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ENHANCING DELIVERY OF PUBLIC SECTOR FINANCED PROJECTS: THROUGH THE APPLICATION OF PROJECT MANAGEMENT SKILLS

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ABSTRACT
Delivering construction projects at the targeted time for most capital projects has been a cause of concern in Nigeria. This research examined the relevance of project management skills in procurement delivery of some capital projects in Nigeria and determined how current performance could be improved in project performance. Data was collected through opinion surveys into the performances of these professionals and the use of project management skills of infrastructural procurement in the construction industry; the survey centered on examining the role of government and contractors in infrastructural procurement, acquisition of project management skills and project financing. The study revealed that although there are government allocations for infrastructural projects, the delay in the execution and completion is caused by inadequate training of and possession of relevant skills by the professionals in charge of supervision of the projects. The study suggested that adequate attention be given to the selection of professionals managing projects both for the contractors and government in order to facilitate and improve project delivery.

Keywords: Project, Project Management skills, Project Financing, Construction, Effective, Infrastructure

1 Introduction

Over the years in Nigeria, Government agencies spend major portions of government budgets on the procurement of goods supposedly aimed at creating vital infrastructure and providing different services to the citizens and residents. The availability of such goods and services of the right type, in adequate quantity at the most economic cost is important for actualization of the goals and objectives of governance. To fully appreciate this paper, the broad classification of infrastructure by (Mobolaji & Wale ,2012) into physical (roads, electricity, telecommunication, e. t .c) and social (education, health, recreation, housing etc.) is worth noting. Physical infrastructure is often referred to as economic infrastructure and the delay in the delivery of any of these infrastructural projects can be attributed to some factors. Government has the power to put in place all measures that it deem fit will make an environment beneficial for living for everybody as documented by (Olufemi , 2012)

For instance, (Soreide, 2006) opines that large infrastructure projects are prone to political interventions, caused by the need to address regional or distributional considerations, unemployment, and protection of domestic industry. These short comings can be overcome through the adaptation and the use of the right project management skills. They also demonstrate the preparedness of an organization to improve its project delivery efficiency; delivering of projects on schedule, within budget, at the right quality. These skills complement each other, if put into proper use and will forestall the repeated tradition of not delivering projects promptly and hence improve end user satisfaction. The skills needed for effective management of projects are often transferable and complementary in nature. For example (John et al., 2010) note that engineering professionals are knowledgeable in infrastructure planning, design, implementation and operation. However, engineering professionals seemed to have played minimal role in the creation of national development plans; thus failing to bring their project planning (management) skills to bear on this.

The aim of this paper is to examine the acquisition of new project management skills by construction professionals in order to provide an indication of the impact of such skills on work output.

Specifically, the paper has three objectives:

1. To determine which construction professions acquire new Project Management skills
2. What type of projects are supervised by construction professionals in the study area
3. What relation exists between the acquisition of new project management skills and occurrence of time and cost overruns.

This paper is limited to professionals that work in the Niger State housing corporation and Ministry of works and infrastructural development in Minna, Niger state Nigeria through the use of questionnaires and relevant document review. The general public will benefit and those involved in public procurement of infrastructural projects will find this paper useful as it seeks to advice on the effective delivery of such projects.

2 Role of Government in infrastructural development

The adequacy of infrastructure helps to determine a country's success or failure in diversifying production, coping with population growth, reducing poverty, improving environmental conditions, etc. Indeed, socio-economic development can be facilitated and accelerated by the adequate investment in infrastructure. If these facilities and services are not in place, development will be very difficult; this can be likened to scarce commodity that can only be secured at a very high price and cost. The Nigerian government has aspired to achieve development through the use of various types of plans, namely short term (annual budget), medium and long term plans (Mobolaji & Wale., 2012). Public infrastructure stakeholders – include the levels of government or government authorities responsible for providing and delivering public infrastructure, owners of the infrastructure who may be public or private, operating entities, beneficiaries of the services, regulators and suppliers. (Chris et al., 2010)

