

Performance of Local Construction Contractors – Case Study of Registered Contractors in Monrovia, Liberia

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Abstract: This study examines the underperformance of local construction contractors in Monrovia, Liberia, identifying critical factors and proposing solutions to enhance their operational effectiveness. It addresses the preference of clients for international firms due to dissatisfaction with local contractors. A mixed-methods approach was used, incorporating interviews with industry professionals and quantitative analysis using the Relative Importance Index (RII) to rank performance criteria. Questionnaires, employing a modified Likert scale, were distributed to 40 respondents, including employees, contractors, managers, engineers, and clients. Data were analyzed using RII and Pareto analysis. Key factors negatively affecting the work quality of local contractors include bribery and corruption, a lack of collaboration between designers and contractors, and inadequate monitoring and feedback. Significant issues involve poor project management, mismanagement of funds, inadequate equipment, limited access to finance, intense competition from international firms, and political influences. Pareto analysis highlighted underestimation, late delivery, scope mismanagement, and lack of operational funds as key influencers of performance. Limited to Liberian-owned construction companies in Monrovia, findings may have limited generalizability. However, it provides a framework for understanding challenges faced by local contractors in similar developing countries. Recommendations include enhancing project management practices, fostering better communication, improving access to finance and technology, and promoting transparency and meritocracy in contract awards. The study suggests implementing Total Quality Management (TQM) to enhance organizational performance. This research provides valuable insights into the specific challenges faced by local Liberian contractors, offering a comprehensive analysis and actionable solutions that contribute to the advancement of construction management knowledge in developing countries.

Keywords: Contractors, Local Construction Companies, Relative Importance Index, Quality Performance

I. Introduction

Background of the Study

The supply chains, products, and business methods of the construction industry are very diverse, which makes it a complex and wide industry (Behera et al., 2015; Pero et al., 2015). The construction industry faces the same problem that the production industries faced before. The 3 vital project management limitations of scope, time, and money are so significant that they are the decisive factors in how well a project is going to go (Agarwal & Rathod, 2006; de Carvalho et al., 2015). These regulations, however, permit each building project a chance to reallocate productivity and efficiency. Control, project management, and engineering design are extremely important factors that predict the success of the project (Camilleri, 2016; Kabirifar & Mojtahedi, 2019; Todorović et al., 2015).

The primary objective of this study is to evaluate the performance of construction companies in Liberia, with a particular focus on those owned by Liberian individuals. Local contractors came into being after the Ministry of Public Works and some foreign firms had already dominated most of the construction jobs. The Association of Liberian Construction Contractors (ALCC) was formed in 1979, and the Public Procurement Concessions Commission (PPCC) was enacted into law in 2005. Since then, indigenous contractors have played the leading role in bringing together and promoting professional ethics among contractors and sharing ideas in the construction industry (<https://libsearch.biz/>). The establishment of these organizations did not stop the construction companies owned by Liberians from facing problems, since the interruption of different building projects traditionally characterized the sector.

Several clients have widely criticized the sub-standard performance of many local Liberian construction companies because of a series of issues including lack of managerial skills, failure to deliver projects within the agreed scope of work, improper management of project funds, inadequate construction equipment, inadequate operational funds to carry out and manage projects, and poor financial management. As a result of the preceding problems, clients are no longer able to entrust their projects to Liberian contractors and have to work with international companies instead. This research seeks to identify the factors that impact the successful management of Liberian-owned construction companies. The study seeks to use the Liberian-owned construction enterprises as a case study to conduct a root cause analysis of the causes of these problems and proffer strategies and steps to lessen their effects on business operations.

Problem Statement

Many clients have expressed dissatisfaction with the performance of various Liberian-owned construction enterprises throughout the years for a variety of reasons, including:

- Poor management abilities
- The completion of the project was not as expected because it was not carried out in the stipulated scope of the work.
- The project's funds were mismanaged.
- The issue of inadequate building machinery is one of the challenges.
- Resource constraints are the most important hurdles to implementing or even initiating the project.
- Poor financial management.

These effects thereby result in clients opting to partner with foreign companies rather than employ local contractors to execute the projects. The stated problems have sparked big protests against the field.

Research Questions

- i. What are the primary causes of project delays experienced by local contractors in Liberia?
- ii. What factors contribute to local developers' failure to meet project deadlines?
- iii. How does inadequate budget monitoring hinder local contractors from completing their projects?
- iv. Given the tendency for local contractors to underestimate project budgets, what strategies, if any, enable them to complete their projects?
- v. What are the main reasons for the closure of construction companies in Liberia?

Research Objective

Let us look at some of the many consequences of many construction businesses founded by Liberians hiring and managing their projects wrongly:

- Look at the analytical tools and strategies of planning frequently used in the construction industry that can help with efficient management.
- Survey and scrutinize the inventory procedures to determine the primary issues and their roots.
- Propose solutions to these problems that make it easier for the local construction firms to perform better in a much safer, advanced, and less harmful construction industry.

