

The Roles of Construction Professionals in the Nigeria's Construction Industry

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Abstract: *The study traced the history of construction industry, surveyed its development at the present time and described the intensity of competition and roles of each professional among the existing professionals in the Nigeria's construction industry. Data for the study were collected through well-structured questionnaire directed to construction professionals in the private and public sectors. Data collected were analyzed using frequency distribution table and relative significance index. It revealed that the roles of the Architect are to produce detailed working drawings and specifications (93% significance). The roles of the Builders are to ensure the adequate preparation of project health and safety (94% significance), preparation of construction methodology (93%), preparation of construction programme (90%), and preparation of project quality and management (86%). The Estate surveyors and Valuers are to prepare the valuation of construction works (91% significance), preparation of feasibility and viability appraisal of construction projects (81%), and Construction project management (70%). The Engineer on the other hand is to calculate the load and stresses that the structure can safely withstand (99% significance). The Land Surveyor performs building location survey (96% significance), Provides site plan (73%), Foundation location (69%), and Prepare construction layout (67%). Furthermore, the Town planner's roles are to prepare Road utility design survey (95% significance), Design layout and draft design statement (94%), and Protect environment and architectural heritage (89%). The roles of the Quantity surveyor are to prepare bill of quantities (100% significance), Estimate cost relating to construction materials, time and labour and cost advise (94%), Variation of work in progress and materials on site for interim payment (87%). The study recommended that there should be strict regulations and implementation of laws by the body of each profession guiding against function overlap among the professionals in the construction industry.*

I. Introduction

The building construction industry is as old as human civilization itself. The history of the industry evolves with evolution of human settlements and culture. It has its different feature in each age of human existence namely agrarian, industrial and information ages.

As such the building construction industry has over time, in an attempt to overcome evolving challenges as a result of increasing complexity of human settlement(town, country, city, megacity), culminated into specialization that seek to enhance efficiency and economical service delivery in the industry.

[1] reports that construction is one of the most important activities of any economy and a large proportion of the country's resources are usually used in the construction and maintenance of building. The construction sector in Nigeria accounts for 3-8% of Gross Domestic Product (GDP), about 5% of the labour force, 40-70% of the gross fixed capital formation and about 12% of industrial sector production [2]. This enormous amount of wealth is managed or generated by the construction industry through the various contributions of its professional members. [3] ascertained that the construction industry is a viable sector in the economy of any country.

The present state of construction industry is complex. There is a wide range of construction products and system which are aimed primarily at groups of infrastructure types or markets. The design process for an infrastructure is highly organized and draws upon research establishments that study materials properties and performance, codes officials who adopt and enforce safety standards, and design professionals who determine user needs and design variety of infrastructure and facility to meet those needs. The construction process is also highly organized; it includes the manufacturers of construction products and system, the craftsmen, the contractors and consultants who specialize in such aspects as construction management, quality control, and insurance.

Construction industry plays a substantial role in a country's economy, irrespective of the country's level of development. The construction sector in a country's economy is an important employer of a nation's workforce as it employs between 2 to 10% of total workforce of most countries [4]. Nigeria had gained an impressive economic growth during the last decades. The construction industry plays an important role in the

transformation of the physical terrain of any nation in its march toward greater civilization and economic independence. It is also concerned with the assimilation and utilization of exogenous development in technology, management sciences and related sciences to enhance building performance to win the world over [5].

II. Literature Review

The construction of a building project of any kind involves the services of many people, directly, who design, construct and maintain it from inception to completion, and to terminal demolition [6]. It is important to understand the term "profession" before discussing the issue of professionalism in depth. [7] defined profession as an occupation requiring extensive education i.e. an occupation that requires extensive education or specialized training. Profession is a skilled occupation, usually one requiring specific education, training, knowledge or experience [8].

According to [9], the essence of the word "professionalism" can be defined as the possession and autonomous control of a body of specialized knowledge, which when combined with honorific status, confers power upon its holders.[7] described professionalism as the professional standards that involved the skill, competence, or character expected of a member of a highly trained profession. Professionalism can also be defined as professional standards involving the exercising of body of unique, expert and knowledge. Professionals have always been linked with the notion of "service" so that a professional is described as a group of people organised to serve a body of specialized knowledge in the interests of society based on the perceived relationship [10]. [11] stated that professional is automatically tied up with more practical concepts and expectations from the public, encompassing issues such as competence, responsibility and willingness to serve the public. [12] feels that the problem that faces any professional community is how it could regulate itself effectively to justify its autonomy, while ensuring that the clients of its members and society as a whole benefit from the profession's and the individual professional's actions, rather than becoming their victims. It is one of the ethical quality control. Construction industry plays a substantial role in a country's economy, irrespective of the country's levels of economic development [13]. The construction sector in a country's economy is an important employer of a nation's workforce as it employs between 2 to 10% of total workforce of most countries [4]. Nigeria had gained an impressive economic growth during the last three decades.