The primary responsibility of government(Federal, State and Local) in the development and maintenance of infrastructural facilities such as good roads, clean and reliable water supply, electricity and telecommunications which are required for any meaningful economic development and progress in any part of the world (Owaifo, 2004). According to (Segmah, 2012) the importance of roads in socio-economic growth of any nation cannot be over emphasized, he further reiterated that in developing countries such as Nigeria and other African countries, government policies often accord priority to infrastructural development with the rapid growth of economy in the recent years, the importance and urgency of removing infrastructure constraints have increased. The Government has made an effort to facilitate the entry of private enterprise into this sector through changes in the legal framework. In India for instance a survey mentions that the role of private sector participation has also been facilitated by technological change that allows unbundling of infrastructure so that the public and the private sectors can take up the components according to their capacities (Indian Ministry of Finance, 2008). (Martin, 2012) states that provision of these amenities can be through a variety of ways which comprises: government ownership with government management, government ownership with private management, public-private ownership and joint management, private ownership and management, community provisioning etc. Oftentimes, in most developing and under-developed countries such as Nigeria, owing to the established pattern on provision, government has always been called upon to provide these infrastructures.

3 The need to acquire skills for Project Management

The complex nature and presence of different skills in construction projects indicates a significant potential for productivity and prompt delivery and there is therefore need for technical and administrative training which is essential to build up the contracting agency's capacity in labour-based technology. In many countries like Nigeria, only the contracting agency (for civil works usually a ministry or government agency) has the capacity, in terms of human and material resources, to carry out the contract management role. Most government agencies in developing countries have, until the mid- 1990s, directly carried out civil works through their own means (force account), they need reorientation in order to become effective contract management organizations (Peter et al.,1999). (Wildeman ,1999) in stressing

the need for project management skills opined that the required skills are thus quite different from the technical design, engineering or construction skills usually associated with most projects. He further emphasized that on a large complex project there are aspects outside of the scope of these technical areas that have to be well managed, if the project objectives are to be met. For this reason, great emphasis must be placed on the project management team approach, backed by broad based specialized resources. The management of different projects is often very different and requires varying technical skills and philosophy, hence requiring the development of project management as a subject of study, and project management skills as a set of unique characteristics that can help the manager hone his abilities and develop and nurture his management style to suit the efficient handling of projects. Based on the skill set level, the project manager is selected or chooses the program, and then applies his skills through the various stages of the project. Akin to other group formation and task-oriented processes in organisations, the soft skills and technical skills are applied through the grouping processes of forming, storming and norming, performing and adjourning. A relevant analogy from the bibliography charts the application of these skills in the project life cycle as well – Initiation (management staff is the customer), Planning (input requirements, abbreviated Project Plan, budget and task allocations), Kick-off (approval), Execution (entire physical task, ending with the test period), and Closure (customer satisfaction) , nearly all types of businesses require good project management skills to oversee the execution and successful completion of each project, as a project manager, you may not necessarily be involved in the technical aspects of a project. Thus project managers apply their skills based on their skill set levels through various stages, learn and improve their skill set in the process of application for project procurement processes (Francis, 2012).

4 Public Project Financing

Infrastructure may be owned and managed by governments or by private companies, such as sole public utility or railway companies. Generally, most roads, major ports and airports, water distribution systems and sewage networks are publicly owned, whereas most energy and telecommunications networks are privately owned (Scott, 2007). Publicly owned infrastructure may be paid for from taxes, tolls, or metered user fees, whereas private infrastructure is generally paid for by metered user fees. Major investment projects are generally financed by the issuance of long-term bonds (Nyagah, 2010) *agrees Nigeria is a market that no investor can afford to ignore, yet the federal government is facing a monumental task trying to attract adequate financing that is needed for critical projects particularly in infrastructure.*

