



Factors Affecting the Choice and Performance of Construction Organizational Structure

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Abstract: This paper assesses the various factors affecting the choice and performance of organizational structure of construction organizations in Lagos mainland. A questionnaire survey was adopted for this study and the respondents asked to assess the significant of the factors based on the 5 point Likert scale. The research instrument which records a Chronbach Alpha (α) reliability index of 0.811 was distributed to construction professionals at building sites and offices in Lagos mainland using convenient sampling. Thirty six valid responses received were analysed using both descriptive and inferential statistics. The study identifies the following ten significant factors affecting the choice of organizational structure namely size of company, policy formulation and implementation strategy, nature of company's operation, types of communication, client base, decision making structure, numbers of employee, purpose of organization, departmental communication pattern and reporting channel. Furthermore the study identifies the factors affecting organizational performance as type of employee and skill, size of organization, business strategy and mission of organization, the environment, formal reporting structure, formalized organizational design and geographical location in the effects of organizational structure on construction project performance. It is important that company should carefully select the appropriate organizational structure taking into consideration flexibility, adaptability and dynamism as well as internal and external factors.

Keywords: Choice, factors, importance, performance, theory.

1. Introduction

Organizational structure is the framework for the working of an organization. It is the blueprint necessary for running an organization. It consists of activities such as task allocation, coordination and supervision, which are directed towards the achievement of organizational aims (Pugh, 1990). It has been described as the viewing glass or perspective through which individuals see their organization and its environment (Jacobides, 2007). Organizational structure has been described as the anatomy of the organization providing the foundation within which the organization functions. Several authors have acknowledged the relevance of organization structure. Van de ven (1976) highlighted the importance of structure both at the organization and sub-unit levels for the performance (efficiency, morale and effectiveness) of organizations. In the same vein, Aniagyei (2011), believes that a suitable organizational structure may assist the project management team to achieve high performance in project through gains in efficiency and effectiveness.

There are wide ranges of structural options that construction companies adopt which range from simple, functional, divisional structures to matrix and projectized structures. These structures vary in terms of principle, decision making and span of control, coordination to the role of individuals and channels of communication. However, the spate of companies' bankruptcy in time of adversity with

increased competition, uncertainty, low demand and economic challenges, indicates many companies do not realize the necessity for structural changes until it is too late. This may have significant impact on organizational survival as large number of construction organizations fail in period of economic adversity.

Most researchers maintained that there is no perfect organizational structure; rather the choice of a structural form should be based on the event that it suits and the situation that the firm operates which can assist in achieving internal harmony (Mintzberg, 1989; Hatch & Cunliffe, 2006). Furthermore, Kerzner (2004), observes that management of construction organizations has come to realize that organizations must be dynamic in nature that is, they must be capable of rapid structuring should environmental conditions dictates. This paper seeks to assess the various factors which affect both the choice and performances of organizational structure with a view to improve organizational performance towards improve project delivery in the Nigerian construction industry.

2. Literature Review

2.1 Importance of Organizational Structure

A good organizational structure allows efficient communication, encourages departments and groups within the company to work together, establishes a hierarchy of responsibility and allows the company to grow in a

controlled manner (Anderson, 2012). According to Neusom (2012) studying organizational structure provides a way to improve a company or organization. Creating a productive organizational structure can improve everything from employee morale and retention to profits and business efficiency.

By using the organizational structure, the construction company shows its authority, employee, accountability and workflow structures. The company is able to allocate and apportion its manpower resources most optimally (Moorty, 2012; Hill, 2012). Structure also creates a combination of permanence and order. This is required to provide continuity for the organization itself; and to generate the required levels of confidence and expectation in customers. It also provides staff with (as far as possible) a settled and orderly working life (Pettinger, 2002). Also, Child (1972) emphasizes that the purpose of a good structure is to contribute to the successful implementation of objectives by allocating people and resources to necessary tasks and designing responsibility and authority for their control and coordination. Wallace (2012) opines that structure assist business owners, chief executive officers (CEOs) and entrepreneurs to conceptualize, visualize and construct a hierarchical system to be implemented in their organization.

2.2 Factors Influencing the Choice of Organizational Structures

Theoretical research studies based on contingency or situational theory were carried out from the mid-nineteen century to assess the linkages between the environment and the organization. Contingency theory emphasizes the need to study the influence of circumstances (contingencies or situations) on organizational structure and administrative behavior. It seeks to establish the pattern of organizational structure such as formalization and administrative intensity that has the best fit with contextual factors such as size and technological uncertainty as well as the effect of external factors on the design of an organization structure.