Therefore the list of the professionals actively involved in the construction industry includes but not limited to, Architects, Builders, Estate surveyors and valuers, Land surveyors, Quantity surveyors, Town planners, Civil, Electrical, Mechanical and Structural Engineers. To achieve the purpose of this study, seven of these professionals were selected; they include the architect, builder, estate surveyor and valuers, engineer land surveyor, town planner and quantity surveyor.

Construction industry everywhere faces problem and challenges. These difficulties and challenges are present alongside a general situation of institutional weakness, professional rivalry among others. Many topic issues which have implications for the construction industry have, so far, only been discussed to a significant extent.

III. Methodology

The study population comprised the construction professionals in the private and public service in the Nigerian construction industry. This involved assessing professional views. The study deals with the roles of construction professionals in the Nigeria construction industry. Two hundred (200) questionnaires were directly distributed with the intention of eliciting response from the public and private organisations toward determining the roles of construction professionals in carrying out construction project.

The Likert scale involving rating on interval scale of 5 and 1 developed for application in social science and management research for quantification of qualitative variable was used for the data collection.

The statistical tools used for analysis include percentage, mean, and relative significance index (RSI). The relative significance ranking (RSI) was used for ranking of the factors studied. These methods have been used in construction research by authors such as, [14], [15], [16], [17], [18] among others.

The responses of the items on the questionnaire were obtained on a 5-point scale ranging from 1 to 5. "Strongly Agree" were scored 5, "Agreed" were scored 4, "Undecided" were scored 3, "Disagreed" were scored 2 and "Strongly Disagreed" were scored 1.

Relative Significance Index (RSI) is a non-parametric technique based on the aggregate weighting of the initial frequency score of factors. The Relative significance index was computed as

$$RSI = \frac{\sum_{j=1}^n n_i k_i}{\sum jN} = \frac{5n_5 + 4n_4 + 3n_3 + 2n_2 + 1n_1}{\sum jN} \text{ i.e. } (0 < \text{index} < 1)$$

Where:

n_i = the number of respondents choosing $k_i = 1 - 5$ on the Likert scale;

$\sum N$ = the total of questionnaire collected (sample size);
 j = the highest value in ranking order;
 N = the total number of responses.

IV. Data analysis and results

The data obtained are hereby analysed and the results presented. The analysis tools include both the descriptive and inferential.

4.1 Respondents' profile

Table 1 shows the professional qualifications of respondents. The respondents cut across various professional qualifications such as ARCON, CORBON, ESVRBON, COREN, SURCON, TOPREC, QSBORN, and other related professional qualifications

Table 1: Professional qualification

Qualification	Frequency	Percentage
ARCON	22	11.00
CORBON	26	13.00
ESVRBON	20	10.00
COREN	23	11.50
SURCON	19	9.50
TOPREC	21	10.50
QSRBN	24	12.00
Others	45	22.50
Total	200	100.0

Table 2 shows the academic qualifications of respondents. 45 percent of the respondents have Higher National Diploma (HND) degree, 15 percent have Post-graduate Diploma (PGD) degree, 12.50 percent have Bachelor of Science (B.Sc.) degree, 10 percent have Bachelor of Engineering (B.Eng.) degree, 10 percent have National Diploma (ND) degrees and 7.50 percent have Masters (M.Sc.) degree.

Table 2: Academic qualifications

Qualification	Frequency	Percentage
B.Eng	20	10.00
B.Sc.	25	12.50
HND	90	45.00
M.Sc.	15	7.50
ND	20	10.00
PGD	30	15.00
Total	200	100

Table 3 shows the post held by respondents in their respective organizations. It showed that 21 percent are Builders/Estimators, 20 percent are Lecturers, 19 percent are Managers, 17.50 percent are Engineers, 12.50 percent are Quantity surveyors and 10 percent are Technical officers in the organisations.

Table 3: Post held

Post	Frequency	Percentage
Engineer	35	17.50
Builder/Estimator	42	21.00
Manager	38	19.00
Lecturer	40	20.00
Technical Officer	20	10.00
Quantity Surveyor	25	12.50
Total	200	100

4.2 Roles of professionals in the Nigeria's construction industry

4.2.1 Architect

Table 6 identified the various roles of an architect among the professionals in the construction industry and the ranking of the factors through the use of Relative Significance Index (RSI).

