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AN ASSESSMENT OF MANAGEMENT CHALLENGES WITHIN MULTIPLE PROJECTS ENVIRONMENT: A STUDY OF SALINI NIGERIA LTD WUSE ABUJA, NIGERIA

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ABSTRACT

In the construction industry, Multiple Project Environments (MPEs) exists where more than one project is managed simultaneously. The driving force behind MPEs is the pragmatic allocation of resources encumbered by uncertain economic times. However, MPEs create management challenges that need to be addressed. For that reason, the study examines the management challenges facing multiple project environments (MPE) in Nigeria using Salini Nigeria LTD Wuse Abuja as a reference point. It also assessed the skills and management strategies needed for managing the challenges facing construction managers in delivering construction projects. Theoretically the study was anchored on the Contingency theory of management as the theoretical orientation. The study adopted a survey research method, where questionnaire was distributed to the construction practitioners (contractors and professionals) in Salini Nigeria Ltd. A total of 100 questionnaires were distributed to the respondents, while 87 were duly completed, returned and found suitable for analysis. The result revealed that changes in management, time (scheduling) management, cost management and safety management were the major 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 however, recommended that construction practitioners should acquire the right skills and apply appropriate management strategies in managing construction projects.

KEY WORDS: *Project Management, Construction Industry, Resources Allocation, Challenges & Multiple Project Environments*

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INTRODUCTION

Projects are ideas with a potential for changing and moving the world, projects are thoughts with great potentials of transforming concepts into tangible realities. Put differently projects are vehicles that changes the world ideation to reality. Project Management on the other hand is the platform vehicle of this transformation. The rapid transformation of our environment is no doubt the products or function of multi-project activities. Furthermore, Project Management (PM) is a discipline that develops a platform to bring these ideas to fruition. However, today we live in an environment characterized by multiple projects, where the interdependencies between projects provide the guidelines for defining a project management framework. These are known as project management, multi-project management, program management, and portfolio management. The multi-project management, also designated as management by projects, consists of planning, coordinating and controlling a program that comprises several parallel projects. Therefore to be efficient, multi-project managers have to optimize time management and resource allocation. Time management is the most significant stake in project management. Accelerating the realization of projects saves money, respects time schedule in case of activities that incur delay, and wins contracts by proposing the best time of delivery in a business competition. Speeding up the realization of projects is therefore a key challenge.

It is in this light that an increasing number of organizations (especially construction companies) are deciding to arrange their work (or parts of their work) in projects, it appears that projects have become the strategy of choice for executing work-orders and assignments in an effective and systematic way, subsequently project orientation has grown increasingly popular (Karlesen, 2013). In addition, organizations are taking management initiatives by moving the paradigm of project management to the management of multiple projects (Blomquist & Müller, 2006) as a proficient vehicle to effectively convey enhancements and changes because of the erratic economic climate (Shehu & Akintoye, 2010). For the construction industry, it needs to acclimatize new strides to intercede with such vulnerabilities to endure. Thus, managers are altering their strategic direction to expand opportunities and expand capacity for marketing, sourcing, introducing new infrastructure and taking advantage of distributed location (Dooley, Lupton & Sullivan, 2005). It is therefore pertinent that research be undertaken to investigate more closely the challenges militating project managers in multi-project environment.

STATEMENT OF THE RESEARCH PROBLEM

The construction industry is a very significant part of Nigeria economy. The construction sector grew by 4.14 percent in the fourth quarter of 2017 which is 10.17 percent higher than the same period in 2016. Its contribution to total real GDP is 3.50% in fourth quarter, 2017. In 2017 the sector contributed 3.72 percent to GDP compared to 3.71 percent it contributed in 2016 (The Nerve Africa, 2018). It remains a key player in the national economy. However, the construction industry inevitably faces many challenges which today's construction manager needs to provide solutions to. Some are new to the industry, and some are centuries old. The nature of the industry further complicates these challenges (Ahn, Pearce, Kwon & Shin, 2010). The industry is fragmented and often inefficient and is also slow to adopt, implement and integrate new information technologies and products, devoting few resources to research and development compared to other (Russelland Hana, 2007). Further still, the industry is inundated with complexity of interdependencies and uncertainties thereby making any prospect towards achieving the project objectives very blur.

Thus organizations are taking management initiatives by shifting the paradigm of project management to the management of multiple projects (Blomquist and Müller, 2006,) as an efficient vehicle to successfully deliver improvements and changes due to the unpredictable economic climate (Shehu and Akintoye, 2010). For the construction industry, it needs to assimilate new steps to intervene with such uncertainties to survive.