The proponents of this theory include Burns and Stalker, 1961; Woodward, 1965; Lawrence and Lorsch, 1967; Thompson, 1967. Burns and Stalker (1961) identify the relevance of environmental conditions in the choice of appropriate organizational structure. Lawrence and Lorsch (1967) identify the combination of internal characteristics and environmental requirements for better organizational performance. The main environmental variables identified from previous studies are uncertain environment, technology, business size. These factors have been described as reactive response to the environment and tend to disregard a company's ability to influence its performance (Achcaoucaou, Bernardo and Castan, 2009).

A contrasting view is offered by the strategic choice approach. The strategic choice perspective places greater emphasis on the active role of leaders, the powerful impact they can have on organizational design and how they respond to the situational factors that contributes to their preferences (Child, 1972). It focuses on the decisions made by the organization leaders or managers in terms of products and markets and their impact on organizational forms which according to Child (1972) integrates strategy into the model and assumes that manager's perceptions, preferences and

choices interact with the process of adjustment to the requirements of the environment in order to achieve company's objectives.

Furthermore, Achcaoucaou et al. (2009) combined situational theory and strategic choice approach to evolve the following variables in their study on determinants of organizational structure namely decentralization of decision making, locating production in other countries, liberalization of the economy, globalised competition, new ways of thinking, customer orientation, intensifying competition and increasing the quality of product/processes.

Moorty (2012), opines that every company must choose its organizational structure on the basis of its size, nature of operations, its client base and employees. According to Jones (2012) the structure of an organization is influenced by the efficiency of the organizational design. Such design includes creating a clear purpose for the entity, selecting the right people for specific positions and following departmental guidelines. Anderson (2012) opines that the way the company assigns responsibility will influence the look of the corporate structure. Where few managers make all company decisions results in large group of people reporting to that small group of managers. But where a more specialized approach to decision making is taken that allows departmental managers and project leaders to make daily decisions, then the organizational structure would tend to be more spread out. Furthermore, company framework is influenced by the level of interdependency and cooperation between departments in task execution. Two or more departments that are dependent on each other to get work done would be a deciding factor in the structuring of the organization. Conclusively, there is a consensus that an organization's optimal structure is contingent upon various situational factors (Achcaoucaou, 2009).

2.3 Factors Affecting the Performance of Organization Structure

Drucker (1999) opines that the correct design of structure is the most significant determinant of organizational performance. Though good structure does not by itself produce good performance; but a poor structure makes good performance impossible, no matter how good the individual managers may be. There is no perfect solution to developing an organization structure. There is always change and organization management must review the structure of the organization and modify as necessary (Leoisaac, 2012). The mission of the organization, priorities, goal and objectives to be achieved, capability of the human resource, financial resources available were critical factors affecting organization structure (Leoisaac, 2012). The organizational structure provides a foundation for lines of communication, responsibility and tasks as well as the framework for the business. It dictates the management layers, functional divisions and overall reporting structure. Consequently, Acevedo (2012) identifies geography, size, environment and business strategy as the factors that affect organizational structure.

Akpan and Chizea (2002) posit that for the organizational structure to be effective and efficient, it has to possess the following characteristics namely flexibility,

simplicity, lean staff, optimal span of control, human oriented, result and quality oriented.

2.4 Factors Affecting the Performance of Organization Structure

Organizational theories have emerged over the years to explain the workings of organizations and to produce understanding and appreciation of organizations. Another aim is to understand what causes the different structures between organizations. Some types of organizational theories include classical, neoclassical, contingency, systems and organizational structure. These variations on organizational theory draw from multiple perspectives including modern and post-modern views.

The classical organizational theories focus on formal concepts related to management and workplace efficiency. It addressed the need for order and integration in organizations. Following this tradition, early conceptions on organizational structure were based on the orderly and integrated patterns of work structures in organizations. These early theories which were called equilibrium theories combine aspects of Taylor’s scientific management); Weber bureaucratic theory (Gerth and Mills, 1948) and Fayol administrative process theory. Scientific management involves obtaining optimal equipment and personnel and then carefully scrutinizing each component of the production process. Bureaucratic theory places importance on establishing a hierarchical structure of power; while, the administrative theory strives to establish universal management principles relevant to all organizations. However, equilibrium theories have been questioned in the light of the reality of the unintended consequences of actions that make organizational processes non deterministic and led to disequilibrium.

The neo-classical organizational theory is a reaction to the authoritarian structure of the classical theory. It focused on the importance of the individuals within the organization and emphasizes the human needs of employees to be happy in the workplace. This allows creativity, individual growth and motivation, which increases productivity and profits. Neo-classical theory looks at the social elements of the workers within the workplace. The main concept behind neo-classic theory is that productivity increases as a result of higher employee morale. This is achieved by recognizing performance and maintaining more personal relationships within the organization.

