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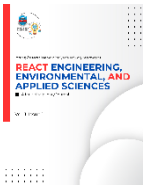

Strategies for Reducing Overhead Costs in Construction Projects

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Abstract

Overhead costs in construction projects have become a growing concern among indigenous construction firms due to their potential to erode profit margins and hinder project success. This study examined the strategies for minimizing overhead costs in construction firms while maintaining operation efficiency and competitiveness. A quantitative survey approach was adopted targeting construction firms in Osogbo, Osun State. A structured questionnaire was administered to construction professionals, which consist of 80 respondents selected through a random sampling technique. The data obtained were analysed using descriptive statistics. The findings show that fuelling of vehicles and equipment, maintenance and repairs of plant and vehicle maintenance and repairs constituent major items that contribute to high overhead cost. The major factors that contribute to high overhead cost are delay in payment, inefficient project management practices, inadequate planning and budgeting and frequent changes in project scope and design. Strategies adopted in reducing overheads are the implementing efficient project management practices, proper planning and budgeting, investing in technology and automation, and regularly reviewing and adjusting cost control measures. Understanding and managing overhead costs is vital for delivering projects and by Implementing appropriate strategies can improve resource utilization, optimize cost efficiency, and enhance overall project delivery.

Keywords Cost overheads, construction firms, construction projects, construction costs, indirect costs

1. Introduction

The successful project execution is largely dependent on efficient cost management in the construction industry. One essential factor in determining a project's overall feasibility and success is the capacity to precisely predict, monitor, and effectively control construction costs. The construction industry by its very nature is exceedingly complex, with many interwoven activities, complicated procedures, and a large number of stakeholders. As a result, they are vulnerable to a broad range of costs that have particular effects on the success, planning, and execution of projects. These different cost falls into two categories: direct costs and indirect costs. According to Saini et al., (2021), direct costs are those that may be linked to physical activity in the construction processes. The expenses include the cost of materials, labour, and equipment used throughout the construction process. Overhead costs, on the other hand, are an important component of financial management in construction projects, as they include expenses that are not directly related to specific project activities (Aziz & Willis, 2021), but are required for the general operation and execution of the job. Administrative expenses, office rent, utilities, insurance, employee wages, and equipment are some examples of these costs. Transportation, fuelling, and other indirect expenditures are required to support building operations (Riduwan et al., 2023). Overheads are crucial in establishing the final cost of a construction project, but their precise prediction is frequently disregarded, thereby jeopardising cost management. Overhead cost may not be the most significant cost in building projects, but they do have an impact on construction firms' profitability and competition. Aziz and Willis (2021) acknowledged that several construction businesses frequently overlooked overhead cost control, resulting in financial losses and becoming uncompetitive in the construction industry. As a result, construction firms must understand their overhead costs in order to control them and make suitable adjustments for them in project bids. A thorough

understanding of these costs is required for sound financial planning and resource allocation. Having effective cost management methods is critical in the construction management process (Qiu & Xiao, 2020). Lowering a contractor's overhead costs may be an effective approach to increase profit and competitiveness while also offering excellent products and services to their clients (Ogbu & Imafidon, 2019).

Several studies have been conducted on overhead cost practices in construction projects, however, there is a dearth of research in Nigeria on overhead costs and the strategies used by indigenous construction firms to reduce overhead costs in construction projects. This study examined the strategies adopted used construction firms to reduce overhead costs while preserving quality, efficiency, and profitability in construction projects. Furthermore, the study identified the primary things that make up overhead costs in construction projects, as well as the factors that contributes to high overhead costs in projects. This study will help in enhancing construction firms' profitability by optimising resources and minimising waste, as well as improving project delivery. It will also foster growth by promoting cost-effective practices, contributing to economic stability and competitiveness in Nigeria's construction industry.

2. Materials and Methods

The research sought to investigate the strategies used by construction firms in Osogbo, Osun state, to reduce overhead expenses. In order to achieve the study aim, the objectives were established, and it evaluated the items that compose overhead costs in construction projects, as well as the factors that contribute to high overhead costs and the strategies used to reduce overhead costs. Data were obtained from both primary and secondary sources. Primary data were collected using structured questionnaires distributed to construction professionals with project expertise from certain chosen construction firms in the study area. The sample was drawn using random sampling methods. Construction firms' viewpoints in Osogbo were sorted for due to the amount of infrastructural development going on in the state. A total of one hundred (100) questionnaires were distributed, and eighty (80) were returned. The questionnaire was divided into four sections; the first investigates the respondents' attributes. The second part identified the items that constituent overhead costs in construction projects. The third assessed the factors that contribute to high overhead costs, and the fourth section examined the strategies used by construction firms to reduce cost. Respondents are to show their level of agreement in each of these sections on a Likert scale of 1-5 where; 1 = strongly disagree, 2 = disagree, 3 = moderately agree, 4 = agree, 5 = strongly agree. Descriptive statistics was used to analyze the respondent's characteristics, while the relative importance index and ranking score were used to analyze the objectives of the study.