On the other hand, the research evidence to date has relied heavily oncomplexity in managing multiple projects that cause challenges in management (Caniëls & Bakens, 2011, Aritua, Smith, & Bower, 2009). Complexity is not necessarily a new challenge, but an old challenge that is being increasingly recognized and accepted as a key to improving performance and understanding of management (Aritua et al., 2009). Multiple projects management is faced with more challenges than single project management due to the complexity of the environment and organizations related to processes and project lifecycle. The complexity arises from interdependence and uncertainty in management which is the most critical

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features of context in developing effectiveness in organizational management (Griffin et al., 2007).
It is thus because of these problems that we are motivated to search in more directions for empirical evidence that could help to expose the management challenges in multi- project environment and their solutions using Salini Nigeria Ltd as a case study.

RESEARCH QUESTIONS

The following questions guided the study

1. What are the challenges facing the management of construction projects in Salini Nigeria Ltd?
2. What are the skills or management strategies for mitigating those challenges facing construction managers in delivering efficient construction projects in Salini Nigeria Ltd?

AIMS AND OBJECTIVES OF THE STUDY

The aim of this study is to assess management challenges within multiple projects environment in Salini Nigeria Ltd. Pursuant to this aim; the study addressed the following objectives:

1. To identify the challenges facing the management of construction projects in Salini Nigeria Ltd.
2. To identify the skills or management strategies for mitigating those challenges facing construction managers in delivering efficient construction projects in Salini Nigeria Ltd

REVIEW OF RELEVANT LITERATURE AND CONCEPTUAL FRAMEWORK

Project management

Projects are thoughts with a potential for changing and moving the world, projects are ideas with extraordinary possibilities of changing concepts into tangible realities. According to Amol, (2013) project is a temporary process, which has a characterized start and end time, a set of activities and a budget that is created to complete a well-defined target or objective while project management is the use of knowledge, skills, tools and techniques to project or site activities in order to meet or exceed stakeholder needs and expectations. Project management is the practice of initiating, planning, executing, controlling and closing the work of a team to accomplish explicit objectives and meet explicit achievement criteria at the predefined time.

Similarly, Ahn, et al, (2010) opined that a project is a temporary endeavor designed to deliver an exceptional product, service or result with a characterized start and end(as a rule time-compelled, and frequently obliged by financing or staffing) undertaken to meet novel goals and objectives, normally to bring about beneficial change or added value. The transitory idea of projects stands in contrast with business as usual (or operations) which are repetitive, permanent, or semi-permanent functional activities to produce products or services. In practice, the management of such distinct production approaches requires the development of distinct technical skills and management strategies.

The primary challenge of project management is to achieve all of the project goals within the given constraints. This data is typically depicted in project documentation, made toward the start of the development procedures. The essential limitations are scope, time, quality and spending plan.

The secondary and more ambitious challenge is to optimize the allocation of necessary inputs and apply them to meet pre-defined objectives. The objective of project management is to produce a complete project which complies with the client's objectives. In many cases, the object of project management is also to shape or reform the client's brief in order to feasibly be able to address the client's objectives. Once the client's objectives are clearly established they should influence all decisions made by other people involved in the project for example project managers, designers, contractors and sub-contractors (Shehu &Akintoye,2010).

Construction Industry

Construction is the process of constructing a building or infrastructure. Construction differs from manufacturing in that manufacturing typically involves mass production of similar items without a designated purchaser, while construction typically takes place on location for a known client. Construction starts with planning, design, and financing; it continues until the project is built and ready for use (Wikipedia, 2019).

According to Pearce (2003), the definition changes as per the focus, but generally speaking there is a ‘narrow’ and a ‘broad’ definition as outlined below. The narrow sector consists solely of on-site assembly including repair work, which encompasses the site preparation, constructions of buildings and infrastructure, building installation and building completion (decoration). The broader definition consists of much more, including the supply chain for

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construction related products, including the mining of construction materials and the manufacture of construction products. The wide definition additionally incorporates proficient administrations, for example, the board, engineering, structure design and facilities management (Pearce, 2003:43).

When all is said and done, there are three parts of construction: buildings, infrastructure and industrial. Building construction is generally additionally partitioned into residential and non-residential (commercial/institutional). Infrastructure is frequently considered overwhelming common or substantial building that incorporates huge open works, dams, spans, thruways, railroads, water or wastewater and utility conveyance. Industrial construction incorporates treatment facilities, process compound, power age, factories and assembling plants. In any case, large-scale construction otherwise referred to as mega-projects require collaboration across multiple disciplines. A project manager typically deals with the job and a construction manager, plan engineer, construction engineer or architect oversees it. Those associated with the structure and execution must think about zoning necessities, natural effect of the activity, booking, planning, building site wellbeing, accessibility and transportation of building materials, logistics, inconvenience to the general population brought about by construction delays and bidding.

