are five models of community participation under SFD [18]:

- To assist and supervise work carried out by outside contractors (most frequently for Education, Health, and certain types of Water Infrastructure).
- To oversee community execution (particularly for Roads and Water harvesting).
- To participate in SFD intervention-related institutional structures (e.g., Parents Councils);
- To take part in more extensive development programmes (like Community Health Committees)

2.2. Factors Impacting Construction Projects in Yemen

Yemen's construction industry has numerous challenges as a developing nation, including the inadequate use of labor-intensive construction technology and appropriate building materials. It will also have an impact on the entire construction project [19]. In Yemen, construction projects provide employment opportunities for 9–10% of the workforce and rank as the 4th most popular source of labour, with an average annual growth rate of 5.4 percent [20]. Following the 2011 revolution that resulted in a civil war and internal strife within Yemeni society, the country's construction industry began to encounter the aforementioned challenges in 2011 and saw severe industry-wide failure, which in turn caused numerous public and private development projects to fail [21]. Yemeni construction projects are plagued by a number of issues that can cause them to be delayed, unsuccessful, or even collapse. These issues include excessive and exorbitant costs, a shortage of labour, reliance on imported materials, subpar construction techniques, and inadequate technology strategies. Additionally, it is maintained by a lack of qualified individuals among project clients,

contractors, and consultants [22]. In addition to erroneous time and expense estimates, [23] attributes the collapse of the Yemeni construction sector to a number of governmental and administrative issues, disparate political parties, management and leadership issues, and inadequate construction management. The success of Yemeni construction is also impacted by stakeholders and human resources because of inadequate financial management, miscommunication, inadequate information sharing, a tight budget, and incapacity or unwillingness on the part of contractors to supply adequate equipment and supplies.

2.3. Successful construction projects under the SFD – Mukalla branch – in the period 2015-2020:

Large-scale development projects in Yemen failed as a result of the political unrest that followed 2011. As a result, the SFD construction project suffered because the government chose to focus on providing for basic necessities and salaries rather than promoting it. The dominating environment, however, has not had an impact on the SFD -Mukalla branch. Table 1 shows that from 2015 to 2020, 66 projects under the SFD – Mukalla branch were successfully completed (18, 37, 9, and 2 in Hadramout, Shabwah, 9 Al Mahrah, and Sokatra respectively).

Table 1. SFD -Mukalla construction projects in the period (2015-2020) [24]

Projects	Hadramout	Shabwah	AlMahrah	Sokatra	Total
Health	1	6	-	-	
Education	4		2		
Water & Environment	10	17	7	1	
Agriculture	1	12			
Roads	2	2		1	
Total	18	37	9	2	66

The SFD-Mukalla Branch will be examined in this study in order to identify the success characteristics that let these projects endure and be completed effectively in spite of the broader political, social, and economic climate.

2.4. Success of projects

The effective performance of project managers inside the project can lead to project success. Human variables are a significant aspect in determining a project's success, according to numerous academics [25]. What constitutes a successful project is a topic of much discussion in project management research practise. Despite extensive discussion, no consensus has been achieved on the subject. Additionally, there is no one exhaustive list that defines what constitutes a successful project. The notion of key success factors (CSFs) offers a more intelligent approach to pinpoint specific elements that, whether included or not, increase the likelihood of a project's success [26].

A project is defined as a singular endeavour to deliver an output (items or services, etc.) in the predetermined scope, time, cost, and quality by the PMBOK. If these four factors are allowed to go beyond what is reasonable, the project may ultimately fail. The construction projects and the contributing elements to their success are the main subjects of this study. A project was considered successful when it fulfilled the purpose to be carried out with a high degree of satisfaction over the project outcome, or when it fulfilled the technical performance standards [27]. Furthermore, according to [28], a project is deemed successful if its outcomes surpass initial projections or if it adheres to standard procedures for budget, time, quality, safety, and participant satisfaction. According to [29], a project is deemed successful if it meets four requirements: it must be completed on schedule, under budget, the goals must be effectively achieved, and the client must be satisfied. [30] aided the last criteria and added to them: acceptable profit margin, high-quality design or consulting services, and acceptable levels of firm liability [31].

In conclusion, the project can be defined as a successful project when the following is met:

- The project within the technical performance specifications.