Significance of the Study

In general, the pertinence of this study is about the factors affecting the success of Liberian construction industries' risk and mistake reduction, which includes the processes and methods. It targets the evaluation of the performance of the sector. The researcher also deals with solutions for development, security, and convenience, and provides an in-depth analysis of the management and operational systems of the local construction companies.

II. Literature Review

(Abu Oda et al., 2022) have argued that the most critical indicators for the performance assessment of construction companies are the time required for the on-site work, adherence to the technical specification, quality and appearance of the workmanship, project overall completion time, quality class, overall cost, time necessary to prepare shop drawings, comprehension of the work, construction work cost, and presence of a quality control system. The ability of a construction company to manage time can be rated by looking at time indicators, for example, how long the job lasts and how much time it takes to create shop drawings. Technical requirements assess how well a construction company is compliant with technical requirements, like building codes, rules, and industry standards. Technical specifications need to be followed to make sure that the final product complies with all the necessary standards for quality and safety. The quality indicators measure the skill level and general excellence of the final product. The quality control system indicator assesses the presence and functioning of quality control methods, and the acceptable quality indicator makes sure that the work is done according to the prescribed quality standards. Cost indices measure how cost-efficient a building firm is. They integrate the cost of the project's construction, including the materials, labor, and other outlays. The capacity of the construction company is to understand the tasks to be performed and the ability to implement the project.

(Dixit, 2020) has argued that the key five ingredients, including site management and coordination, leadership and financial management, planning, commitment, and coordination, were the essential ingredients to the building project's success. Site management is crucial, as it provides a framework for the very efficient and safe execution of the construction work through good coordination. This includes overseeing the building site, delivering the materials and tools, and ensuring it is completed on time. For a project to be successful, there is a need for strong leadership. Align the team members towards identical objectives, and effective leadership guarantees that the choices are made aptly and promptly. The financial ability of the construction project to manage its finances is a very critical element in its success, as it helps to keep the costs in check. A good strategy must be adopted

if the construction project is to be very successful. A good plan has to have specific targets, set deadlines, and show the project's potential difficulties. Planning well ensures that the project is done timely manner and also within the suggested budget. The success of the construction project should be a commitment of all the project team members, including the contractor, suppliers, and subcontractors, among others. Team members must be motivated to accomplish the project activities and overcome any difficulties or challenges to accomplish the goals and objectives of the project. Efficient and secure implementation of the project will only be possible if the project team members are coordinated. Coordination determines that everybody in the team is working for one purpose and communicating very effectively.

(Denton, 2017) has argued that the lack of workers' teamwork due to the absence of a Total Quality management system, which partially depends on the company's sincere commitment, especially the top management, is the main reason for the negative impacts on Liberia's local construction companies. The purpose of TQM is to provide new ways to enhance the organization's performance through optimizing its activities, processes, and outputs. It implies continuous innovation, client feedback, as well as staff participation in all the organization's operations. Local construction companies in Liberia lack a quality management system and process; therefore, they are not able to deliver quality building projects consistently. As for the absence, it can be connected to the disorganization of the management's lack of commitment to the practical implementation of TQM. Implementation and application of TQM techniques are impossible without a most impartial commitment from the management. TQM implementation necessitates a profound transformation in organizational culture, processes, and an aligned employee mindset. A collective team effort that cuts across all levels of the organization is needed to get this rolling. TQM has the power to make smaller business organizations reduce their costs, become productive, and increase their work quality, which could result in improving the customer satisfaction degree and business outcomes. TQM being implemented is largely affected by the management's commitment to its process.

(Ofori-Kuragu et al., 2016) have argued that credit availability problems, intense competition from global businesses, the inadequacy of technology in the construction firms, and the lack of project preparation, such as poor project planning and awarding of contracts with consideration of political affiliation, play an important role in determining the realities of Ghanaian contractors. Finance is the main issue because they cannot handle large-scale projects and grow their businesses, as they don't have enough funds. Local contractors usually could not equal foreign-owned construction companies when bidding for projects because the latter frequently have access to large financial funds and modern technology. There can be a problem with local contractors finishing the projects on time and fulfilling the given quality standard due to the absence of up-to-date construction technologies. Failure to plan well and prepare can create problems like project delays, cost overruns, and poor results. Merit at times can go down the drain if contacts are given based on the political connection. To overcome these problems, local contractors should improve their efficacy in accessing finance and technology. This can be achieved by forming partnerships with financial institutions and foreign businesses and creating a research and development sector. Still, there should be a stronger focus on the award of the contracts with clarity and merit, as well as the improvement in the project planning and preparation.