The construction industry has a major task to perform within the general economy of a random country. How that job presents itself is going to fluctuate tremendously from one world to the next, all things considered in developing nations, the mining of crude materials and the on-site construction process is of the utmost importance, as the country seeks to put up a major infrastructure in the form of roads , railroads and houses. Professional services and the marketing of end products will be the responsibility of the more developed countries. According to Wikipedia (2019), construction as an industry contributes six and nine percent of the total national development output.

Multiple Project Environments

Extensively, multi-project environment (MPEs) can be alluded to as a hierarchical level environment wherein multiple projects are overseen simultaneously, at the same time and at different areas, with the chance of including a few different organizations (Dubois & Gadde, 2002). Again these projects are differing in size and significance might be anytime in their life cycle and may not really be reliant or straightforwardly related.

To describe the management of MPEs, researchers have contended with terms, for example, multi-project, portfolio, program, full scale project, megaproject, giving the impression of comparable implications (Turner, 2009, Project Management Institute, 2008). The irregularity in definition has prompted constrained bits of knowledge because of disarray and different comprehension (Shehu & Akintoye, 2010) into the relationship of MPEs and their difficulties. At first, MPEs was alluded to, "a hierarchical level environment wherein multiple projects are overseen simultaneously" (Patanakul and Milosevic, 2009).

These two features of multiple projects at various locations that involve multiple organizations are important in defining MPEs. The first feature stressed on various locations because within the construction industry, projects are influenced by geographical location which includes international and domestic distribution whether in a local region or elsewhere. This distribution is due to the potential benefits of the physical location and where professionals are involved in the project operation location (Zavadskas, Ustinovichius & Stasiulionis, 2004). One project can be performed in several sites concurrently as long as the correspondent actions share the same objectives (Evaristo and van Fenema, 1999). The management of these projects is assumed to be either centralized or distributed located in any of the sites or nodes. The challenge of project's location of multiple projects is related to the focus on the co-ordination mechanisms, with the option of either focusing on inter-site or boundary spanning across sites or concentrate on intra-site or boundary spanning across projects (Hashim & Chileshe, 2012).

The second feature originated from the construction management which is complicated by several organizations involved in the supply chain. The organizations are also engaged in other projects in which they have to coordinate their activities and resources with different sets of organizations. This affiliation shows that an organization is capable in managing more than one project simultaneously in the construction industry (Dubois and Gadde, 2002) and supports project-based structures (Söderlund, 2004). The increased use of project-based structures defines the nature of multiple project environments with the involvement of multi-project organizations.

From these features, the representation of challenges instigated from the complexity in managing multiple projects could be illustrated. For example, the projects located in multiple locations will focus on the co-

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ordination mechanisms, on single unit without segregating the projects into multiple units in sharing the projects goal and objectives even though they are widely distributed from each other (Desouza and Evaristo, 2004). On the other hand, projects which involve multiple organisations will easily create conflict between the team mates, and impede the establishment of "organisation culture" of multiple projects environment particularly between different levels of management or between other projects, especially when competing after the same resources (Fricke and Shenbar, 2000, Olford, 2002). Therefore, these features illustrate the challenges in managing the MPE that will minimise the effectiveness in managing the projects.

Multi-Project Environment Challenges especially in Construction Industry

The management of multi-projects especially in construction industry is highly complex simply because the management has to face too many challenges and so many factors are affected to scheduling of multiple projects. Therefore, it is necessary to identify some of these challenges.

Complexity

Complexity is not really another test however an old test that is by and large progressively perceived and acknowledged as a vital aspect for improving performance and understanding of management (Aritua et al., 2009). Multiple project management is confronted with a larger number of difficulties than single project management due to the unpredictability of the environment and organizations related to processes and project lifecycle. The intricacy emerges from reliance and vulnerability in management which is the most basic highlights of context in developing effectiveness in organizational management (Griffin, Neal & Parker, 2007).

Interdependence means that a choice or action by any individual or system might be influenced by having various effects identified with others or systems (Mitleton-Kelly, 2003). It is by having numerous viewpoints or stages that this choice or activity is interrelated. Example of the types of interdependence are task interdependence in which one job serves as input or output to another job and also interdependence between jobs or roles, team or organizations (Morgeson and Humphrey, 2008).