Contingency /situational theory approach states there are no universal guidelines for all organizations and situations. The environmental factors need to be considered before determining the best organizational approach. These factors may be related to social, legal, political, technical or economic circumstances. Also, it views conflict in the work place as inescapable, but also manageable. This differs from classical and neoclassical theories that interpret conflict as interference with organizational equilibrium. According to the situational approach, the most productive organization has the ability to adapt to its environment.

The systems approach is a modern organizational theory that breaks structure into mutually dependent subsystems connected through communication, balance and decision making. Included within each system are the individual employees, the roles, pattern of behavior and physical

environment. Systems theory views organizations as open systems in a state of dynamic equilibrium, which are continually changing and adapting to environment and employees within the organization. Other theories are the system structural view of organizational design and performance and Transaction cost perspective.

3. Research Method

A survey research design was adopted for this study. The purpose is to capture the opinion of survey participants on the subject of study through the use of questionnaire. Furthermore, two research hypotheses was generated and tested to evaluate the importance of variables as well as establishing the significance of the factors affecting the choice and performance of organization structure. A structured questionnaire was designed and used as instrument for data collection. The questionnaire were administered to 75 respondents using convenient sampling and face-to-face method to improve the response rate and also, timely recovery of the data. This method facilitates positive interaction between the researcher and the respondent. A reliability statistics of the research instrument/questionnaire was carried out using SPSS version 17. The result indicates a Chronbach Alpha (α) of 0.811. The data collected was analysed for both descriptive and inferential statistics using SPSS version 17. The inferential statistics includes non-parametric statistics such as Chi-square, Kruskal Wallis and parametric statistics Analysis of variance (ANOVA). The hypothesis was tested using mean item score (MIS) and Kruskal-Wallis/ANOVA to test for significance of the various factors affecting the choice and performance of organizational structure.

4. Presentation, Analysis and Discussion of Findings

4.1 Analysis of Respondent’s Characteristics

A total of seventy five questionnaires were distributed out of which forty was returned. However, four of the returned questionnaire had incomplete information and such could not be used. The remaining 36 returned questionnaires represent 51% response rate. This is fair considering the general apathy to questionnaire response. Table 4.1 shows the respondents’ structure. 50% of the respondents work in contractors’ organization; while, 31% and 19% work in client and consulting organizations respectively.

Table 4.1: Respondent’s structure

Type of organization	Sent	Returned	Used	Percentage used %
Client	20	11	11	30.6
Contracting	40	18	18	50
Consulting	15	11	7	19.4
Total	40	40	36	100

4.2 Presentation of Respondent’s Data

Table 4.2 shows the professions of the respondents, 39% are Builders; 28% are Quantity surveyors; 19% are Civil Engineers; 8% are Architects; 3% are Mechanical Engineers and other profession 3%. The years of working experience of the respondents in the Nigerian construction industry were

shown in Table 4.2. 39% have 6-10 years working experience; 28% have not more than five years experience; while 22% have over 20 years and 11% have between 11 and 15 years experience. Table 4.2 reveals the nature of the respondents' organization. Over half (64%) of the respondents works in main contractor organization; 22% works in consultancy firms while, 11% work in dual role organizations and 3% work in sub-contracting organizations.

Table 4.2: Respondent's data

Category	Type	Number	Percentage %
Professions	Quantity surveying	14	38.9
	Architecture	10	27.8
	Builders	7	19.4
	Mechanical Engineers	3	8.3
	Civil Engineers	2	5.6
Educational Qualification	HND	19	53
	PGD	8	22
	BSc/BTech/BEng	4	11
	MSc	5	14
Year of experience	1-5 yrs	10	27.8
	6-10 yrs	14	38.9
	11-15 yrs	4	11.1
	Over 21 yrs	8	22.2

4.3 Hypotheses Testing

Two hypotheses were postulated for this study and tested for both descriptive and inferential statistics using statistical package for social sciences (SPSS) version 17. The descriptive statistics include mean, standard deviation, table, charts, while inferential statistics include non-parametric tests namely Chi-square and Kruskal Wallis H Test and parametric tests namely analysis of variance (ANOVA).

4.3.1: Hypothesis one

HO: Nature of company's operation, size of company, client base, number of employee, departments within organization, purpose of organization, role of individuals in organization, decision making structure of the company, level of interdependency and cooperation, mission of the organization, type of business, type of communication between management and employee, policy formulation and implementation pattern, departmental communication pattern and reporting channel are not predominant factors affecting the choice of organization structure (see Table 4.3).