(Kukoyi & Smallwood, 2017) have argued that mainly the reason is that they did not get enough Health and Safety (H&S) training, employees feel working on construction sites is dangerous, and give a higher priority to financial reward rather than safety factors. This is a result of a weakness in health and safety (H&S) education, which usually comes about through a narrow conception of the idea of safety at work. Risks related to construction work include exposure to toxic materials, electrocution, and falls from great heights. The employees, on the other hand, might not be able to understand the dangers they are exposed to and might put their financial resources ahead of their safety. One of the factors that contributes to such irresponsible behavior is the fact that the staff is not provided with H&S training. Some employees may not know about the dangers to which they may be exposed without appropriate training. Besides, they possibly don't know their responsibilities and rights concerning occupational safety. Employers in the construction industry should be training their employees comprehensively on health and safety in a bid to address the lag. It is important to include the possible risks that are present at a building site, the right use of personal safety equipment, and how to recognize and report when there are dangerous situations in this training. Employers should inform their staff that the safety of their employees is their priority and create a platform for employees to report any challenges to work safety they may have. Employers can maximize employees' understanding of their workplace safety and foster a culture of safety inside their businesses by providing comprehensive H&S training. This might lower the number of accidents and injuries in the workplace environment.

(Jarkas et al., 2015) have argued that it has been discovered by using the relative relevance index approach that the following are the main variables that affect construction labor productivity: (1) design drawing errors and omissions; (2) change orders during construction; (3) delay in responding to information requests; (4) inadequate labor supervision; (5) specifications accuracy level; (6) degree of coordination among design disciplines; (7) overtime need; (8) need to redo work that was incorrectly executed; (9) unfavorable weather conditions; (10) Changes can be made during construction but then more work, delays, and high costs will be required. Project delays may be caused, as well as decreased productivity, as a consequence of late replies to the questions. Lack of supervision may lead to rework, errors, and a drop in productivity. Ambiguous or imprecise requirements could lead to mistakes, rework, and misinterpretation. Not integrating design disciplines properly may lead to mistakes, rework, and delays. As the project deadlines have to be met, overtime may be a necessity, yet it can result in physical exhaustion and loss of productivity. Rework may reduce production speed and create delays. If bad weather occurs, production will decrease, and project delays will happen. Concentration, decision-making, and productivity can all be influenced by tiredness.

(Abisuga et al., n.d.) have argued that the delay in building construction can result from different troubles, for example, cash flow problems, bad quality of construction materials, clients' financial situation, lack of consulting skills, and a weak project team. The

late delivery of construction materials, the poor quality of construction materials, and the ensuing replacements or reordering, financial difficulties of the clients who need money but have no loans, which postpone the project funding or approvals, and a lack of resources for the project consultants, are the delays. There will be many delays that can be reduced by effective project planning, risk management, and communication.

(Callistus et al., 2014) have argued that key causes of the inadequate contractors' and consultants' quality performance are such systemic malpractices as corruption, abuse, bypasses, inefficient teamwork, a lack of inspection and follow-up, inadequate training of the staff in quality control, weak management leadership, and a contractor's lack of prior experience in the sector. Poor construction practices and shady dealings like bid rigging, kickbacks, and bribery can cause a great fall in construction work and also can bring jeopardy to the integrity of a project. Such flaws as ineffective cooperation and communication between the designers and the contractors, and also corrections and redesigns, can be caused by them, which can lead to unacceptable quality of the work. The lack of sufficient supervision and reporting is especially evident during the construction phase, where there may be mistakes, omissions, and quality issues that are not reported and left unattended. A shortage of quality control and inadequate personnel training could cause a lot of quality problems, delays, and rework. The quality of craftsmanship can be considerably affected by poor leadership and management skills, which results causes the repetition, rebuilding, and the project delay. Many contractors haven't done certain kinds of construction work or worked in these regions before, and they can be very unfamiliar with the many rules and specifications followed as well as the practices used there, which can cause many quality problems and delays. Contractors and consultants can improve their quality performance and provide for the project's success by adopting these factors through the application of an effective quality control system, staff training and development, collaborative work and communication between the project participants, and strong management and leadership.

Table 1 Summary of literature survey

Author & Year	Findings	Source (Journal)
Abu Oda, et al., (2022)	Time taken for the construction works, conformity to specifications, nature of the workmanship, final project completion time, quality of the project, cost of the project, the time required for shop drawing preparation, understanding of the work, cost of the construction, and application of quality control system are the main key performance indicators used for the evaluating the performance of the construction companies.	Taylor and Francis Group
Saurav Dixit, (2020)	There were five major elements, including site management and coordination, leadership, and also financial management, planning, commitment, and coordination, which made building projects very successful.	Organization, Technology, and Management
Ahmed Denton, (2017)	The most significant factor leading to the negative effects on the local construction companies in Liberia is the lack of Total Quality Management (TQM), whose implementation also depends on the company's dedication, the primary responsibility of which lies on the shoulders of their managers.	International Journal of Sciences
J. K. Ofori-Kuragu, et al., (2016)	The key factors influencing the Ghanaian workforce are the lack of credit facilities, stiff competition from foreign-owned businesses, the absence of technology for the construction firms, and inadequate project preparation, such as poor planning and contracts awarded on a political basis.	Journal of Construction in Developing Countries
Kukoyi, et al., (2017)	Consequently, because of their inadequate H&S training and henceforth inability to understand the concept, the employees view construction as very dangerous; thus, they regard financial reimbursement as that safety factor.	Journal of Construction, Business, & Management
Jarkas A, M, et al., (2015)	Construction labor productivity is primarily affected by the following factors: design drawing errors, order changes during implementation, delays in answering the information request, supervision of the labor force, the accuracy of the project specifications, and the degree of coordination of the design departments, the need to work overtime, the need to correct the work that was done wrongly, the exceptional weather conditions and physical exhaustion.	International Journal of Construction Management
Abisuga A. O, et al., (2014)	Among the many reasons that could cause a construction project to be behind schedule are the financial problems of the developers, lack of appropriate construction materials, clients' financial issues, consultants' lack of expertise, and an incompetent team.	Research Gate