3. Results and Discussion

3.1 Characteristics of Respondents

The result of the characteristics of respondents provides crucial insights into the composition of professionals who participated in this study. The data, as shown in Table 1, reveal that architects (27.50%) and quantity surveyors (25.00%) formed the largest professional groups, highlighting their critical role in the design and cost management of construction projects. In terms of experience, most respondents (55.00%) had between 0-5 years of experience, suggesting that younger professionals are actively involved in construction projects. Firm size distribution indicates that small-sized firms are predominant (77.50%) in the study area. The high percentage of construction firms' involvement in consultancy and contracting (63.75%) further confirms that many of the respondents are involved in the consultancy operations and the actual execution of projects, where overhead costs are a major concern. The diversity of respondents ensures that the study captures a broad perspective on the issues related to cost efficiency in construction projects.

3.2 Major Items Constituting High Overhead Costs in Construction Projects

This section reveals the major items contributing to high overhead costs in construction projects according construction professionals in their firms. It is as presented in Table 2. The results from Table 2 indicate that the highest-ranking contributor to high overhead costs is fuelling of vehicles and equipment (RII = 0.80) is another critical factor, as construction projects require constant mobility and machinery operation. Ogunlana et al. (2017) assert that fuel price fluctuations have a direct impact on project costs. Because construction heavily relies on fuel-intensive machinery, fuel costs for vehicles (such as trucks and excavators) and equipment (such as cranes and generators) represent a significant overhead cost. These cost are vary, depending on fuel prices, project size, and equipment utilisation intensity. Construction sites frequently necessitate constant vehicle and equipment

operation, resulting in significant fuel consumption. Also, the removal of fuel subsidy in Nigeria also contributed to the overhead cost of most enterprises (Ilodigwe, 2023). The findings also shows that maintenance and repairs of plants (RII = 0.80) ranked 2nd is another item constitute overhead costs in projects. Because construction plants are costly, complex, and subject to wear from continuous use in harsh environments, plant maintenance and repairs (e.g., for concrete mixers, batching plants, or cranes) are critical overhead costs. These costs include routine servicing, part replacement, and unplanned repairs due to breakdowns. Herrera et al. (2020) identify plant maintenance as a primary overhead driver and that insufficient maintenance schedules often lead to frequent repairs, inflating costs by up to 10% of equipment budgets. Another notable constitute of overhead cost is vehicle maintenance and repairs (RII = 0.71), which rank third. Construction vehicles, such as dump trucks and crew transport vans, require extensive maintenance and repair owing to their heavy use, difficult terrain, and exposure to dust and debris. These costs include oil changes, tyre replacements, and engine and suspension maintenance. Insurance and taxes (RII = 0.68), also constitute overhead cost. Aziz and Willis (2021) identify insurance and tax burdens as substantial overhead contributions, accounting for 10% of the firm's overhead costs.

Table 1. Respondents Characteristics

Characteristics	Categories	Frequency	Percentage (%)
Profession	Architect	22	27.50
	Builder	19	23.75
	Quantity Surveyor	20	25.00
	Engineers	19	23.75
Years of Experience	1 - 5	44	55.00
	6 - 10	23	28.75
	11 - 15	7	8.75
	Above 15 years	6	7.50
Size of Firm	Small	62	77.50
	Medium	12	15.00
	Large	6	7.50
Nature of Firm	Consultancy	7	8.75
	Contracting	22	27.50
	Both	51	63.75

Table 2. *Major Items Constituting to Overhead Costs in Construction Projects.*

Items	RII	Rank
Fuelling of vehicles and equipment	0.80	1
Maintenance and repairs of plants	0.73	2
Vehicle maintenance and repairs	0.71	3
Insurance and taxes	0.68	4
Administrative salaries and staff wages	0.66	5
Vehicle insurance and registration	0.64	6
Utilities (electricity, internet, etc.)	0.62	7
Office rent	0.60	8
Professional licenses and dues	0.58	9
Office supplies & stationeries & printing	0.57	10
Bank charges	0.45	11

3.3 Factors Contributing to High Overhead Costs in Construction Projects

The results from Table 3 highlight the primary factors contributing to high overhead costs in construction projects. The most significant factor, as indicated by the highest RII value (0.79) is the delay in payment. Payment delays have a significant impact on overhead cost escalation, resulting in increased personnel compensation, equipment leasing, and administrative expenditures. This finding is consistent with the study by Ogbu and Imafidon (2019), who stress that delay payments result in higher contractor overhead costs for businesses. Another significant factor, as indicated with RII value (0.78), is inefficient project management practices. This implies that misallocation of resources, bad planning, and a lack of cooperation greatly increase overhead expenses. The findings are consistent with those of Daoud et al., (2023) and Shah et al., (2023), who hinted that ineffective project management—including poor site management and inexperienced contractors—significantly raises overhead costs by requiring more resources to fix inefficiencies. Also, inadequate planning and budgeting (RII =