Table 6: Roles of the architect in the Nigerian construction industry

Roles	1	2	3	4	5	Total	TWV	RSI	Rank
Preparing application for planning and building control	10	25	10	25	130	200	840	0.84	3
Producing detailed working drawing and specification	0	5	0	60	135	200	925	0.93	1
Cost analysis and land-use study	15	120	45	10	10	200	480	0.48	5
Turning the client brief into drawing	0	5	5	60	130	200	915	0.92	2
Final construction plans	0	5	45	90	60	200	805	0.81	4

The survey revealed that Producing detailed working drawing and specification ranked first with RSI value of 0.93 (i.e. 93 percent significance) among the roles of the architects in the Nigerian construction industry. Turning the client brief into drawing ranked second with RSI value of 0.92. Preparing application for planning and building control ranked third with RSI value of 0.84. These are followed by Final construction plans (0.81), and Cost analysis and land-use study (0.48). The result also showed that all the roles are significant with the least role having 48 (0.48) percent significance.

4.2.2 Builders

Table 7 investigated the various roles of the Builders among the professionals in the construction industry and the ranking of the factors through the use of Relative Significance Index (RSI).

Table 7: The roles of the builder in the Nigerian construction industry

Roles	1	2	3	4	5	Total	TWV	RSI	Rank
Preparing construction programme	0	5	35	20	140	200	895	0.90	3
Preparing of project health and safety plan	0	10	10	15	165	200	935	0.94	1
Preparing construction methodology	0	0	0	75	125	200	925	0.93	2
Preparing of project quality management plan	0	35	0	35	130	200	860	0.86	4

This analysis revealed that Preparation of project Health and Safety plan ranked first with RSI value of 0.94 (i.e. 94 percent significance), Preparing construction methodology ranked second with RSI value of 0.93, Preparing construction programme ranked third with RSI value of 0.90, and Preparation of Project Quality Management plan ranked fourth with RSI value of 0.86. The result also showed that all the roles are significant with the least role having 86 (0.86) percent significance.

4.2.3 Estate surveyors and valuers

Table 8 identified the various roles of an estate surveyor and valuers among the professionals in the construction industry and the ranking of the factors through the use of Relative Significance Index (RSI).

Table 8: The roles of the estate surveyors and valuers in the Nigerian construction industry

Roles	1	2	3	4	5	Total	TWV	RSI	Rank
Valuation of construction work	0	0	35	25	140	200	905	0.91	1
Construction project management	15	45	40	25	75	200	700	0.70	3
Preparing feasibility and viability appraisal of construction project	0	35	20	45	100	200	810	0.81	2

The roles of the estate surveyors and valuers in the Nigerian construction industry revealed that Valuation of construction work ranked first with RSI value of 0.91 (i.e. 91 percent significance), Preparing feasibility and viability appraisal of construction project ranked second with RSI value of 0.81, and Construction project management ranked third with RSI value of 0.70. The result also showed that all the roles are significant with the least role having 70 (0.70) percent significance.

4.2.4 Engineers

Table 9 identified the various roles of an engineer among the professionals in the construction industry and the ranking of the factors through the use of Relative Significance Index (RSI).

Table 9: Relative Significance Index (RSI) of the roles of the engineers in the Nigerian construction industry

Roles	1	2	3	4	5	Total	TWV	RSI	Rank
Calculation of load and stresses the construction will safely withstand	0	0	5	10	185	200	975	0.98	1
Factorizing the qualities and strength of building materials	0	10	0	95	95	200	875	0.88	4
Incorporating structural members and foundation	0	30	10	60	100	200	830	0.83	5
Determining the suitability of the earth for construction	0	10	70	45	75	200	785	0.79	6
Organization and delivery of materials and equipment for construction	5	85	40	10	60	200	635	0.64	7
Management and supervision of on-site labour	15	65	50	20	50	200	630	0.63	8
Installing and maintain mechanical machinery, tool and component in a building	0	5	5	5	185	200	970	0.97	2
Installing and maintaining electrical control system	0	10	0	40	150	200	930	0.93	3

The roles of engineers in the Nigerian construction industry revealed that Calculation of load and stresses the construction will safely withstand ranked first with RSI value of 0.99 (i.e. 99 percent significance), Installing and maintain mechanical machinery, tool and component in a building ranked second with RSI value of 0.97, and Installing and maintaining electrical control system ranked third with RSI value of 0.93. These are followed by Factorizing the qualities and strength of building materials (0.88), Incorporating structural members and foundation (0.83), Determining the suitability of the earth for construction (0.79), Organization and delivery

of materials and equipment for construction (0.64), and Management and supervision of on-site labour (0.63). The result also showed that all the roles are significant with the least role having 63 (0.63) percent significance.

4.2.5 Land surveyors

Table 10 identified the various roles of land surveyors among the professionals in the construction industry and the ranking of the factors through the use of Relative Significance Index (RSI).

