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Effectiveness of Design Management Process in Nigeria: Case Study of Lagos State

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Abstract:- Certain projects due to the magnitude of their scope require the input of multiple professionals in the built industry. The moment where multiple professionals are working simultaneously, there is a need for the management of their activities so that the scope of each professional is clearly stated. Design management helps in this regard along with many other benefits it provides. This study examines the effectiveness of design management in the built industry in Nigeria. To achieve this, aim a review of the current literature was done first before administering questionnaires to one-hundred and forty-one professionals in the built industry (architects, engineers, quantity surveyors, project managers and builders). The data was analyzed using descriptive analysis of frequency rate, percentage and mean values. Results showed the effectiveness of design management in different aspects of the pre-construction phase which in turn affects the general project in the long run.

Keywords:- *Design Management, Effectiveness, Professionals, Built Industry, Project.*

I. INTRODUCTION

The need to improve design performance (i.e. to create high-quality design solutions in less time) has exponentially increased in recent years as a result of increasing project complexity and heightened market rivalry. Both designers and contractors are impacted by these difficulties which in turn means that design management's importance in the construction industry is only growing. New contractual agreements that demand for alliances and partnerships between designers and constructors are widely used. (Vegard, Svalestuen, Geir, & Ola, 2015)

The management function of a project's design phase is separated from the design function by the emerging professional discipline known as "design management." In close alignment with project management, it must deliver a completely coordinated design, on schedule and on schedule. To accomplish this, it coordinates, controls, and monitors design operations while interacting with other project participants.

Design-bid-build was the preferred technique of project delivery from the 1900s to the 1980s. Professional engineers and architects avoided building and design-build projects. Their understanding of construction deteriorated as they began to pursue specialist degrees at universities. Since the 1980s, there has been a growing demand on the construction industry to take on and estimate projects for which design is still being worked on. This is being done to shorten the overall project's length for a number of reasons:
1) Because design work can be done alongside construction, possibly hastening completion
2) to increase the builder's accountability for the design; and
3) to promote a less hostile workplace environment.

This calls for the optimal collaboration or integration of design and engineering, or the pursuit of a contemporaneous approach where the design is completed just before procurement and construction.

Gray asserts that the failure of other current systems to effectively integrate the design and construction processes is the primary driver behind the adoption of design management by the construction industry. The three concepts of design management built from the literature and contrasted with numerous case studies conducted on a variety of projects include: design management as "integrators of design and construction," design management as "managers," and design management as "meta designers".

Professionals from many professions make up the design team; their interactions are less hierarchical and more horizontal. The team interacts primarily inside clusters (Hamzeh 2019). Professionals typically don't work for the same employer allowing each expert maintains his or her own workplace and schedule while at work. We could therefore conclude that a design team is far more sophisticated than a production team. It is important to also note that management in the construction phase is not nearly as comparable to management in the design phase, therefore management tools used have to be different. (Vegard, Fredrik, Geir, & Ola, 2015)

Design Management has come a long way, but there are still few instances of complete success in Nigeria. Poor communication, inadequate documentation and missing input information are all features of current practice. Many of the methods used today are ineffective for controlling the design process because managing consultants from different fields can prove to be very chaotic. For instance, the unstructured design process prevents individuals from working efficiently together. This research however examines the effectiveness of the design management practice in selected construction companies in Nigeria.

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II. METHODOLOGY

This study was carried out in Lagos, Southwest, Nigeria as it is the most populous city in Nigeria which in turn means there is a sizeable amount of professionals in this region. Targeted population include architects, engineers, project managers and quantity surveyors present in the settlement. The findings of this research was gotten from taking a look at relevant literature review, on-site observation and receiving the opinions of experts or people of knowledge in the built industry (such as architects, engineers, etc.) through questionnaires. The theoretical part was gotten from relevant books, websites, journals, articles and previously researched works related to design management and its implementation in the built industry. The contextual part was gotten from the opinions of experts through the distribution of questionnaires. Random sampling was employed to choose the professionals that the questionnaires were distributed to for obtaining information regarding design management effectiveness in their experience. The questionnaire consists of two parts; the first part was used to extract information regarding the demographic characteristics of the respondents while the second part assessed the effectiveness of design management in Nigeria using a Likert scale of five (from 1-very poor to 5-very good). After getting all these data from the questionnaire, it was then analyzed using descriptive analysis of frequency rate, percentage and mean. With all this information gotten, more knowledge was added relating to design management and a better understanding was obtained regarding design management practices in Nigeria.

III. RESULTS

Table 1. Demographic characteristics of respondents.