- Time, cost, schedule, quality, liability, and safety managed and scored high expectations.
- Satisfaction of the project players with project outcomes.

2.5. *Factors influencing construction projects' success.*

Scope, budget, time, and quality are the four project principles that have the biggest impact on the success of construction projects. The project will succeed if these ideas are well understood. On the other hand, challenges in managing, overseeing, and carrying out the projects will result from a lack of understanding and awareness of the aspects that contribute to project success [32]. The elements influencing a construction project's success can be divided into four categories, according to [33]: project-related factors, human-related factors, external environment, and project management actions and procedures.

There are four primary elements that determine the success of building projects: organisational factors, functional considerations, project management factors, and external environmental factors. The factors chosen for each category are based on the current state of the construction industry in Yemen as reported in this study and earlier research [34, 35, 36]. The Social Fund for Development (SFD) – Mukalla Branch in Yemen has provided information that was relevant to the selection of factors for each category. In order to create a model that can be used going forward to assist all other construction projects in Yemen in successfully completing their projects, the chosen factors were examined in order to determine how they contributed to the success of the construction projects overseen by the SFD-Mukalla Branch in Yemen.

2.5.1. *Project Management factors*

Numerous studies have demonstrated the significance of project manager aspects [37]. [38] A project manager's hard work can lead to the success of the project. His skill level has a significant impact on how a project is planned and carried out. The leadership, project manager power, coordinating skills, experience, authority, adherence to quality targets, and adherence to budget are the factors that affect a project manager's performance. The successful and efficient integration of project resources—labor, material, plant, and equipment—is a key factor in the construction industry's success. A project can be completed on schedule, within budget, and to the required quality standards with the help of effective resource integration and efficient communication [39].

When necessary, the project managers must communicate with the clients, external vendors, and higher management. An alternative perspective on the skills of a project manager is demonstrated by their capacity to take calculated risks, adapt to changing circumstances, and complete tasks on schedule even in the absence of detailed knowledge early in the project. Additionally, although it may be quantified by looking at sub-level characteristics that show what makes customers content, customer satisfaction is an intangible asset for construction organisations [40]. Those who stand to gain or lose from the project's goals being met are considered stakeholders. Regarding the important choices on the project, they are either required or expected [41]. Additionally, the performance of projects in the construction business greatly depends on schedule adherence. One of the success factors that is discovered to correlate with project management success is the contractor's commitment to the quality of managerial, technical, financial, and organisational performance [42].

2.5.2. *External environmental factors*

External environmental elements, including the political, economic, and social settings, have an impact on success. The factors of the external environment that affect a construction project's success but are mainly out of the management team's control are referred to as [42]. The primary categories and variables that affect a project in diverse ways are included in the category of external environmental factors. These outside variables also guarantee a project's success in terms of budget, schedule, and productivity. The elements that affect a project outside and over which the project management team has no direct control are specifically referred to as external environmental factors [43]. According to earlier research, a variety of external environmental elements, including political, economic, and social ones, have a significant macro-level influence on the success of projects. Thus, the political, economic, and social environments are examples of external environmental elements that

may have an impact on the building project's performance. Furthermore, the financial and economic components focused on the overall level of economic activity and the resources available to complete the task. They also included varying degrees of economic competitiveness around the appointment of all parties involved in the building project [44].

The disparities in social structure, language, and culture give rise to the influence of the social environment on the construction sector [45]. The longevity of economic policies, as well as the inflation of labour, material, and equipment prices, are significantly impacted by the political climate's stability. Thus, the most important risk that directly affects the implementation and success of construction projects is political instability [46].

2.5.3. Functional factors

One way to assess the project's success is by looking at its function level. Members of the project team are selected from various organisational functional units to form a functional project organisational structure. Functional needs, technical standards, and stakeholder and customer satisfaction are some of the function variables that might impact the construction project's success. Moreover, the construction goals for maintaining or advancing the construction process are known as functional requirements. It is among the core ideas of project improvement [47]. Before constructing the project solutions, functional requirement data must be examined to transfer it to measurable acceptance criteria before beginning a building project [48]. Additionally, a balance between the time, quality, and cost aspects related to the other project activities is necessary for construction projects to succeed [49]. Furthermore, the technical specifications are a crucial piece of regulatory tender documents that governs how construction projects are carried out. Similar to the plans, specifications need to be consulted frequently since they have an impact on every aspect of a construction project [50].

