

EVALUATION OF MANAGEMENT CHALLENGES FACING CONSTRUCTION PRACTICE IN NIGERIA

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ABSTRACT

The dynamic nature of clients, the complexity of construction projects and continuous demand for improved and efficient project delivery have put pressure on construction managers, thereby creating a lot of management challenges that required high sense of management acumen, capabilities, skills and strategies to tackle. This study therefore examined the management challenges facing construction practice in Nigeria. It also assessed the skills and management strategies needed for managing the challenges facing construction managers in delivering construction projects. The study adopted a survey research method, where questionnaire was distributed to the construction practitioners (contractors and professionals) within the South East Nigeria, through stratified random sampling. A total of 136 questionnaires were distributed to the respondents, while 97 were duly completed, returned and found suitable for analysis. Data obtained were analyzed and ranked using Relative Importance Index (RII). The result was subjected to further statistical analyses using Spearman's ranking correlation to ascertain the correlation of the ranking between the two groups of respondents. Subsequently, correlation was tested for its statistical significance using t- test statistic at 5% significance level. The result revealed that Time (Scheduling) Management (0.932), Quality Management (0.932), Cost Management (0.924), and Safety Management (0.922) were the top management challenges facing construction practice in Nigeria. The study also identified technical skills and other management skills and strategies required for tackling the challenges. It also established that a statistically significance strong positive correlation exist between the rankings of the contractors and professionals. It however, recommended that construction practitioners should acquire the right skills and apply appropriate management strategies in managing construction projects.

Keywords:- Construction Managers, Management Challenges, Skills, Strategies

1. INTRODUCTION

The construction industry is a very significant part of Nigeria economy. Though contributed just about ₦627,286.61 million (4.06%) and ₦ 695,565.83 million (4.32%) as its own share to the nation's GDP in the first and second quarters of 2014 respectively [1], [2], it remains a key player in the national economy. However, the construction industry inevitably faces many challenges [3], [4], [5], which today's construction manager needs to provide solutions to. Some are new to the industry, and some are centuries old [6]. The nature of the industry further complicates these challenges. The industry is fragmented and often inefficient [7], and is also slow to adopt, implement and integrate new information technologies and products, devoting few resources to research and development (R&D) compared to other [8], [9]. Further still, the industry is inundated with complexity of interdependencies and uncertainties [10], thereby making any prospect towards achieving the project objectives very blur. [11] note that the past two decades investors and owners of construction projects have been demanding that the design and construction industries enhance quality, decrease cost, and compress the delivery period for projects. As a result, both the owners and the industry have experimented with various forms of project delivery methods. But as alternative project delivery methods proliferated, the construction industry has coined various names for variations on the basic themes. Some of these have been codified in enabling legislation. Notwithstanding, construction projects represent unique set of activities that must take place to produce unique products. The success of a project is judged by meeting the criteria of cost, time, safety, resource allocation, and quality as determined by the owner [6]. Thus, the purpose of construction project management is to achieve goals and objectives through the planned expenditure of resources that meet the project's quality, cost, time, scope, and safety requirements. The construction manager must control, deflect, or mitigate the effects of any occurrence or situation that could affect project success. Hence, the major tasks in construction management include planning, organizing, scheduling, implementing, managing, monitoring, controlling, and tracking construction projects [12]. It is essential therefore, for construction activities to be accomplished successfully in an effective and efficient way. This requires various strategic and management capabilities [13]. Therefore, it is also critical for construction managers to understand the demanding realities facing them in the planning and controlling of construction operations

especially in developing countries like Nigeria. This study hence is saddled with identifying and ranking the challenges facing the management of construction projects in Nigeria, skills required and management strategies for mitigating those challenges facing construction managers in delivering efficient construction projects in Nigeria.

2. LITERATURE REVIEW

2.1 Management of Construction Projects

According to [14], construction management services are aligned with the activities and tasks associated with building design, construction documentation, construction procurement, and construction. The scope and approach to construction management is largely determined by the contractual arrangement established between the firm providing construction management services and the client. Managing a project includes [15]:

- Identifying requirements
- Establishing clear and achievable objectives
- Balancing the competing demands for quality, scope, time and cost
- Adapting the specifications, plans, and approach to the different concerns and expectations of the various stakeholders.