Uncertainty

Another difficulty effortlessly experienced in multi-project environments is uncertainty in management mirrors the flightiness in the sources of information processes and outputs of work systems (Wall et al., 2002). By undertaking activities with lack of specification on comprehensive activity in projects, unfamiliarity of local resources and environment and lack of uniformity will therefore invite an unpredictable environment (De Orue, Taylor, Chanmeka & Weerasooriya, (2009). The organization will be constrained by these variables in complying with project deadlines to achieve higher organizational performance (Laslo and Goldberg, 2008) therefore creating challenges for project managers responsible for the overall success of conveying projects (Martyn James, Paul William, Martin, Carol & Patrick Sik-Wah, 2008).

The Economic Challenges

The economic imperatives mostly occurred with budget limit and allocation of the money. Due to the budget limit, the embraced construction system may not be the best choice for accomplishing the undertaking objective and quality. It will affect the proceeding of the project. Concerning the designation of cash to be utilized in the project, if the money is not effectively allocated, it will affect the progress of the project. The effect on the project is the product quality and performance of the project. In summary, if economic constraints for the project could not be managed well, the product/performance/function/quality of the project will be affected.

Legal Challenges

The legitimate limitations exist on the grounds that there are numerous guidelines that are ruling the construction project. The legitimate imperatives are for the most part identified with work law, wellbeing guidelines and supervision plan. With respect to the effect of the legitimate requirements, from one side, it might influence the calendar and lead to extend delay. For example, when traffic diversion demands immediate decision, the team has to wait to get procedure approval before proceeding on site. From the other side, it may affect the planning and progress of the project, such as traffic ordinance and excavation permit, where approval is required before the work starts.

Closely followed in this regard is environmental constraints, the public concern and regulations require the environment to be protected such as air protection, tree preservation, traffic limit, noise control and so on. In the planning and design phase of the project, the responsible individuals need to go to the "Environmental Department" to apply for the approval/justification for the project. This takes time and will affect the project progress. If the approval is

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not obtained on time, the whole project will be delayed or could not be carried out. There are also other technical constraints arising from air protection, tree preservation, traffic limit, limit due to excavation permit for works, etc.

THEORETICAL FRAMEWORK

The Contingency Management Theory

The study is anchored on the Contingency theory of management. The main concept behind the contingency management theory is that no one management approach suits every organization. There are several external and internal factors that will ultimately affect the chosen management approach. The contingency theory identifies three variables that are likely to influence an organization's structure: the size of an organization, technology being employed, and style of leadership.

Fred Fiedler (1922-2017) is the theorist behind the contingency management theory. Fiedler, (1967) proposed that the traits of a leader were directly related to how effectively he led. According to Fiedler's theory, there is a set of leadership traits handy for every kind of situation. It means that a leader must be flexible enough to adapt to the changing environment. The contingency management theory can be summed up as follows:

1. There is no one specific technique of managing an organization.
2. A leader should be quick to identify the particular management style suitable for a particular situation.
3. The primary component of Fiedler's contingency theory is LPC – the least preferred co-worker scale. LPC is used to assess how well oriented a manager is.

Therefore applying this theory in explaining management challenges in multiple project environment particularly in Nigeria we can deduce that no one method of management skill is best and suitable but rather it has to do with situations and circumstances.

RESEARCH METHODOLOGY

The descriptive survey research design was adopted for this study. As the name suggests, the research describes and interprets the actual phenomena under study. The approach involves both literature search and the use of structured questionnaire 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.

Population/Sampling Techniques

The respondents for the study were construction practitioners (contractors and professionals) in the construction industry selected from Salini Nigeria Ltd. 100 respondents were purposively selected and were issued with questionnaire. A total of 87 were duly completed, returned and found suitable for analysis, representing a response rate of 87%. The questionnaire is made up of three parts which contain questions relating to management challenges for multi-project management. In addition, each of the research questions has items statements with 4 point rating scale; Strongly Agreed (SA), Agree (A), Disagree (D), Strongly Disagree (SD).