2.5.4. Organizational factors

Research has indicated that organisational characteristics have a crucial role in determining the success or failure of a project, irrespective of the industry or project type. In light of this, investigating organisational aspects in addition to analysing the building project's successes should be given careful thought. Teams are differentiated from each other by the organisational cultures that emerge via pervasive brainwashing. The team's success is influenced by their corporate culture, which consists of their dedication to the business and outstanding work habits. Every company decision and activity is based on the norms, values, strategies, views, and attitudes that comprise this culture [51].

Competent construction workers are one of the fundamental to the success of construction projects. The productivity and quality of work suffer when there are insufficient qualified people. It could lead to delays in completing the assigned construction activities, which would raise the project's overall cost [52]. Furthermore, team collaboration and overall project performance have an impact on team efficiency in construction projects. Effective collaboration is difficult to achieve in a multicultural, highly complicated construction working environment [53].

2.6. Conceptual Framework

The success criteria that contribute to the construction industry's success in Yemen are derived and organised based on the literature review and the current state of the Yemeni construction sector. It is divided into four categories: organisational, functional, external environment, and management. Several components create a theoretical model under each group. As seen in Figure 1, this theoretical model serves as the study's framework and illustrates the connection between certain parameters and the prosperity of Yemen's building sector.

The success of Yemen's building sector is the framework-dependent element in this study, whereas related factors are the independent factors. Each group stands for a hypothesis, with H1 representing management factors, H2 representing elements from the external environment, H3 representing organisational factors, and H4 representing functional aspects.

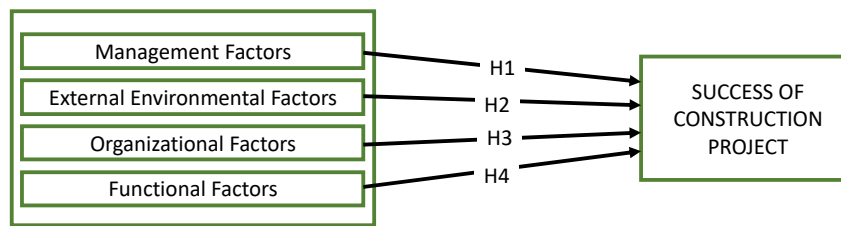


Figure 1. Conceptual Framework and Hypotheses Development

2.7. Hypotheses Development

The project's performance is dependent on four key variables, which are project management factors, functional factors, organisational factors, and environmental factors [54], [9], and [10], as well as the previously mentioned objectives and literature. Thus, the following four assumptions are put forth for the study:

- H1: Management factors have a significant and positive influence on the success of construction projects
- H2: External Environmental Factors have a significant and positive influence on the success of construction projects.
- H3: Organizational factors have a significant and positive influence on the success of construction projects.
- H4: Functional factors have a significant and positive influence on the success of construction projects.

3. Methodology

At this preliminary stage of research, the methodology is yet to be implemented as the study focuses on the development of a theoretical framework. The research approach is conceptual and theoretical in nature, aimed at synthesizing existing knowledge and formulating a framework to guide future investigations. The foundation of this research involves an extensive literature review to identify key concepts, theories, and empirical studies related to the factors affecting construction project success. This literature review serves as the basis for constructing the theoretical framework. Drawing from insights gained through the literature review, the study aims to conceptualize the relationships between the identified factors (functional, management, environmental, and organizational) and the overarching concept of project success. This process is guided by relevant theories and existing models. The Integration of a Case Study, such as the SFD-Mukalla Branch, is incorporated into the research, its role is to provide contextual grounding for the theoretical framework. However, the case study does not involve empirical data collection or testing but serves as an illustrative example. The developed theoretical framework will be subject to validation through expert reviews, academic discussions, and alignment with established theoretical frameworks within the fields of project management and construction. This step ensures the framework's theoretical robustness.

In summary, as the research is in its early stages, the methodology is primarily concerned with the conceptual and theoretical aspects of framework development. Specifics regarding data collection and empirical analysis are not yet applicable, as the study is focused on the synthesis of existing knowledge to form a foundational framework for future research endeavors.