However, construction projects are somewhat difficult to manage and challenging due to the nature of the industry; such as complex and unique nature, mobile workforce, ingrained culture, working conditions, and project-based setup, diverse sub-contractors and suppliers [16]; in addition to regulatory bodies and changes in government policies during the production process. These factors significantly affect the efficient performance of construction site management team [17] and in most cases lead to project failure [18]. The reasons for such failure are quite complex and it is not wise to pinpoint specific reasons to ensure project success. However, it is felt the main reasons for project failure in developing countries are lack of advance planning, a holistic approach, lack of comprehensive engineering and management strategy, inconsistency in monitoring and follow-up, coordination and communication lapses and above all, absence of a methodical approach [19]. Besides technical issues, [16] posit that professionals in the construction industry also need to handle managerial issues. [20] attest that various factors have been adduced for unhealthy scenario in management of construction projects in Nigeria, the most notable being poor project analysis and management. However, [21] argue that the concept of managing construction projects is deeply embedded in the traditional building procurement system. This is even as emerging project management methods for construction projects generate new kinds of challenges for construction practitioners [22]. [23] stresses that the success of any project implementation process in the construction industry in the public and private sectors depend largely on the project manager's concept on staff appointments and control, strict monitoring of time, cost, material, quality and environmental constraints. Conversely, [18] contends that managing complex, multi-disciplinary projects in a developing country presents some special problems which vary from one project to another. However, [24] argue that whether an organization manages stand-alone or multiple projects, whether those projects are small or large, whether the customers are internal or external, or whether the nature of the work performed is product development, construction, design, IT, or service; most projects are difficult to manage because of two things:

- They involve uncertainty, and
- They involve three different and opposing commitments: Due date, budget, and content.

[24] further aver that in organizations that attempt to manage multiple concurrent projects with common, shared resources, the job is even more challenging. Hence, managers can quickly find themselves on "project overload" with continual resource shortages and great difficulty in determining which tasks are truly the most important.

2.2 Management Challenges in Construction Practice

As the demand for highly innovative construction managers is constantly increasing, it has been acknowledged that management of construction projects from conception to disposal is difficult and accompanied with enormous challenges [3], [4], [6], [10], [22], [24]. The construction managers deal with time, money, equipment, technology, people and materials in managing a construction project. They organize these resources into activities, execute the activities in logical sequences and manage to complete the projects within the stipulated time, budget and specified standard. The construction manager also manages the construction process to meet the clients' needs within legal, cost, time, quality and environmental constraints. In addition, construction manager takes the whole building cycle from inception to end of economic life, dealing with the procurement, construction, design or property management, recycling and disposal of building, and balancing the often conflicting requirements of clients, users and the community. Unfortunately, the complex nature of construction makes it one of the most adverse businesses that have ever existed. Thus, construction projects have often suffered from high fragmentation, large waste, poor productivity, cost and time overruns, and conflicts and disputes for a long time [25]. Moreover, [26] agree that the challenges facing today's construction managers are bound to be formidable, while identifying quality, cost and schedule as some of the aspects of project management that are particularly challenging. Many of these challenges are a direct result of construction operations, while others a result of indirect, peripheral activities [6]. [27] classifies challenges bedeviling mega construction projects in the developing countries into four categories of Engineering Challenges, Human

Development Challenges, Managerial and Political Challenges and Sustainability Challenges. A surprising number of these challenges are not construction issues but must be addressed and managed by the construction manager to ensure project success. While some of the construction issues include workforce considerations, safety, time constraints, and the changing nature of the work, non-construction challenges that construction managers face that are part of the business landscape include legal issues, government regulations, environmental concerns, and socio-political pressures [6]. Findings indicate that significant challenges facing contractors in Ghana are relating mainly to financing for projects and a harsh business environment, besides other problems [4]. [28] found that the most effective causes of contractor failure are receivable difficulties, insufficient capital, lack of managerial experience, lack of business knowledge, and family problems. Posner (cited in [29]) notes that the fundamental problems confronting a project manager are related to the management of people, not to the technical challenges, and further asserts that lack of organization and management skills are the primary reasons project managers fail.