Table 10: Relative Significance Index (RSI) of the roles of the land surveyors in the Nigerian construction industry

Roles	1	2	3	4	5	Total	TWV	RSI	Rank
Building location survey	0	0	5	30	165	200	960	0.96	1
Foundation location	15	40	40	50	55	200	690	0.69	3
Preparing construction layout	10	75	25	30	60	200	670	0.67	4
Providing proposed site plan	10	45	50	25	70	200	730	0.73	2

The roles of land surveyors in the Nigerian construction industry and revealed that Building location survey ranked first with RSI value of 0.96 (i.e. 96 percent significance), Providing proposed site plan ranked second with RSI value of 0.73, Foundation location ranked third with RSI value of 0.69, and Preparing construction layout ranked fourth with RSI value of 0.67. The result also showed that all the roles are significant with the least role having 67 (0.67) percent significance.

4.2.6 Town planners

Table 11 identified the various roles of town planners among the professionals in the construction industry and the ranking of the factors through the use of Relative Significance Index (RSI).

Table 11: Relative Significance Index (RSI) of the roles of the town planners in the Nigerian construction industry

Roles	1	2	3	4	5	Total	TWV	RSI	Rank
Designing layout and drafting design statement	0	5	5	45	145	200	940	0.94	2
Protecting environment and architectural heritage	0	5	35	40	120	200	890	0.89	3
Road utility design survey	5	5	5	20	165	200	950	0.95	1

The roles of town planners in the Nigerian construction industry and revealed that Road utility design survey ranked first with RSI value of 0.95 (i.e. 95 percent significance), Designing layout and drafting design statement ranked second with RSI value of 0.94, and Protecting environment and architectural heritage ranked third with RSI value of 0.89. The result also showed that all the roles are significant with the least role having 89 (0.89) percent significance.

4.2.7 Quantity surveyors

Table 12 identified the various roles of quantity surveyors among the professionals in the construction industry and the ranking of the factors through the use of Relative Significance Index (RSI).

Table 12: Relative Significance Index (RSI) of the roles of the quantity surveyors in the Nigerian construction industry

Roles	1	2	3	4	5	Total	TWV	RSI	Rank
Preparing bill of quantity	0	0	0	5	195	200	1000	1.00	1
Schedule of materials of building of project	5	30	15	75	75	200	790	0.79	4
Estimate cost relating to construction materials, time and labour and cost adviser	0	5	0	45	150	200	940	0.94	2
Variation of work in progress and materials on site for interim payment	0	5	30	60	105	200	870	0.87	3
Cash flow payment	15	45	20	50	70	200	760	0.76	5

The roles of quantity surveyors in the Nigerian construction industry revealed that Preparing bill of quantity ranked first with RSI value of 1.00 (i.e. 100 percent significance), Estimate cost relating to construction materials, time and labour and cost adviser ranked second with RSI value of 0.94, Variation of work in progress and materials on site for interim payment ranked third with RSI value of 0.87, Schedule of materials of building of project ranked fourth with RSI value of 0.79, and Cash flow payment ranked fifth with RSI value of 0.76. The result also showed that all the roles are significant with the least role having 76 (0.76) percent significance.

V. Discussion of findings

This paper presented the findings of the analysis of the questionnaires distributed to professionals in the construction industry to analyse the roles of the various professionals in the construction industry.

Every professional within the industry is an emphatic specialist in his field and should be considered as such. Construction is a team work. Each professional contributes his knowledge as a part of the whole for a

successful building production. The construction of a building project of any kind involves the services of many people, directly, who design, construct and maintain it from inception to completion, and to terminal demolition. Construction is one of the most important activities of any economy and a large proportion of the country's resources are usually used in the construction and maintenance of building. This is in agreement with the position of Fadamiro and Ogunsemi, (1996), Mu'azu (2002), and Omole (2000).

VI. Conclusion

The major role of construction professionals in the Nigeria's construction industry among professionals as identified by this research and it is noticeable among professionals within the industry. The professional standards include skill, competence, or character expected of a member of a highly trained persons and professional encourage the use of professionals instead of amateurs. The interplay of the forces of mutual understanding among the professionals could encourage the team spirit, a necessary parameter, in the successful execution of a project within the planned project duration. The in itself could have its added advantages to encourage the professionals to increase their productivities.

VII. Recommendation

The government of the Federal Republic of Nigeria established Councils for the regulation of the practice areas of the distinct professional bodies within the construction sector. The specific functions, duties and responsibilities were well spelt out. The study recommended that there should be strict regulations and implementation of laws by the body of each profession guiding against some particular overlapping among professionals in the construction industry.

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