0.75) increases the overhead cost of projects; this underscores the significance of proactive financial planning and project cost estimation. The inability to develop realistic budgets and manage cash efficiently leads to increasing operational expenses. According to Latif et al., (2023), poor financial planning makes construction firms more vulnerable to unforeseen expenditures that drive up overhead. Frequent changes in project scope and design (RII = 0.74) were also identified as a significant cost factor. Unexpected changes cause process disruptions, call for more personnel, and eventually raise administrative costs., which according to Qadri et al., (2025) could initiate overhead claims by contractors. Poor communication and coordination among stakeholders (RII = 0.72) increases overhead expenses by causing mistakes, miscommunications, and rework, which is consistent with the findings of Oyedele (2013). Addressing these aspects via enhanced planning, management, and change control, construction projects may considerably cut overhead costs and boost financial sustainability.

Table 3. *Factors contributing to high overhead cost in construction projects.*

Factors	RII	Rank
Delays in payment	0.79	1
Inefficient project management practices	0.78	2
Inadequate planning and budgeting	0.75	3
Frequent changes in project scope and design	0.74	4
Poor communication and coordination among project stakeholders	0.72	5
Lack of proper cost control measures	0.70	6
Poorly managed operations	0.70	6
Inefficient use of technology and	0.67	7
Rising prices of office supplies and	0.66	8
Type of project/contract	0.64	9
Reduction of project volume	0.61	10
Government regulations	0.60	11
High rate of employees leaving the company	0.58	12

3.4 Strategies Adopted in reducing Overhead Costs in Construction Projects

Table 4 shows the results of the strategies adopted by construction firms in reducing overhead cost in projects. Implementing efficient project management practices (RII = 0.85) was ranked first. By ensuring improved planning, resource optimisation, communication, risk mitigation, and technology use, efficient project management techniques lower overhead costs in construction projects. By reducing waste, inefficiencies, and delays, these techniques not only lower direct costs (such as labour and materials) but also indirect costs (such as site management and insurance), resulting in more profitable and successful projects. This finding aligns with the study of Shah et al. (2023), that by improving budget control and resource allocation, project management approaches including precise cost estimate, effective scheduling, and proactive risk management may drastically cut cost overruns, including overheads. Ranked second is proper planning and budgeting (RII = 0.82). Minimising inefficiencies, optimising resources, and avoiding costly errors, proper planning and budgeting are essential for lowering overhead costs in building projects. According to Fazil et al.(2021) precise cost prediction during the planning stage is crucial to preventing overhead cost increases brought on by inadequate funding or scope modifications. In addition, Kantianis (2020) suggests a time-cost planning technique that aligns budgets with project durations in order to optimise overhead expenses. By combining these tactics, planning and budgeting provide a cost management roadmap that guarantees overhead costs—like utilities, site operations, and administrative costs—are minimised while preserving project quality and schedules.

Investing in technology and automation (RII = 0.77) ranked is essential to lowering overhead costs because by strategically deploying technologies such as Procore, Autodesk construction cloud, and Building Information Modelling (BIM), Construction firms may simplify processes, eliminate waste, and cut overhead costs, increasing project profitability and competitiveness. Zadeh and Safaei (2023) also proposed that using smart contracts and blockchain can automate operations, minimise administrative overhead, and promote accountability. In addition, Regularly reviewing and adjusting cost control measures ranked fourth (RII = 0.75) in construction projects, ensures that overhead costs are kept to a minimum by detecting inefficiencies, reacting to project changes, and allocating resources to current demands. Continuous monitoring and proactive changes keep overhead costs under control by quickly correcting deviations (Ajayi et al., 2024).

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Table 4. *Strategies Adopted in reducing Overhead Costs.*

Strategies	RII	Rank
Implementing efficient project management practices	0.85	1
Proper planning and budgeting	0.82	2
Investing in technology and automation	0.77	3
Regularly reviewing and adjusting cost control measures	0.75	4
Adopting cost-effective communication tools	0.74	5
Negotiating better terms with suppliers and service providers	0.72	6
Regular training and development of staff	0.71	6
Utilizing shared services and resources to optimize cost	0.65	7
Streamlining administrative processes	0.65	8
Outsourcing certain firm functions	0.55	9