2.3 Skills Required of Construction Manager

The job of construction project managers is demanding, complex and varied, whilst requiring the juggling of several issues concurrently [30]. [29] contends that though traditional Project Management competencies are critical for project success, communication between team members and the entire network is vital to support a shared understanding of the project and its goals. Hence, managing construction projects successfully requires an assortment of skills, including interpersonal ability, technical competencies, and cognitive aptitude, along with the capability to understand a situation and people, and then to dynamically incorporate appropriate leadership behaviours (soft and hard skills) [29]. [30] categorize skills into six areas: communication, organisational, team building, leadership, coping, and technological skills. But [31] argues that nothing happens without humans- therefore, the three most important competencies for project managers are planning, team building and leadership. [31] further looks at the latter two categories, and the soft skills that are required to excel at them. [32] observes that the blind spot in traditional management mindsets is people and the construction industry has overlooked these soft factors in risk analysis, and this has led to a serious underestimation of the risks involved in construction projects. In view of the forgoing, [33] contends that soft skills to manage projects are 'the missing link' in respect of project success. Some of these skills include communication, organisational effectiveness, leadership, problem solving and decision- making, team building, flexibility, creativity and trustworthiness. [34] views construction project management as an art or skill. Thus, an effective construction manager requires the ability to plan projects, assess project status, and identify issues of risk. These are all skills that can be learned, namely the technical skills. [34] also notes that the behavioural component of project management skills includes three elements: the ability to anticipate, attention to detail and the ability to convince others. These are personal qualities, and in some way the product of related experience, are only in part teachable. [35] states that it is vital to develop essential soft skills and embrace the change, gain experience, if necessary get qualifications, define a clear framework, encourage teamwork and cooperation, and embrace the change. Furthermore, [36] suggests that the need for continued professional development and the enhancement of existing interpersonal (soft skills) and technical skills (hard skills) is far greater today than it has ever been. For [37], it is a combination of both the hard and soft skills that help to deliver successful projects and successful project managers constantly assess themselves against the soft skills, and take whatever action is required to enhance their abilities to deliver successful projects. Thus, as the field of research surrounding construction management continues to grow, it is becoming more evident that success in the role of construction manager cannot be attained with a technical skill set only [29]. Technical skills are being recognized as one of the minimal requirements for a construction manager. The need for excellent interpersonal, or soft skills, are necessary requisites for success, and although some would disagree, others advocate that these are skills that can be taught (and learned) rather than skills that are innate or genetic. Organizations must therefore ensure that employees have not only the project management and technical prowess, but also the leadership and strategic and business management skills necessary to get the job done [38]. An in-depth literature review shows a number of management challenges facing construction practice which can be summarized into nine issues as: challenges of resource allocation (materials, men, money and machines), [22], [39], [40], [41], [42], [43], [44], [45]; time and scheduling management challenges [18], [46], [47], [48], [49]; cost management challenges [50], [51], [52], [53], [54], [55]; quality management challenges [56], [57]; safety management challenges [58], [59]; complexity and multiple project and organisations management challenges [10], [60], [61], [62], [63], [64], [65]; change management challenges [66], [67], [68], [69]; risks and uncertainties management challenges [40], [70], [71], [72], [73], [74], [75], [76]; and communication challenges [77], [78], [79], [80], [81]. The identified challenges would form the basis for investigation in this particular study.

2.4 Strategies for Managing Construction Projects

Construction projects involve a wide range of stakeholders [60], [61], [82]. [83] stresses that in order to successfully manage, control and execute such mega projects, diverse players must effectively and efficiently deal with diversity and confront this challenge. Thus, successful achievement of organizational objectives relies on delivering various projects within a scheduled time frame, budget estimate and expected quality. However, it is argued that the traditional drivers of successful project management are no longer adequate to guarantee project success and eventually reach organizational goals and objectives [84]. Instead, [85] and [86] contend that the implementation of effective project

management and human-related strategies is the most appropriate approach for the current business environment where most projects are associated with complexity and uncertainty. According to [13], project managers who follow traditional ways of managing and executing construction projects often give little attention or even disregard the allocation of human-related factors within their management agendas. Instead, they focus on time, cost, and quality. This behaviour will have a significant impact on different expectations, as no project would exist without people inputs. Hence, with the various challenges and difficulties linked to construction projects, and all the different expectations associated with project outcomes, when an effective and an integrated project strategy exist, it would result to an effective and efficient working environment. This is dependent upon the project stakeholders and employees at all levels being structured to facilitate effective lines of coherent communication [13]. Furthermore, [13] and [87] argue that the integrated interplay between project strategy and its human-related factors is the often overlooked factor of success in strategic project management where managers structure a framework of winning that involves a unique approach to strategic project management practice. Notwithstanding, [5] and [88] argue that successful management of construction projects is hinged on twin keys of commitment and communication, while [89] submits that effective management of major projects relies on three key concepts: early planning and organising, stakeholder communication and project controls integration, and continuous improvement. On specific term, [90] infer that a commitment to safety is indispensable in effectively managing risk in the construction industry. To this end, [13] avow that it requires strategic competence and ability at both functional and operational levels. This is with a defined lay down management procedures.