Project financing is emerging as the preferred alternative to conventional methods of financing infrastructure and other large-scale projects worldwide. Project Financing discipline includes understanding the rationale for project financing, how to prepare the financial plan, assess the risks, design the financing mix, and raise the funds (Marco, 2004). Technological change happens to be one of the driving factors for increased private investment as detailed by (Adetola et al., 2011) quoting (Kumaraswamy, 1998) that the paradigm shift that mobilised the private sector more recently resulted from a combination of forces, such as the gross inadequacies of public funding capacities, particularly in comparison with the growing aspirations of ever-increasing populations, the inefficiencies of government monopolies, the conspicuous availability of surplus private resources (financial, technical and managerial), and the formulation of creative non-recourse financing mechanisms, whereby projects could be self-funding (i.e. without recourse to other assets of the stakeholders). Traditional forms of investment in infrastructure projects in developing countries are often leveraged through budgetary allocations, bilateral and/or multilateral donor funds. Thus, (Olawore, 2004) claims that stakeholder's expectations and needs throughout the world are rising at a rate with which government revenue alone can no longer cope, hence government revenue needs to be augmented in order to deliver public infrastructure. In this respect, many countries are now attempting to finance new infrastructure projects through private sector participation. For example, the Government of Sri Lanka decided in 1995 that future investments in new infrastructure projects would be with private sector participation taking the form of build, operate and transfer (BOT), or build, own and operate (BOO) arrangements, his decision was taken due to insufficient resources (on the part of the Sri Lankan Government) to undertake large investments required for infrastructure projects (Adetola et al.,2011). (Marcel et al., 2008) details three ways in which large infrastructure projects are expensive and can be financed in different ways – as demonstrated in NETLIPSE research:

1. Use proper calculations to support decision-making
2. Search for financing and funding possibilities
3. Control costs and budget in relation to scope.

5 Research Methodology

Niger State was chosen for data collection, it is one of the states in Nigeria, and it has a land area of 74,244 square kilometer covering 8% of the total land of the country. Within this geographical area, to ensure representation and avoid a skew analysis a total of 60 questionnaires were randomly distributed to some professionals, which included Architects, Civil Engineers, Electrical Engineers, Mechanical Engineers, Quantity Surveyors and others. The data collected was validated and tested through the use of cross tabulation method of analysis, to analyze relationships across data collected.

6 Findings and Discussions

Table 1: Analysis of questionnaires given and retrieved from respondents

Discipline	*No distributed to the professionals in the ministry of works*	*No retrieved from the ministry of works*	*No distributed To the professionals in the state housing corporation*	*No retrieved from the housing cooperation*	*% of responses*
Architects	*5*	*5*	*5*	*4*	*90*
Quantity Surveyors	*5*	*4*	*5*	*5*	*90*
Civil Engineers	*5*	*3*	*5*	*4*	*70*
Mechanical Engineers	*5*	*4*	*5*	*5*	*90*
Electrical Engineers	*5*	*5*	*5*	*4*	*90*
Others	*5*	*2*	*5*	*2*	*40*
	30	*23*	*30*	*24*	*78.33*

(Source: Baba & Fadason, 2012)

A total of sixty (60) questionnaires were distributed among the professionals contractors working in the Niger State housing corporation and the Niger State Ministry of works and infrastructural development respectively, out of which forty seven (47) answered correctly and were retrieved, representing 78.3% as shown in table 1.

6.1 Acquisition of new project management (PM) skills by construction professionals

Architects and Quantity surveyors formed the majority of professionals that had acquired new skills in project management. Electrical engineers had not acquired any new skills in PM at all. About four-fifths of the sample (87%) had not acquired any new skills in PM. The distribution also showed that Electrical engineers made up 21.3% of the sample; Architects, Quantity surveyors and Mechanical engineers comprised 19.1%, while Civil Engineers constituted 14.9%. These results were presented in Table2

Table 2: Distribution of construction professionals by acquisition of project management skills

		Discipline						Total
		Architect	Quantity Surveyor	Civil Engineer	Mechanical Engineer	Electrical Engineer	Others	
New PM skills acquired?	Yes	2 [4.3%]	2 [4.3%]	1 [2.1%]	1 [2.1%]	0	0 [.0%]	6 [12.8%]
	No	7 [14.9%]	7 [14.9%]	6 [12.8%]	8 [17.0%]	10 [21.3%]	3 [6.4%]	41 [87.2%]
	Total	9 [19.1%]	9 [19.1%]	7 [14.9%]	9 [19.1%]	10 [21.3%]	3 [6.4%]	47 [100.0%]

(Source: Baba & Fadason, 2012)

In terms of the timing of the acquisition of new project management skills by construction professionals, only one architect had acquired PM skills in the 6 months preceding this study. The majority of professionals that had acquired such skills had done so in the 2 years before this study; this group represented just about 10% of the entire sample.