4. Conclusion

Understanding and controlling overhead expenses is critical for completing projects on time and budget. By predicting overhead expenses and planning for eventualities, construction businesses may reduce financial risk and assure project success. The study examined the strategies adopted by construction firms in minimizing overhead costs in construction projects. The major items that constitute high overhead cost in the study are fuelling of vehicles and equipment, maintenance and repairs of plant, vehicle maintenance and repairs and insurance and taxes as a result of delay in payment, inefficient project management practices, inadequate planning and budgeting and frequent changes in project scope and design. The strategies of efficient project management, proper planning and budgeting, technology and automation investment, and regular cost control reviews collectively reduce overhead costs by enhancing efficiency, minimizing errors, and ensuring budget adherence. Adopting the appropriate solutions for reducing overhead costs in building projects provides financial efficiency, competitive pricing, and operational excellence. By prioritising cost management, businesses can deliver high-quality projects on schedule and within budget, encouraging long-term success in a competitive sector.

Declarations

Data availability Data will be made available upon reasonable request.

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Competing interests Authors declare no known competing or financial interests.

References

Ajayi, T. O., Daramola, O. T., & Adhuze, O. O. (2024). Cost Management Evolution in Building Projects: A Review of Innovations and Challenges. *International Journal of Research and Innovation in Applied Science*, *9*(9), 80–95.

Aziz, F., & Willis, C. (2021). An Investigation of Construction Company Overhead Costs in Guyana International Journal of. *International Journal of Accounting Research*, *9*(7), 1–8.

Daoud, A. O., El Hefnawy, M., & Wefki, H. . (2023). Investigation of critical factors affecting cost overruns and delays in Egyptian mega construction projects. *Alexandria Engineering Journal*, *83*, 326–334.

Fazil, M. W., Lee, C. K., & Tamyez, P. F. M. (2021). Cost estimation performance in the Construction Projects: A systematic review and Future Directions. *International Journal of Industrial Management*, *11*, 217–234.

Herrera, R. F., Sánchez, O., Castañeda, K., & Porras, H. (2020). Cost overrun causative factors in road infrastructure projects: A frequency and importance analysis. 10(16), 5506. *Applied Sciences, 10*(16), 5506.

Ilodigwe, A.O. (2023). Fuel Subsidy Removal and Its Negative Impact on Small and Medium Scale Enterprises.

Journal of Education, Humanities, Management & Social Sciences, *1*(4), 25–35.

Kantianis, D. (2020). The Impact of Overheads Variation on Time-Cost Optimisation of Building Infrastructure Projects. *European Project Management Journal*, *10*(2), 18–31.

Latif, M., Saleem, M., & Cheema, S. M. (2023). Analyzing the Key Factors Contributing to Project Delays in the Construction Industry: A Comprehensive Study. *Journal of Development and Social Sciences*, *4*(3), 936-944.

Ogbu, C. P., & Imafidon, M. O. (2019). Effects of Overhead Cost of Civil Engineering Projects in Nigeria. *Journal of Contemporary Research in the Built Environment*, *3*(1), 1–14.

Ogunlana, S. O., Li, H., & Yisa, S. (2017). The effect of construction project complexity on cost performance. 25(4),. *Journal of Construction Economics and Building, 25*(4), 491–502.

Oyedele, L. O. (2013). Avoiding performance failure payment deductions in PFI/PPP projects: Model development. *Construction Management and Economics*, *31*(4), 363-381.

Qadri, Q., Sami'an, S., & Saputro, A. (2025). Requirements for Overhead Cost Claims and Construction Dispute Resolution Mechanisms in Indonesia: A Normative Study. *SIGn Jurnal Hukum*, *6*(2), 433–451. https://doi.org/10.37276/sjh.v6i2.404

Qiu, Y. L., & Xiao, G. F. (2020). Research on Cost Management Optimization of Financial Sharing Center Based on RPA. *Procedia Computer Science*, *166*, 115–119.

Riduwan, S. P., Witjaksana, B., & Tjendani, H. T. (2023). Cost and Time Analysis Using Earned Value Method in the Construction of Sports Facilities in Kecamatan Kedewan. *Asian Journal of Engineering, Social and Health*, *2*(12).

Saini, A., Khursheed, S., Paul, V. ., & Kumar, K. (2021). Analysis of Indirect cost of Construction Projects in. *International Journal of Sustainable Building Technology*, *4*(2), 9–23.

Shah, F. H., Bhatti, O. S., & Ahmed, S. (2023). A Review of the Effects of Project Management Practices on Cost Overrun in Construction Projects. *Engineering Proceedings*, *44*(1). https://doi.org/https://doi.org/10.3390/engproc2023044001

Zadeh, E. K., & Safaei, M. (2023). Utilizing Blockchain Technology for Enhancing Transparency and Efficiency in Construction Project Management. *International Journal of Industrial Engineering and Construction Management*, *1*(1), 1–8.