4. Conclusion

In the realm of construction management, project success has been addressed for a while. It is evident from the overview of project assessment standards provided by earlier scholars that success must be examined from a number of angles. Scope, budget, time, and quality are the four project principles that have the biggest impact on the success of construction projects. The project will succeed if these ideas are well understood. Thus, these crucial success indicators will serve as reference points for estimating the likelihood that a project would succeed in the future. Yemeni construction projects are plagued by a number of issues that can cause them to be delayed, unsuccessful, or even collapse. These issues

include excessive and exorbitant costs, a shortage of labour, reliance on imported materials, subpar construction techniques, and inadequate technology strategies.

This study's primary goal is to find out how management, function, organisational characteristics, and the environment affect the success of building projects at the Social Development Fund (SFD) Mukalla branch in Yemen. By collecting and analysing data on Yemen's construction industry and highlighting the current local restrictions and growth barriers, this study highlights the factors that contributed to construction projects' success despite the country's generally unstable political, economic, and social environment. The study increases awareness in the construction sector about the need to implement policies and strategies in national economic planning and construction operations in light of the new era of development and economic stabilisation. By collecting and analysing data on Yemen's construction industry and highlighting the current local restrictions and growth barriers, this study highlights the factors that contributed to construction projects' success despite the country's generally unstable political, economic, and social environment. The study increases awareness in the construction sector about the need to implement policies and strategies in national economic planning and construction operations in light of the new era of development and economic stabilization.

5. References

- [1] Chen YQ, Zhang YB, Liu JY, Mo P. 2012 Interrelationships among critical success factors of construction projects based on the structural equation model. *J. Manag. Eng.* **2** 83: 243-251.
- [2] Alzahrani JI, Emsley MW. 2013 The impact of contractors' attributes on construction project success: A post-construction evaluation. *Int. J. Project Manage.* **31** 2: 313-322.
- [3] Dahmas S, Li Z, Liu S. 2019 Solving the Difficulties and Challenges Facing Construction Based on Concurrent Engineering in Yemen. *Sustainability.* 11:3146.
- [4] Al-Garadi MA, Mohamed A, Al-Ali AK, Du X, Ali I, Guizani M. 2020 A survey of machine and deep learning methods for Internet of Things (IoT) security. *IEEE Commun. Surv. Tutor* **22** 3: 1646-1685.
- [5] Kassem MA, Khoiry MA, Hamzah N. 2019 Risk factors in oil and gas construction projects in developing countries: A case study. *Int. J. Energy Sector Manage.* **13** 4: 846-861.
- [6] Rashid IA, Sanad A, Alhazmi M. 2016 Risk Analysis for Construction Contractors in Egypt and Yemen. *J. Eng. Comput. Sci.* **8** 2: 109-122.
- [7] Gamil Y, Abdul Rahman I. 2020 Assessment of critical factors contributing to construction failure in Yemen. *Int. J. Constr. Manage.* **20** 5: 429-436.
- [8] Chan AP, Chan AP. 2004 Key performance indicators for measuring construction success. *Benchmarking.* **11** 2: 203-221.
- [9] Santos, I. A. M. D., Barriga, G. D. C., Jugend, D., & Cauchick-Miguel, P. A. 2019. Organizational factors influencing project success: an assessment in the automotive industry. *Production*, 29
- [10] Mohamed, O., Nor, F. M., Hanid, M., Ye, K. M., & Othman, M. 2018. Knowledge sharing initiatives in Malaysian quantity surveying firms: What are the promoting factors and challenges?. *Malaysian Construction Research J. (MCRJ)*, 37.
- [11] Sultan B, Alaghbari WE. 2017 Priorities for sustainable construction industry development in Yemen *Int. J. Appl. Eng. Res.*; **12** 6: 886-893.
- [12] Gamil Y, Abdul Rahman I. 2017 Identification of causes and effects of poor communication in the construction industry: a theoretical review *Emerg Sci J*; **1** 4.
- [13] Sultan B, Alaghbari WE. 2017 Priorities for sustainable construction industry development in Yemen *Int. J. Appl. Eng. Res.* **12** 6: 886-893.
- [14] Shahhossein V, Afshar MR, Amiri O. 2017 The Root Causes of Construction Project Failure. *Scientia Iranica.*
- [15] Park J, Kim K, Cho YK. 2017 Framework of automated construction-safety monitoring using cloud-enabled BIM and BLE mobile tracking sensors. *J. Constr. Eng. Manage.* 143(2): 05016019.