Tengan Callistus1 et al., (2014)	Lack of trainees in quality control, conflicts between the designers and contractors, inappropriate performance monitoring and feedback, weak management leadership, the lack of experience on the contractor's behalf, and inefficient communication and collaboration are the main factors that influence the quality performance of the consultants and contractors.	Emerald Insight
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III. Research Methodology

Study Area

Generally, manageable samples were used only to gather data; afterwards, the information gathered was proportionate to reflect all construction companies owned by Liberians. In a similar vein, the surveys of McBurney (1994) are an assessment of the public view or characteristics through the use of questionnaires and sampling techniques.

The focus population (sample) of this study is defined as Liberian-owned construction companies in Monrovia because they compose a larger portion of all Liberian-owned construction companies in the country. Liberian-owned construction businesses in Liberia will be the research participants of this study. This study population covered employees, experienced engineers, construction supervisors, managers, contractors, clients, and other capable people with a bachelor's degree or more.

The Liberian-owned construction firms in the country are high in number, hence, either impossible or impractical to compensate for the values of the whole population. Although our list is a part of all those official Liberian-owned construction firms that are currently active in Monrovia.

The design of this study is based on the selection of fewer elements from the existing population using a specific sampling technique (Nworgu, 1991). The constituents of this sample are the same as those of the experiment. This survey sample population consisted of 40 respondents, with 7 being employees, 6 being independent contractors, 3 being managers, 19 being engineers, and 5 being clients.

Instrument for data collection

To collect data for this research, the interview schedule was one of the tools employed. The questions for the interview were devised in such a way as to acquire important details about how Liberian construction firms are run, specifically the ones that are owned by Liberians. It is crucial to define the particular factors affecting how Liberian-controlled construction businesses run there. A seven (7) category questionnaire has been assembled. The many-sided phenomenon, which can be divided by the time, needed scope, budget management, underestimation, operating finances, contractor, and consultant some of its components.

The information-acquiring device was made using a modified Likert scale. Nowadays, scoring psychometrics to address solo issues on a variety of problems is done by using the two most popular techniques: Likert and Likert-type responses. The Likert scale says that depicting responses with the alternatives "Strongly Disagree", "Disagree", "Neutral", "Agree", or "Strongly Agree" via the numbers 1, 2, 3, 4, 5 is quite easy; usually, people do. Next, the subjects were instructed to show the extent they agreed or disagreed with the statements.

Validation of Questionnaire

The survey employed the face and content validity validation technique. The authenticity of the face and the substance have been clarified by McBurney (1994). The notion of face validity and content validity is that the test should involve those behaviors that the theoretical concept embraces. Face validity is the idea that a test is supposed to look at what it is on the surface.

Professionals in this field were given a questionnaire and a copy of the research questions as part of the validation procedure in the present study. They proposed using a modified 4-point Likert format for the questionnaire's structure rather than the unusual 5-point format (Nworgu, 1991). As a five-point scale is associated with "strongly agree", "agree", "neutral", "disagree", and "strongly disagree", respectively, the modified Likert scale is the more favored option. Many academics and educators argue that allocating three marks to a person who is doubtful about his/her position is unfair. Because of that, the modified 4-point Likert scale should be used. Nevertheless, the experts' other insightful diagnoses and prescriptions were amended and adjusted.

Method of data collection

The tool was constructed to be filled in by the selected sample after the pilot testing sessions, with all the needed corrections. In all, 55 questionnaires are produced and given away to the survey participants. For the interviews conducted, they were all returned and submitted in pristine condition, along with 40 copies in duplicate. The research team responsible for the collection of all surveys made it possible to collect all surveys as well. In 3 weeks, the researchers managed to identify as completely answered 39 questionnaires, 10 of which had some damage on them, and 6 people answered just some questions.

Method of data analysis

The collected data was further analyzed using both the method of Relative Importance Index (RII) as used by Callistus et al. (2014) and the Pareto analysis, as explained by Sarkar, Mukhopadhyay, and Ghosh, (2013) and Bajaj, Garg, and Sethi, (2018). From

Equation (1), the contribution of certain key success factors for the Liberian-owned construction enterprises that were highly linked to their performance was rated.

$$RII = \frac{\sum W}{A \times N} \quad \text{-----} \quad \text{Eq. 1}$$

Where:

W - The scale used to consider a factor (from 1 to 4)

A – Is the top of the scale

N – Total number of respondents.