From Table 4.3 ten factors affecting the choice of organization structure were significant at 99% confidence level, which led to the rejection of the null hypothesis two. Also five factors affecting the choice of organization structure were not significant at 99% confidence level, which led to the acceptance of the null hypothesis two. The ten significant factors have Chi-square (X^2) calculated greater than Chi-square (X^2) tabulated. Consequently, the ten factors which significantly contribute to the selection of organization structure are size of company, policy formulation and implementation strategy, nature of company's operation, types of communication, client base, decision making structure and numbers of employee, purpose of organization, departmental communication pattern and reporting channel. Also the five non-significant factors have Chi-square tabulated greater than Chi-square calculated.

Consequently, five factors that do not significantly contribute to the selection of organization structure are mission of organization, role of individuals in organization, departments within organization, interdependency and cooperation and type of business. One can infer that several factors must be considered in the choice of organization structure.

4.3.2 Hypothesis Two

H0: There is no significant difference between the various factors influencing the performance of organization structure (see Table 4.4).

4.3 Discussion of Findings

Majority of the respondents to this questionnaire are male (94%) while female respondents constitute 6%. All the respondents are professionals having diverse construction background in the Nigerian construction industry with the number of Builders constituting 31%, Quantity surveyors 31%, Engineers 19%, Architect 8%, Site manager 6%, chief executive 3%. Also, all the respondents have tertiary education with master degree holders 53%, Bachelor degree 22%, HND 14% and PGD 11%. Furthermore, in the case of the respondent's working experience, 39% have 6-10 years, 28% have 1-5years, 22% have over 20 years and 11% have 11-15 years experience. Virtually all the respondents work in the Nigerian construction industry with 64% working with main contractor, 22% works in consulting firms, 3% works with subcontractor and 11% works in contracting and consulting dual role organizations.

Several factors were analysed as affecting the choice of organization structure using both descriptive and inferential statistics. The descriptive statistics indicate that client base, mission of organization, role of individuals, level of interdependency and cooperation, departments within organization, type of business, reporting channel, purpose of organization, departmental communication pattern, decision making structure, number of employee, type of communication between management and employee, nature of company's operation, policy formulation and implementation pattern and size of company are the factors to be considered in the choice of organization structure. However, since the variables used were categorical data further inferential statistics is required to confirm the initial findings.

Consequently, a Chi-square test carried out in Table 4.3 identifies the following ten significant factors as affecting the choice of organizational namely size of company, policy formulation and implementation strategy, nature of company's operation, types of communication, client base, decision making structure, numbers of employee, purpose of organization, departmental communication pattern and reporting channel in organization. However, these factors may not be exhaustive as there may be other factors not yet considered. Furthermore, the five non-significant factors identified are mission of organization, role of individuals in organization, departments in organization, interdependency and cooperation and type of business.

Furthermore, several factors which affect the performance of organization structure were evaluated using both descriptive and inferential statistics. The four tables shown below present four ranking of the significance of factors affecting the performance of organization structure.

Table 4.3: Chi-square test result of predominant factors affecting the choice of organization structure

S/N	Factors affecting choice of organization structure	X ²	Df	X ² Tab	P-value	SIG	Decision
V221	Nature of company operation	11.111	1	3.84	0.001	sig	Reject Ho
V222	Size of company	18.778	1	3.84	0.000	sig	Reject Ho
V223	Client base	9.000	1	3.84	0.003	sig	Reject Ho
V224	Number of employee	7.111	1	3.84	0.008	sig	Reject Ho
V225	Departments within organization	1.7781	1	3.84	0.182	Not sig	Accept Ho
V226	Purpose of organization	5.444	1	3.84	0.020	sig	Reject Ho
V227	Role of individuals in organization	0.111	1	3.84	0.739	Not sig	Accept Ho
V228	Decision making structure	7.111	1	3.84	0.008	sig	Reject Ho
V229	Interdependency and cooperation	1.000	1	3.84	0.317	Not sig	Accept Ho
V2210	Mission of organization	0.111	1	3.84	0.739	Not sig	Accept Ho
V2211	Type of business	2.778	1	3.84	0.096	Not sig	Accept Ho
V2212	Type of communication	11.111	1	3.84	0.001	sig	Reject Ho
V2213	Policy formulation and implementation	16.000	1	3.84	0.000	sig	Reject Ho
V2214	Departmental communication pattern	5.444	1	3.84	0.020	sig	Reject Ho
V2215	Reporting channel	5.444	1	3.84	0.020	sig	Reject Ho