- [16] Gamil Y, Abdul Rahman I, Nagapan S, Alemad N. 2017 Qualitative Approach on Investigating Failure Factors of Yemeni Mega Construction Projects. MATEC Web of Conf. 103(December).
- [17] Al-Iryani L, de Janvry A, Sadoulet E. 2017 The Yemen Social Fund for Development: An effective community-based approach amid political instability. In Development Assistance for Peacebuilding. 39-54. Routledge.
- [18] Gov.uk. Innovative Service Delivery Stocktake: DFID Case Study of Service Delivery in Fragile & Conflict Affected Situations Using CSAE Framework. Yemen Social Fund for Development. Department for Int. Development. 2011; 10.
- [19] Alaghbari W, Al-Sakkaf AA, Sultan B 2019 Factors affecting construction labor productivity in Yemen. *Int. J. Constr. Manage.* **1** 91: 79-91.
- [20] JAL-fadhali N, Soon NK, Zainal R, Ahmad AR, Hasaballah AHA 2018 Influential factors in construction industry of Yemen. In Proceedings of the 21st Int. Symposium on Advancement of Construction Management and Real Estate. 927-.
- [21] Alashwa, A. M., & Al-Sabahi, M. H. 2018 Risk factors in construction projects during unrest period in Yemen. *J. of Construction in Developing Countries*, **23** 2, 43–62.
- [22] Sultan, B. and Alaghbari, W., 2021 Construction industry sustainable development indicator for low-income developing countries: Yemen as a case study. *Int. J. of Construction Mgt.*, pp.1-8."
- [23] Gamil, Yaser, Ismail Abdul Rahman, Sasitharan Nagapan, and Nur Ain Ngah Nasaruddin. 2020 Exploring the Failure Factors of Yemen Construction Industry Using PLS-SEM Approach." *Asian J. of Civil Engr.* 21
- [24] Zavadskas, E.K., Vilutienė, T., Turskis, Z. and Šaparauskas, J., 2014 Multi-criteria analysis of Projects' performance in construction. *Archives of civil and mechanical Engr.*, 14, pp.114-121."
- [25] Hong, M. 2014 Integrated Safeguards Data Sheet (Appraisal Stage)-Additional Financing II for SFD IV-P148474.
- [26] Alzahrani, J.I. and Emsley, M.W., 2013 The impact of contractors' attributes on construction project success: A post construction evaluation. *Int. J. of project Mgt.*, **31** 2, pp.313-322."
- [27] Ghorbani, A., 2023 A Review of Successful Construction Project Managers' Competencies and Leadership Profile. *J. of Rehabilitation in Civil Engr.*, **11** 1, pp.76-95."
- [28] Bryde, D.J. and Robinson, L., 2005 Client versus contractor perspectives on project success criteria. *Int. J. of project Mgt.*, **23** 8, pp.622-629."
- [29] Wang, T., Xu, J., He, Q., Chan, A. P., & Owusu, E. K. 2023 Studies on the success criteria and critical success factors for mega infrastructure construction projects: A literature review. *Engr., Construction and Architectural Mgt.*, **30** 5, 1809-1834.
- [30] Walker, A., & Newcombe, R. 2000 The positive use of power on a major construction project. *Construction Mgt. & Economics*, **18** 1, 37-44.
- [31] Asgari, M., Kheyroddin, A., & Naderpour, H. 2017 A proposal model for estimation of project success in terms of radial based neural networks: a case study in Iran. *Civil Engr. J.* **3** 10, 904-919.
- [32] Naderpour, H. 2018 "Evaluation of Critical Success Factors of Construction Projects Using Soft Computing Methods." *Int. J. of Innovation, Mgt. and Technology* 64–69.
- [33] Chan, A.P., Scott, D. and Chan, A.P., 2004 Factors affecting the success of a construction project. *J. of construction Engr. and Mgt.*, **130** 1, pp.153-155."
- [34] Tripathi, K. K., and K. N. Jha. 2019 An Empirical Study on Factors Leading to the Success of Construction Organizations in India." *Int. J. of Construction Mgt.* **19** 3:222–39.
- [35] Mathar, H., Assaf, S., Hassanain, M. A., Abdallah, A., & Sayed, A. M. 2020 Critical success factors for large building construction projects: Perception of consultants and contractors. *Built Environment Project and Asset Mgt.*, **10** 3, 349-367.
- [36] Gunduz, M. and Almuajebh, M., 2020 Critical success factors for sustainable construction project management. *Sustainability* **12** 5: 1990."