IV. Analysis and Discussion

Results/Findings

The study came out with a successful sample survey and selected 39 well-qualified and competent volunteers from the construction industry in Liberia. There were 18 Engineers, 3 Managers, 7 Staff, and 6 Contractors, while the clients were 5 in number. The participants had different levels of expertise, ranging from three years to 36 years, with an average of nine years across all. The findings of the respondents' rating of what they perceive as variables negatively affecting Liberian-owned construction firms are captured in Table 2. For every aspect that influences how these companies function in Liberia, a justification and observation are offered.

Table 2 Failure to complete project on time

Time	Responses (Rankings)				Sum (N)	ΣW	Mean= $\left(\frac{\sum W}{N}\right)$	RII= $\left(\frac{\sum W}{A \times N}\right)$	Rank
Factors	1	2	3	4					
Lack of proper planning and control of projects	8	18	4	9	39	92	2.35	1.17	2
Lack of trained and qualified staff	23	6	5	5	39	70	1.79	1.79	1
Rework, to correct non-conformance	10	21	6	2	39	78	2.00	1.00	3
Mismanagement of funds	3	4	2	30	39	137	3.51	0.87	4

Among the factors under the title that featured the largest relative importance index (RII), the highest ranking was derived through the sample survey. Given Table 2, four time-related aspects facilitated the performance of construction firms owned by Liberians. The lack of trained and qualified staff ranked first with a relative importance index (RII) of 1.79. The lack of proper planning and control of projects ranked next with an RII of 1.17. Rework to correct non-conformance ranked third with RII of 1.00. Mismanagement of funds came up as the fourth with an RII of 0.87.

Table 3 Failure to deliver project per required scope

Required Scope	Responses (Rankings)				Sum (N)	ΣW	Mean= $\left(\frac{\sum W}{N}\right)$	RII= $\left(\frac{\sum W}{A \times N}\right)$	Rank
Factors	1	2	3	4					
Lack of qualified staff	29	5	2	3	39	57	1.46	1.46	1
Lack of proper monitoring or control	3	21	5	10	39	100	2.56	1.28	2
Use of substandard materials	6	12	12	9	39	102	2.61	0.87	4
Mismanagement of funds	1	4	6	28	39	139	3.56	0.89	3

Table 3 depicts the four scope-related elements that affect the performance of Liberian-owned construction enterprises as stated above. Lack of qualified staff ranked highest with RII of 1.46. Lack of proper monitoring or control ranked next with RII of 1.28. Mismanagement of funds ranked third with RII of 0.89. The use of substandard materials ranked fourth with RII of 0.87.

Table 4 Failure to complete project due to lack of proper budget control

Proper Budget Control	Responses (Rankings)				Sum (N)	ΣW	Mean= $\left(\frac{\Sigma W}{N}\right)$	RII= $\left(\frac{\Sigma W}{A \times N}\right)$	Rank
Factors	1	2	3	4					
Unavailability of qualified staff	25	7	3	4	39	64	1.64	1.64	1
Spending outside the budget	1	2	17	19	39	132	3.38	0.84	3
Embezzlement of project funds	2	1	11	25	39	137	3.51	0.87	2

As illustrated in Table 4, three elements that are linked to appropriate budget control affect how well Liberian-owned construction firms perform. Due to an RII of 1.64, the unavailability of qualified staff was evaluated as the main factor in the study among the evaluated factors. The Embezzlement of project funds ranked next with RII of 0.87. Spending outside the budget was ranked third with RII 0.84.

Table 5 Failure to complete project due to underestimation

Under Estimation	Responses (Rankings)				Sum (N)	ΣW	Mean= $\left(\frac{\Sigma W}{N}\right)$	RII= $\left(\frac{\Sigma W}{A \times N}\right)$	Rank
Factors	1	2	3	4					
Underpricing of construction materials	4	8	17	10	39	111	2.84	0.94	1
Wrong quantity calculated	4	9	21	5	39	105	2.69	0.89	2
Lack of operational funds	3	2	5	29	39	138	3.53	0.88	3

As shown in Table 5, there are three observable features cited as the main factors that facilitate the operation of Liberian-owned construction enterprises in Liberia. The underpricing of construction materials ranked first with RII of 0.94. The wrong quantity calculated was ranked second in terms of importance, having an RII of 0.89. The lack of operational funds ranked third with an RII of 0.88.

Table 6 End of company existence due to lack of operational funds

Operational Funds	Responses (Rankings)				Sum (N)	ΣW	Mean= $\left(\frac{\Sigma W}{N}\right)$	RII= $\left(\frac{\Sigma W}{A \times N}\right)$	Rank
Factors	1	2	3	4					
Mismanagement of funds	1	0	5	33	39	148	3.79	0.94	3
Lack of qualified staff	23	8	3	5	39	68	1.74	1.74	2
Lack of profit generation	13	13	7	6	39	84	2.15	2.15	1
Lack of income saving for future projects	3	6	16	14	39	119	3.05	0.76	4

As presented in Table 6, there are four criteria related to operational funds that influence how efficiently Liberian-owned enterprises operate in Liberia. The lack of profit generation ranked first with RII of 2.15. The next factor, with its relative importance index being 1.74, is the lack of qualified staff. Mismanagement of funds, with an RII of 0.94, is the third item among the financial operations that negatively affects Liberian-owned construction enterprises. Having an RII of 0.76, Lack of income saving for future projects was rated fourth.