3.METHODOLOGY

The study is a survey research. The approach involves both literature search and the use of structured questionnaires which was considered to be the most appropriate tool to reach the population of the study especially when data required for the study can be obtained by the instrument. The variables of investigation were extracted from the literature. Thus, result of the literature review formed the basis of investigation in this current study. The respondents for the study were construction practitioners (contractors and professionals) in the construction industry. 136 respondents, who were selected through stratified random sampling from contractors and professionals' groups in the South East States of Nigeria, were issued with questionnaires. A total of 97 questionnaires (36 contractors and 61 professionals) were duly completed, returned and found suitable for analysis, representing a response rate of 71.32%. The questionnaire is made up of three parts which contain questions relating to management challenges for construction practice, construction management skills and management strategies respectively. These were weighted on a five point Likert Scale, where 1 = strongly disagreed and 5 = strongly agreed. The data collected were analyzed using tables and simple percentages; Relative Importance Index (RII) was calculated for each variable. Based on the Relative Importance Index (RII) value which ranges from 0 to 1, the variables were ranked.

$$\text{Relative Importance Index (RII)} = \frac{\text{Sum of weights } (w_1+w_2+w_3+\dots+w_n)}{A \times N} \quad (1)$$

Where w is the weighting given to each variable by the respondents, ranging from 1 to 5

A is the highest weight (i.e 5) in the study; and

N is the total number of samples

Spearman's ranked correlation (r) was performed to ascertain if there was correlation in the ranking between the two groups, and thereafter, the correlation coefficient was statistically tested using t statistics at (n – 2) degree of freedom and 5% significance level.

4.RESULTS AND DISCUSSIONS

Table 1: Ranking of Management Challenges Facing Construction Practice in Nigeria

Management Challenges	Contractors		Professionals		Mean RII	Overall Ranking
	RII	Rank	RII	Rank		
Resource Allocation Challenges (Materials, Men, Money and Machines)	0.895	6	0.898	8	0.897	7
Time (Scheduling) Management Challenges	0.944	1	0.925	2	0.932	1
Cost Management Challenges	0.939	2	0.915	4	0.924	3
Quality Management Challenges	0.933	3	0.931	1	0.932	1
Safety Management Challenges	0.922	4	0.921	3	0.922	4
Complexity and Multiple Project and Organisations Management Challenges	0.911	5	0.908	6	0.909	5
Change Management Challenges	0.867	9	0.833	9	0.845	9
Risks and Uncertainties Management Challenges	0.878	8	0.902	7	0.893	8
Communication Challenges	0.906	7	0.911	5	0.909	5

Table 2: Correlation of Management Challenges Facing Construction Practice in Nigeria

Spearman's correlation (r)	Nature of association	T test	T critical	P value
0.83	Strong positive correlation	3.937	2.365	0.0056

From table 1, the top 6 management challenges facing construction managers in managing construction projects in Nigeria, based on their overall Relative Importance Index (RII) were Time (Scheduling) Management Challenges (0.932), Quality Management Challenges (0.932), Cost Management Challenges (0.924), Safety Management Challenges (0.922), Complexity and Multiple Project and Organisations Management Challenges (0.909), and Communication Challenges (0.909). However, when the ranking between the contractors and construction professionals was correlated, the Spearman's ranking correlation (r) was found to be 0.83. This showed a strong positive correlation. When the correlation coefficient (r) was further tested for its significance, the T-test value was 3.937, which was greater than the critical value (2.365) at 5% significance level (α) and degree of freedom (df) of 7. Likewise, the p-value (0.0056) was less α level (0.05) (see table 2).

Table 3: Ranking of Construction Management Skills Required by Construction Managers

Skills	Contractors		Professionals		Mean RII	Overall Ranking
	RII	Rank	RII	Rank		
Technical (Technological)	0.972	1	0.954	1	0.961	1
Communication	0.950	2	0.931	2	0.938	2
Organisational Effectiveness	0.917	4	0.925	3	0.922	3
Team Building	0.906	5	0.905	5	0.905	5
Leadership	0.889	6	0.915	4	0.905	5
Coping	0.856	8	0.813	10	0.829	9
Problem Solving	0.839	9	0.856	7	0.849	7
Decision Making	0.933	3	0.898	6	0.911	4
Flexibility	0.878	7	0.823	8	0.843	8
Trustworthiness	0.817	10	0.820	9	0.819	10

Table 4: Correlation of Management Skills Requires by Construction Managers

Spearman's correlation (r)	Nature of association	T test	T critical	P value
0.85	Strong positive correlation	4.564	2.306	0.0018

Table 3 above shows that the top 6 skills required by the construction managers based on the their overall Relative Importance Index (RII) were Technical (0.961), Communication (0.938), Organisational Effectiveness (0.922), Decision Making (0.911), Team Building (0.905), and leadership (0.905). However, when the ranking between the contractors and construction professionals was correlated, the Spearman's ranking correlation (r) was found to be 0.85. This showed a strong positive correlation. When the correlation coefficient (r) was further tested for its significance, the T-test value was 4.564, which was greater than the critical value (2.306) at 5% significance level (α) and degree of freedom (df) of 8. Likewise, the p-value (0.0018) was less α level (0.05) (see table 4). The result indicated that technical skill (hard skill) vis-a vis other skills were still very necessary and indispensable in managing construction projects.