Table 3: Distribution of timing of acquisition of project management skills by construction professionals

		Discipline				Total
		Architect	Quantity Surveyor	Civil Engineer	Mechanical Engineer	
New PM skills acquired when?	Within last six months	1 [14.3%]	.0%	.0%	.0%	1 [14.3%]
	Within last 1 year	.0%	.0%	1 [14.3%]	.0%	1 [14.3%]
	Within last 2 years	2 [28.6%]	2 [28.6%]	.0%	1 [14.3%]	5 [71.4%]
	Total	3 [42.9%]	2 [28.6%]	1 [14.3%]	1 [14.3%]	7 [100.0%]

(Source: Baba & Fadason, 2012)

6.2 Type of projects and Profession practiced

Table 4, shows the types of projects supervised by the professionals sampled, indicating that 97% of these professionals are involved in road construction, 100% of these professionals are involved in drainage construction and 100% of the professionals are involved in provision of public housing. This indicates the involvement of the professionals in the provision of infrastructure projects.

Table 4: Distribution of Type of projects and Profession practiced

		Discipline						Total
		Architecture	Quantity Surveyor	Civil Engineer	Mechanical Engineer	Electrical Engineer	Others	
Type of projects supervised?	Roads	6 [17.1%]	6 [17.1%]	5 [14.3%]	7 [20.0%]	8 [22.9%]	2 [5.7%]	34 [97.1%]
	Drainage	6 [24.0%]	2 [8.0%]	4 [16.0%]	5 [20.0%]	6 [24.0%]	2 [8.0%]	25 [100.0%]

	Public Housing	8 [24.2%]	5 [15.2%]	3 [9.1%]	7 [21.2%]	7 [21.2%]	3 [9.1%]	33 [100.0%]

(Source: Baba & Fadason, 2012)

4.3 Acquisition of new project management skills and relation to Time Overrun

Table 5, shows the professional that acquired PM skills in the 6 months preceding this study, did not experience time overrun which was 2%, indicating that the recent acquisition of the PM skills had a positive effect on the project delivery, for those who had acquired the PM skills 2 years before this study had the time overrun was 65% this reflects that the lack of the acquisition of PM skills affected the time delivery of the projects.

Table 5: Acquisition of new project management skills and relation to Time Overrun

		Time overrun not experienced	Time overrun experienced	Total
New PM skills acquired?	Yes	1 [2.3%]	4 [9.1%]	5 [11.4%]
	No	8 [18.2%]	29 [65.9%]	39 [88.6%]
	Total	9 [20.5%]	33 [75.0%]	44 [100.0%]

(Source: Baba & Fadason, 2012)

4.4 Acquisition of new project management skills and relation to Cost Overrun

Table 5 shows that the professionals that acquired new skills also had less cost overrun of 6% indicating the application of the new PM skills in the supervision of the project helped in the supervision of the project, for those that acquired skills 2 years before the study, 42% was seen, reflecting the lack of acquisition of the new PM skills also had cost effect on the project.

Table 6: Acquisition of new project management skills and relation to Cost Overrun

		Cost overrun not experienced	Cost overrun experienced	Total
New PM skills acquired?	Yes	3 [6.7%]	3 [6.7%]	6 [13.3%]
	No	20 [44.4%]	19 [42.2%]	39 [86.7%]
	Total	23 [51.1%]	22 [48.9%]	45 [100.0%]

(Source: Baba & Fadason, 2012)

5 Conclusion

From the population studied, this paper has highlighted that majority of the professionals about 87% had not acquired any skills in project management, the analysis also reflects the involvement of the professionals in the acquisition of these infrastructural projects, from the study it is important to also note that for effective delivery of infrastructural projects timing in the acquisition of PM skills is also important in the supervision of infrastructural projects. Therefore it can be concluded that there is a need for government and all those involved in procurement process to give more attention to the selection of the professionals involved in the delivery of public financed projects. This will in turn improve the standard of living of the citizens and resident and forestall waste of resources. The study suggests that

adequate attention be given to the selection of professionals managing projects both for the contractors and government, secondly, the study also suggests that government should put policies in place that will ensure all professionals involved in procurement, acquire skills yearly in other to facilitate and improve project delivery.

This study is limited to few professionals in only two government parastatals in Minna Niger State of Nigeria, a further study is suggested to include professionals in the Federal Capital territory and more professionals working in other government parastatals can be studied.

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