Table 7 Failure to complete project due to contractor

Contractor	Responses (Rankings)				Sum (N)	ΣW	Mean= $\left(\frac{\Sigma W}{N}\right)$	RII= $\left(\frac{\Sigma W}{A \times N}\right)$	Rank
Factors	1	2	3	4					
Lack of commitment to quality	7	15	11	6	39	94	2.41	1.20	9
Lack of staff training	17	11	8	3	39	75	1.92	1.92	3

Lack of management leadership	6	16	7	10	39	99	2.53	1.26	7
Poor planning and control techniques	8	12	9	10	39	99	2.53	1.26	7
High level of competition	21	10	5	3	39	68	1.74	1.74	5
High number of competitors	20	7	8	4	39	74	1.89	1.89	4
Poor financial control	3	15	11	10	39	106	2.71	1.35	6
Resource wastage	10	15	8	6	39	88	2.25	1.12	10
Lack of contractor experience	13	9	13	4	39	86	2.20	0.73	11
Lack of technical expertise and resources	11	10	7	11	39	96	2.46	0.61	12
Lack of education and training	14	10	8	7	39	86	2.20	2.20	1
Lack of on-site manager/supervisor	18	7	4	10	39	84	2.15	2.15	2

Guided by Table 7, contractor-related factors are 12 in number, and they play a role in the performance of Liberian-owned construction enterprises. Due to the RII value of 2.20, the lack of education and training takes the first place. The lack of on-site manager/supervisor with RII of 2.15 ranked next. The lack of staff training, with an RII of 1.92, is the third contractor-related problem that proved to be an obstacle to domestic construction enterprises in Liberia. Partly, two significant challenges experienced were the lack of contractor experience and the lack of technical expertise and resources, which were ranked 11th and 12th, respectively.

Table 8 Failure to complete project due to consultant

Consultant	Responses (Rankings)				Sum (N)	ΣW	Mean= $\left(\frac{\Sigma W}{N}\right)$	RII= $\left(\frac{\Sigma W}{A \times N}\right)$	Rank
Factors	1	2	3	4					
Inadequate project team capability	15	9	6	9	39	87	2.23	2.23	1
Poor Information and communication	5	19	7	8	39	96	2.46	1.23	3
Inadequate early and continual client/consultant consultation by contractors	12	11	12	4	39	86	2.20	0.73	9
Project managers' competence	15	10	5	9	39	86	2.20	2.20	2
Fraudulent practices and kickbacks	3	3	3	30	39	138	3.53	0.88	6
Lack of employee commitment	6	11	15	7	39	101	2.58	0.86	8
Lack of coordination between designers and contractors	7	16	8	8	39	95	2.43	1.21	4
Inefficient stakeholders' teamwork	9	13	9	8	39	94	2.41	1.20	5
Poor Monitoring and feedback	0	5	9	25	39	137	3.51	0.87	7

The nine (9) factors of the consultant-related aspect, as shown in Table 8, serve as determinants of performing Liberian-owned construction enterprises. A relative importance index (RII) of 2.23 then ranked inadequate project team capability in the first place. Project managers' competence ranked second with RII of 2.20. Poor information and communication ranked as the third communication-related factor that negatively affects Liberian consultants. It is noticeable that the lack of employee commitment ranked 8th, and client/consultant consultation by contractors ranked 9th, while having an RII of 0.86 and 0.73, respectively.

Table 9 Statistical data for respondents' rating

Factors affecting the performance of Liberian-owned construction companies								
No.	Respondent ID#	Time	Required Scope	Proper Budget Control	Under Estimation	Operational Funds	Contractor	Consultant
1	SSR-01	2	3	3	1	4	2	3
2	SSR-02	2	3	4	2	3	3	3

3	SSR-03	2	2	2	3	3	1	2
4	SSR-04	2	2	2	2	2	2	2
5	SSR-05	2	3	3	3	2	2	2
6	SSR-06	3	3	3	4	3	3	3
7	SSR-07	3	3	3	1	3	4	4
8	SSR-08	2	2	3	3	3	2	2
9	SSR-09	2	2	2	3	3	1	2
10	SSR-10	3	4	4	3	4	3	3
11	SSR-11	3	3	2	3	3	3	3
12	SSR-12	2	2	2	3	2	1	2
13	SSR-13	2	3	3	3	3	2	2
14	SSR-14	2	3	2	3	3	2	2
15	SSR-15	4	3	3	4	3	3	4
16	SSR-16	3	3	3	3	3	3	2
17	SSR-17	3	3	2	3	2	3	3
18	SSR-18	3	4	3	4	3	3	4
19	SSR-19	2	3	4	3	3	2	3
20	SSR-20	3	3	3	4	3	3	3
21	SSR-21	1	2	2	3	3	3	3
22	SSR-22	1	2	1	3	2	2	1
23	SSR-23	2	2	2	2	3	2	2
24	SSR-24	4	3	4	3	3	3	3
25	SSR-25	2	3	3	3	3	3	3
26	SSR-26	2	3	2	2	3	3	3
27	SSR-27	2	2	3	4	3	1	2
28	SSR-28	2	2	2	3	3	2	2
29	SSR-29	2	3	3	3	3	2	3
30	SSR-30	2	2	2	2	3	1	2
31	SSR-31	2	2	2	4	3	3	3
32	SSR-32	2	3	3	3	3	2	2
33	SSR-33	2	3	2	3	3	2	2
34	SSR-34	2	3	3	3	3	2	2
35	SSR-35	2	2	3	3	3	2	2
36	SSR-36	2	2	3	3	3	2	2
37	SSR-37	3	3	3	4	4	3	3
38	SSR-38	3	4	4	4	3	3	3
39	SSR-39	3	3	4	3	3	3	4
Survey Points		91	106	107	116	115	92	101
Rating: 1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree								