Table 4.4: Descriptive statistical analysis of factors affecting the performance of organization structure

S/N	Factors Affecting Performance of Organization structure	Total	Very High Influ (5)	High Influ (4)	Average Influ (3)	Little Influ (2)	No Influ (1)	Mean Item Score	Rank
V251	Type of employee/skill	143	80	36	18	8	1	0.79	1st
V252	Size of organization	137	75	36	15	8	3	0.76	2nd
V253	Business strategy	135	55	52	18	8	2	0.75	3rd
V254	Mission of the organization	128	45	48	21	12	2	0.711	4th
V255	The environment	127	40	36	39	12	-	0.705	5th
V256	Formal reporting structure	17	45	48	30	4	-	0.705	5th
V257	Organ design formalization	123	35	44	33	10	1	0.683	6th
V258	Organ design centralization	122	30	44	33	14	1	0.68	7th
V259	The geographical location	119	35	36	27	20	1	0.66	8th
V2510	Organ design decentralization	118	10	60	36	12	1	0.655	10th

Table 4.5: Ranking of the significance factors affecting the performance of organization structure

S/N	Factors affecting performance	Standard deviation	Rank	Factors affecting performance	Mean	Rank
1	Size of organization	1.38	1	Type of employee and skill	3.97	1
2	Mission of organization	1.21	2	Size of organization	3.78	2
3	Business strategy	1.18	3	Business strategy	3.75	3
4	Company geographic location	1.16	4	Formal reporting structure	3.69	4
5	Type of employee and skill	1.15	5	Mission of organization	3.56	5
6	Formal organization design	1.13	6	Environment	3.53	6
7	Centralized organization design	1.08	7	Formal organization design	3.44	7
8	Environment	1.02	8	Centralized organization design	3.39	8
9	Formal reporting structure	1.01	9	Decentralized organization design	3.31	9
10	Decentralized organization design	0.92	10	Company geographical location	3.31	10

Table 4.6: Ranking of the significance factors affecting the performance of organization structure

S/N	Factors affecting performance	MIS	Rank	Factors affecting performance	H Test mean	Rank
1	Type of employee and skill	0.790	1	Size of organization	132	1
2	Size of organization	0.760	2	Type of employee and skill	126.93	2
3	Business strategy	0.750	3	Formal reporting structure	106.4	3
4	Mission of organization	0.711	4	Business strategy	104.08	4
5	The environment	0.705	5	Formal organization design	102.80	5
6	Formal reporting structure	0.705	6	Mission of organization	95.45	6
7	Formalized organization design	0.683	7	Decentralized organization design	92.95	7
8	Centralized organization design	0.680	8	The environment	85.30	8
9	Company geographical location	0.660	9	Centralized organization design	83.05	9
10	Decentralized organization design	0.655	10	Company geographic location	76.05	10

From the Tables 4.5 and 4.6, all the factors identified as affecting organization performance are significant and should be considered to facilitate organization performance.

5. Conclusion and Recommendation

5.1 Conclusion

The following conclusions were drawn from this study based on the research questions and hypotheses formulated for the study.

- i. Several factors affect the choice of organization structure. However, the ten predominant factors in descending order are size of company, policy formulation and implementation strategy, nature of company's operation, types of communication, client base, decision making structure, numbers of employee, purpose of organization, departmental communication pattern and reporting channel. The five non predominant factors identified in the study are mission of organization, role of individuals in organization, departments of organization, interdependency & cooperation and type of business.
- ii. Several factors affect the performance of organization structure. However, the predominant factors vary depending on the statistical tools adopted. The mean item score used in this study identifies the factors in the following descending orders, type of employee and skill, size of organization, business strategy, mission of organization, the environment, formal reporting structure, formal organization design, centralized organization design, geographic location and decentralized organization design.

While, from Kruskal Wallis H test the following factors were identified in the following descending orders: size of organization, type of employee and skill, formal reporting structure, business strategy, formal organization design, mission of organization, decentralized organization design, environment, centralized organization design, geographic location.

5.2 Recommendations

The following recommendations were drawn based on the above conclusions:

- i. Several factors both internal and external must be considered in the choice of organization structure.
- ii. Organizational structure must be dynamic in nature capable of rapid restructuring should environmental or economic conditions dictates
- iii. Organizational structure must facilitate internal and external cohesion for efficiency, effectiveness and performance.
- iv. Several factors both internal and external should be considered to guarantee the performance, growth and survival of organizations.

- v. All the 10 factors identified in this study must be considered in improving organizational performance.

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