- [37] Seiler, S., Lent, B., Pinkowska, M. and Pinazza, M., 2012 An integrated model of factors influencing project managers' motivation—Findings from a Swiss Survey. *Int. J. of Project Mgt.*, **30** 1, pp.60-72."
- [38] Verburg, R.M., Bosch-Sijtsema, P. and Vartiainen, M., 2013 Getting it done: Critical success factors for project managers in virtual work settings. *Int. J. of project Mgt.*, **3** 11, pp.68-79."
- [39] Mavuso, N. M., & Agumba, J. N. 2016 Factors of communication management for successful project delivery in the Swaziland construction industry. *Resource*, **19** 21.
- [40] Khalilzadeh, M., Kebriyaii, O. and Rezaei, R., 2021 Identification and selection of stakeholder engagement strategies: case study of an Iranian oil and gas construction project. *Int. J. of Construction Mgt.*, pp.1-23."
- [41] Inuwa, I. I., Napoleon Daniel Usman, N. D., & Dantong, J. S. 2015 The effects of unethical professional practice on construction projects performance in Nigeria. *African J. of Appl. Research*, **11** .
- [42] Gudienė, N., Banaitis, A., Banaitienė, N., & Lopes, J. 2013 Development of a conceptual critical success factors model for construction projects: a case of Lithuania. *Procedia Engr.*, **57**, 392-397.
- [43] Yan, H., Elzarka, H., Gao, C., Zhang, F. and Tang, W., 2019 Critical success criteria for programs in China: Construction companies' perspectives. *J. of Mgt. in Engr.*, **3** 51, p.04018048."
- [44] Akanni, P.O., Oke, A.E. and Omotilewa, O.J., 2014 Implications of rising cost of building materials in Lagos State Nigeria. *SAGE Open*, **4** 4, p.2158244014561213."
- [45] Seymour, H., 2019 *The multinational construction industry*. Routledge."
- [46] Razzaq, Afia, Muhammad Jamaluddin Thaheem, Ahsen Maqsoom, and Hamza Gabriel 2016 Critical External Risks in Int. Joint Ventures for Construction Industry in Pakistan." *Int. J. of Civil Engr*
- [47] Song, Y. and Chua, D.K., 2006. Modeling of functional construction requirements for constructability analysis. *J. of Construction Engr. and Mgt.*, **13** 212, pp.1314-1326."
- [48] Schönbeck, P., Löfsjögård, M., & Ansell, A. 2020 Quantitative review of construction 4.0 technology presence in construction project research. *Buildings*, **10** 10, 173.
- [49] Ilayaraja, K. and Eqyaabal, Z., 2015 Value engineering in construction. *Indian J. of Science and Technology*, **8** 32, pp.1-8."
- [50] Erdis, E. and Ozdemir, S.A., 2013 Analysis of technical specification-based disputes in construction industry. *KSCE J. of Civil Engr.*, **17**, pp.1541-1550."
- [51] Muneer, M., Khan, N., Awais Hussain, M., Shuai, Z., Khan, A. A., Farooq, R., ... & Tariq, M. A. U. R. 2022 A Quantitative Study of the Impact of Organizational Culture, Communication Management, and Clarity in Project Scope on Constructions' Project Success with Moderating Role of Project Manager's Competencies to Enhance Constructions Management Practices. *Buildings*, **12** 11, 1856.
- [52] Johari, S., & Jha, K. N. 2020 Challenges of attracting construction workers to skill development and training programmes. *Engineering, Construction and Architectural Mgt.*, **27**(2), 321- 340.
- [53] Tabassi, A. A., Abdullah, A., & Bryde, D. J. 2019 Conflict management, team coordination, and performance within multicultural temporary projects: Evidence from the construction industry. *Project Mgt. J.* **50** 1, 101-114.
- [54] El-Sayegh, S. M., Kashif, M., Al Sharqawi, M., Nikoula, N., & Alhimairee, M. 2016 Significant factors affecting the size and structure of project organizations. In *2016 Int. Conf. on Industrial Engr., Mgt. Sci. and Application (ICIMSA)* (pp. 1-5. IEEE.