The statistical outcomes on which the sample respondents expressed their views on the performance of Liberian-owned construction firms can be seen in Table 9. The dimensions that are key in conducting a Pareto analysis are given in Fig.8.

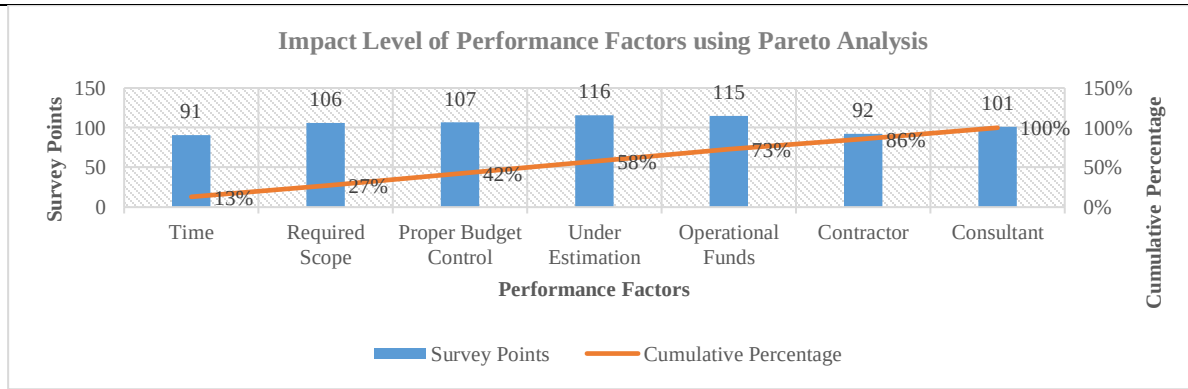


Fig. 8 Impact level of performance factor using Pareto Analysis

The Pareto Analysis chart of Figure 8 describes the variables that increase the success of regional construction companies in Liberia. This information was obtained from a survey that is being used for research. It is thus highlighted by the Pareto principle, which stresses that a majority of the problems (80%) are found in a few areas as opposed to many areas (Bajaj et al., 2018; Sarkar et al., 2013). According to the Pareto Analysis, the vital few elements that exert the greatest influence on a construction company's performance include underestimation, time (specifically late delivery of projects), required scope (or missing the mark on project scope), and operational funds (in terms of not having enough). The trivial many, on the other hand, are the insignificant elements.

V. Discussion of Results

Categories of Performance Factors

The identification of the designated categories below as the root causes of these components has resulted from the progressive analysis of the parameters that influence the performance of Liberian construction companies.

Employees (staff):

- The essence of this phrase is the employment of workers who have no requisite expertise for the role they are expected to perform.
- Staff are brought on in favor of connections instead of expertise.
- The project team does not include experienced members who have accomplished similar projects in the past, and all risks associated with completing the project on time are rather well-known.
- To manufacture some kind of additional profit, many local engineers give the jobs of engineers to technicians rather than engineers themselves during their construction projects.

Finance:

- Using the project funds for irrelevant activities, and that way, the supplies they use have to be improvised because of non-budgeted expenses by project members.
- Small businesses in Liberia often submit proposals and compete for bids on low-cost projects. Following the contract signing, they end up with no choice but to buy substandard hardware or carry out the assignment using lesser quantities.

Planning:

- Procurement is insufficient in terms of the preparation and tendering stages.
- A few smaller-scale regional construction companies opt not to divvy the overall project into small, feasible pieces.
- These local construction businesses have more responsibilities to complete all their remaining job by the project deadline since they are concentrating on the parts of the project that were delayed in some sectors of construction, and to complete all the projects within time.

Management:

- In case scope creep is not handled with appropriate measures, the project could be handed over with the original scope not matching the plan. When a project scope suddenly keeps increasing to unpredictable levels or continues to expand even after the project initiation is known as project scope creep.
- Some of the regional construction companies are not well organized to supervise their projects, depending on the size of the specific project.

- Inefficient supervision of supervisors will be an issue when responsibilities are delegated, being the work is performed beyond their scope.