Demographic information		Study sample	
Character	**Information**	**Frequency**	**Percentage**
Gender	Male	97	68.79%
	Female	44	31.21%
Profession in the built industry	Architect	28	19.86%
	Engineer	36	25.53%
	Quantity Surveyor	29	20.57%
	Project manager	33	23.40%
	Builder	15	10.64%
Experience in their professions	Less than five years	26	18.44%
	5 – 9 years	25	17.73%
	10 – 14 years	21	14.89%
	15 – 19 years	37	26.24%
	20 years and above	32	22.7%

Table 1 shows that from the results gotten from the questionnaires distributed majority of the respondents who filled the questionnaire were found to be male 97 (68.79%) with only 44 (31.21%) being female. Results from the questionnaire showed that 19.86% (28) of the respondents were architects, 25.53% (36) were engineers, 20.57% (29) of them were quantity surveyors, 23.40% (33) of them were projects managers, while 10.64% (15) of them identified as builders. Similarly, the study examined the respondents' years of experience in their profession and findings showed that 18.44% (26) of the respondents had less than five years of experience under their belt, 17.73% (25) of them had between five and 9 years of experience, 14.89% (21) had between ten and fourteen years of experience, 26.24% (37) had between fifteen and nineteen years of experience, while the remaining 22.7% (32) had experience of twenty years and above.

Table 2. Assessment of the effectiveness of design management processes in Nigeria

Statement	Very poor (%)	Poor (%)	Average (%)	Good (%)	Very Good (%)	Mean values
Familiarity with the term "design management".	33 (23.40)	18 (12.77)	13 (9.22)	55 (39)	22 (15.60)	3.10
Rating how often design management is being used.	67 (47.52)	39 (27.66)	11 (7.80)	17 (12.06)	7 (4.96)	1.99
Rating how well design management is used.	35 (24.82)	45 (31.9)	39 (27.66)	13 (9.22)	9 (6.38)	2.40
Rating how it helps the selection of professionals in the built industry.	2 (1.42)	23 (16.31)	18 (12.77)	71 (50.35)	27 (19.15)	3.7
Rating its effectiveness in nullifying errors early on in the project lifespan.	18 (12.77)	20 (14.18)	37 (26.24)	51 (36.17)	15 (10.64)	3.17
Rating how well it helps in saving time in the project lifespan.	43 (30.5)	23 (16.31)	44 (31.21)	21 (14.89)	10 (7.09)	2.52
Rating how well does it help to achieve the client's needs.	17 (12.06)	10 (7.09)	34 (24.11)	27 (19.15)	53 (37.59)	3.63

Rating how well does it help procurement process.	12 (8.51)	39 (27.66)	44 (31.21)	37 (26.24)	9 (6.38)	2.94
Rating how well it helps conflict resolution.	15 (10.64)	18 (12.77)	25 (17.73)	22 (15.60)	61 (43.26)	3.68

Table 3. Decision criteria table

Rating	Mean values
Very poor	0 – 1.00
Poor	1.00 – 2.00
Average	2.00 – 3.00
Good	3.00 – 4.00
Very good	4.00 – 5.00

Table 2 shows that after administering the questionnaire, it was found from the result that respondents had a good familiarity with the term "design management" (mean – 3.10) using the decision criteria from table 3.

After analysis was carried out on the data gotten from the questionnaire, it was found that the frequency at which design management was being used was poor (mean – 1.99) and how well design management was used was found to be average (mean – 2.40).

Also, it was found that design management helped in selecting which professionals in the built industry (architect, engineer, quantity surveyor, etc.) are going to be participating in the project cycle in a good way (mean – 3.7) and the effectiveness of design management in nullifying errors early on in the project lifespan was found to be good (mean – 3.17).

Surprisingly, the result gotten showed that the respondents opined that design management helped in saving time in the project lifespan in an average way (mean – 2.52) while it helped in achieving clients' need in a good way (mean – 3.63).
Surprisingly, design management helps procurement process in an average way (mean – 2.94) and it helps conflict resolution in a good way (mean – 3.68).

IV. DISCUSSION

The aim of this study is to assess the effectiveness of design management processes in Nigeria so as to add to the body of existing knowledge on this phenomenon. Variables were identified using a review on the current literature available and a questionnaire was then used to compare these identified variables.

In a male dominated built industry, majority of which happen to be engineers with an experience level of between fifteen years and twenty years cut across all professions in the built industry, it was found that a sizeable amount of them were familiar with the term design managements with a mean value of 3.10 which consequentially validates the responses gotten.

It was found ironically that design management is not being used frequently in the built industry in Nigeria, however when it is used it is averagely employed. This means that more companies should employ the use of design management more in the implementation of the design aspect of a project.

Furthermore, the study shows that design management helps well in selecting professionals that are to be participating in the design process and also in nullifying errors that may emanate early on in the project lifespan.

In addition, design management neither has a good effect nor a bad effect on time saving in the project lifespan and the procurement process for the project. It however has a good effect on achieving clients' need and in resolving conflicts that may arise between professionals in the built industry. With all these, the importance of design management cannot be overemphasized so the practice of design management should be encouraged and more professionals in the built industry in Nigeria should undergo more training in this field.

V. CONCLUSION

Design management is an integrated activity that unifies the firm and sends a clear message to both internal and external audiences. A proper link and coordination between research, design, and production should be established through design management. This should be continuously present in the design and manufacturing process. It should speed up the entire project construction time, make it easier, and make use of the organizational resources already in place to deliver a building. It is essential to understand more about this expertise and to implement it in organizations because this science is a novel idea in our nation and because of the benefits that the proper understanding of this phenomenon brings cannot be underestimated.

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