Four (4) point scale to analyze:

Strongly agreed (SA)	4 Points
Agreed (A)	3 Points
Disagreed (D)	2 Points
Strongly Disagreed	1 Point

Criterion for obtaining the mean is calculated as follows:

X= 4+3+2+1 = 2.504

The following decisions could be taken

1. Accepted as agreed if the mean score associated with it is greater or equal to 2.50
2. Considered as disagreed if the mean score associated with it, is less 2.50

The mean score used for calculation is shown as follows:

X =ɛfx

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Data Analysis and Presentation of findings

Table 1: Challenges facing the management construction of projects in Salini Nigeria Ltd

	Items	SA (4)	A (3)	SD (2)	DA (1)	FX Sum	Mean Score X	Decision
1	Resource Allocation Challenges (material, men and machine etc.)	37	20	16	14	254	2.91	Agreed
2	Time (scheduling) Challenges	21	36	14	16	236	2.71	Agreed
3	Cost Challenges	27	30	20	10	248	2.85	Agreed
4	Complexity and Multiple Project Management Challenges	20	30	30	07	237	2.72	Agreed
5	Safety Management Challenges	21	26	29	19	239	2.74	Agreed
6	Change Management Challenges	39	21	11	15	256	2.94	Agreed
7	Communication Challenges	15	11	21	39	174	2	Disagreed
8	Risk and Uncertainties Management Challenges	37	16	20	14	250	2.87	Agreed
9	**Mean Average Score**					2.74	2.71	Agreed

Source: Author's Field Survey, 2019

The aggregate mean for the responses on all items in the Table above is 2.71 it means the respondents view on the challenges facing management construction of projects in Salini Nigeria Ltd, Wuse, Abuja is positive. The highest mean (2.94) response is item 6 which talks about changes in management. According to them 39 strongly agreed 21 agreed, 11 disagreed and finally 15 strongly disagreed. On the other hand and surprising communication was not really seen as major challenge in Salini Nigeria Ltd Wuse Abuja. This is because the mean response is not up to 2.50 probably attributed to efficient and effective channel of communication in the company.

Table 2 Skills needed to mitigating challenges facing construction managers in Salini Nigeria Ltd

	Skills	SA (4)	A (3)	SD (2)	DA (1)	FX Sum	Mean Score X	Decision
1	Technical (Technological)	39	21	11	15	256	2.94	Agreed
2	Communication	27	30	20	10	248	2.85	Agreed
3	Organizational Effectiveness	21	36	14	16	236	2.71	Agreed
4	Team Building	37	16	20	14	250	2.87	Agreed
5	Leadership	37	30	20	00	258	2.96	Agreed
6	Coping	21	26	29	19	239	2.74	Agreed
7	Problem Solving	37	20	16	14	254	2.91	Agreed
8	Flexibility	31	30	16	10	256	2.94	Agreed
9	Average Mean Total						2.86	Agreed

Source: Field Survey, 2019

The finding from Table 2 indicates that on average the mean score of the respondents was 2.86 this shows that the respondents agree that the above items i.e. technical (technological), communication, organizational effectiveness, team building, leadership, coping, problem solving and flexibility are commons skills required by the construction managers. The mean score of item 1and 8 (technical and flexibility) were jointly highest, this result indicated that technical skill (hard skill) vis-a vis other skills were still very necessary and indispensable in managing construction projects.

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Table 3: Management Strategies for mitigating Challenges facing Construction Managers in Salini Nigeria Ltd

	Strategies	SA (4)	A (3)	SD (2)	DA (1)	FX Sum	Mean Score	Decision
1	Assign the project team early	37	20	16	14	254	2.91	Agreed
2	Choose the right project delivery strategy	20	30	30	07	237	2.72	Agreed
3	Develop realistic estimates and forecasting	39	21	11	15	256	2.94	Agreed
4	Actively manage project risks	37	16	20	14	250	2.87	Agreed
6	Develop project specific policies and procedures	31	30	16	10	256	2.94	Agreed
7	Assign project specific roles and responsibilities	40	21	17	09	296	3.40	Agreed
9	Commitment by team members to pre-established project objectives	35	26	15	11	259	2.97	Agreed
10	Continuous and effective communication of project Objectives	20	30	30	07	237	2.72	Agreed

Source: Author's Field Survey, 2019

The findings from Table 3 indicate an average mean score of 2.72 which shows that the respondents have positive views or agree on the strategies to mitigate challenges facing construction managers especially in multi-project environment. Although, developing project specific policies and procedures and assigning projects early according to the respondents are to top strategies for managing construction project based on the mean score.

DISCUSSION OF MAJOR FINDINGS

The major task of this study was to investigate management challenges within Multiple Projects Environment: A Study of Salini Nigeria Limited. After the analysis of data collected from the field, the result revealed that changes, time, cost, quality, and safety remain the major 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 finding corroborates the submission of Shehu, &Akintoye, (2010) and the challenges facing construction managers in Nigeria.

CONCLUSION AND RECOMMENDATIONS

Based on the results from the data collected and analyzed, the study concludes that there exists challenges facing construction practice in Nigeria and they 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.

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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