Tools and Equipment:

- Missed providing the firm's employees with the necessary tools and equipment at the location and when they were needed. The labor shortage issue in the construction industry has posed a significant challenge for firms, threatening their successful completion of projects.
- Incorrect tool usage or equipment could, in turn, lead to erroneous performance of the task.

Procurement and Logistics:

- This results in jobs being performed beyond the original scope.
- Some companies specifically try to increase their profit margin by selling small amounts of commodities of poor quality.

Behavior:

- Some workers steal money and supplies from projects into their purses and use them for their personal lives, which is not the reason for which they were meant to be used. Some projects may not be finished as a result of these acts.
- We also face problems of dishonesty that occur when a few employers and employees do not consider the integrity of their partners in the project or the project itself, in general, as well as the profit of the project, but use project resources for their own interests.

Natural Events:

- The weather changes, in general, can be a big problem for project execution and scheduling. If no measures are taken against such incidents, then the end time frame of the project may not be met.
- Events that are not expected, like incidents or accidents, sometimes cause failure on a schedule.
- The natural disasters, such as fire accidents, might disrupt projects from finishing action time.

Economic Situation:

- Owing to the unstable economic system, local construction industries can experience prolonged periods without new orders.
- Companies may be compelled to enter into a debt agreement by borrowing money from private financial institutions, which will involve outrageously high rates of interest. Ultimately, the company risks falling.

Shareholders:

- Not every business will make it through the board of shareholders' discord after different viewpoints when making choices.

Most small construction companies in Liberia are run by one man who doesn't have enough knowledge about construction or the running of a business. Sole proprietors do not listen to the technical staff's opinions and views (Adams & Matheson, 1998; Galloway, 2006). They will make the decisions on their own, and one of the many drawbacks is that they might lead to business failure instead of hiring and enabling technical staff in their organization to solve technical challenges (Bushe, 2019; Holtz-Eakin et al., 1994).

Performance of Local Construction Companies

It is tremendous to set objectives to succeed, and the construction contractors get blamed for poor jobs and paid for not using management strategies in business. Not only smaller businesses but also the larger ones are struggling to deal with such resources as labor, money, material, or equipment in a way that promotes development, thus the economy becomes particularly unstable with high inflation rates (Tran, 2013). Therefore, contractors face an uphill task as they attempt to operate their businesses in the country. At the same time, major projects in the country are given to a small number of foreign companies, due to the local businesses' shallowness of competitiveness.

Due to prevalent poor performance, the construction industry in Liberia is dominated by a few huge local companies, with most of them being foreign-owned. Most of the other contractors lack the quality that the small number of contractors possess. Progress is constrained by payment delays, mainly associated with government contracts, which are the major clients in the field. The health and safety of construction workers are not regarded as compared to other industries; the construction industry has a greater rate of occupational deaths.

Problems Affecting the Performance of Local Construction Companies

Other developing countries' construction sectors also share similar facts and challenges, which are experienced in the consulting and contracting companies of Liberia. These challenges include accountability issues, engineering shortcomings, and poor quality of work, but also access to little money. The performance of construction firms with Liberian ownership was largely affected by these factors.

Local contractors frequently get along with bad leadership and management, unreliable credit, late payments from the government and its agencies, complicated payment system, inability to deal with each other successfully in the procurement system, lack of capacity to compete with foreign-owned companies, people issues, insufficient work volume, corruption in business, obsolete technology and inefficient contract administration.

VI. Conclusion and Recommendation

Based on the research findings, it is evident that the Liberian construction sector faces significant performance challenges. These challenges stem from a complex interplay of factors affecting Liberian-owned construction companies.

This study highlights key impediments, including limited access to credit, inability to compete with foreign-owned businesses, inadequate technology, deficient project planning, and politically influenced contract awards. These factors collectively contribute to the underperformance of Liberian contractors. Further analysis revealed ten underlying categories affecting company performance: people, finance, planning, management, tools and equipment, procurement and logistics, employee behavior, natural events, economic conditions, and shareholders.

To enhance the operational effectiveness of Liberian-owned construction firms, the following recommendations are put forth:

1. **Human Resource Development:** Prioritize continuous improvement of professional skills through policymaking, academia, and practical training initiatives.
2. **Enhanced Monitoring:** Improve monitoring instruments and quality assurance through district office oversight of the construction process.
3. **Pre-Construction Collaboration:** Conduct pre-construction meetings to review designs and eliminate potential quality-hindering features.
4. **Technological Advancement and Training:** Adopt new technologies and upgrade staff training programs to enhance competitiveness and access to financing.
5. **Cost Management:** Implement strategies to reduce the costs of building materials.
6. **Improved Access to Credit:** Improve access to credit lines for Liberian contractors to address issues of delayed payments for completed projects.
7. **Adherence to Project Parameters:** Emphasize the importance of completing projects within stipulated timeframes, budgets, and quality standards.

Addressing these factors will require collaborative efforts from industry stakeholders, government agencies, and the construction firms themselves. By implementing these recommendations, Liberian-owned construction companies can enhance their performance, contribute to the growth of the local economy, and ensure the delivery of high-quality construction projects

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