Table 5: Strategies for Managing Construction Projects

Strategies	Contractors		Professionals		Mean RII	Overall Ranking
	RII	Rank	RII	Rank		
Assign the project team early	0.950	5	0.951	2	0.951	2
Choose the right project delivery strategy	0.961	2	0.941	4	0.948	4
Develop realistic estimates and forecasting	0.967	1	0.961	1	0.963	1
Actively manage project risks	0.939	7	0.925	8	0.930	7
Obtain buy-in from senior management	0.944	6	0.931	5	0.936	6
Develop project specific policies and procedures	0.928	8	0.928	6	0.928	8
Assign project specific roles and responsibilities	0.911	9	0.895	10	0.901	10
Have frequent team meetings	0.906	11	0.889	11	0.895	11
Commitment by team members to pre-established project objectives	0.956	3	0.928	6	0.938	5

Continuous and effective communication of project objectives	0.956	3	0.948	3	0.951	2
Encourage knowledge sharing	0.856	12	0.852	13	0.854	13
Develop productive project culture through behaviours and relationships	0.850	13	0.869	12	0.862	12
Improve individuals/team performance quality through stakeholders development and training	0.911	9	0.921	9	0.918	9

Table 6: Correlation of Strategies for Managing Construction Projects

Spearman's correlation (r)	Nature of association	T test	T critical	P value
0.91	Strong positive correlation	7.279	2.201	<0.0001

From table 5 above, it was observed that the 6 top strategies for managing construction project based on the calculated overall Relative Importance Index (RII) were: develop realistic estimates and forecasting (0.963), assign the project team early (0.951), continuous and effective communication of project objectives (0.951), choose the right project delivery strategy (0.948), commitment by team members to pre-established project objectives (0.938), and obtain buy-in from senior management (0.936). However, when the ranking between the contractors and construction professionals was correlated, the Spearman's ranking correlation (r) was found to be 0.91. This showed a very strong positive correlation. When the correlation coefficient (r) was further tested for its significance, the T-test value was 7.279, which was greater than the critical value (2.201) at 5% significance level (α) and degree of freedom (df) of 11. Likewise, the p-value (<0.0001) was less α level (0.05) (see table 6). This shows that with appropriate strategies and skills, construction projects could be effectively managed.

5. IMPLICATION AND SIGNIFICANCE OF THE STUDY

The rate at which construction projects fail to achieve its objectives in Nigeria is very alarming. Thus, the result of this study is very significant and has both practical and theoretical implications. The result of this study revealed that aside the technical and environmental issues; there are management challenges which are very dominant when managing construction projects. And for Nigerian construction managers to face these challenges squarely there is need to possess the right skills and at the same time apply appropriate strategy within the given framework. The dynamic nature of clients, the complexity of construction projects and continuous demand for improved and efficient project delivery have put pressure to construction managers, thereby creating a lot of management challenges that required high sense of management acumen, capabilities, skills and strategies to tackle. To this end, this study has served as an eye opener to the construction managers practising in Nigeria. It has provided the construction practitioners with the requisite skills and strategies to face the rising construction management challenges in Nigeria. At the same time it has added to the growing body of knowledge in construction management.

6. CONCLUSION

The challenges facing construction practice in Nigeria are increasingly growing at an alarming rate. It has grown from mere technical and environmental issues to highly dynamic management challenges. This has contributed to a number of construction failures in Nigeria, thereby requiring high sense of management acumen, capabilities, skills and strategies. However, this study has identified and ranked the challenges facing the management of construction projects in Nigeria, the skills required and management strategies for mitigating the challenges facing construction managers in delivering efficient construction projects in Nigeria. The result has revealed that time; cost, quality, and safety remain the top management challenges facing construction managers in Nigeria. It also revealed that aside the technical skills, there are other management skills required by the construction manager in managing construction projects. At the same time, the study identified the management strategies necessary for mitigating the challenges of managing construction projects in Nigeria. The study then recommended that when the right skills are possessed and appropriate management strategies applied, the challenges facing construction practice in Nigeria could be efficiently handled.

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