CHAPTER ONE
INTRODUCTION

1.0 Background to the Study

Although the practice of architecture is rooted in classical antiquity, the name 'Architect' first came to be known in Italy during the Renaissance in the 15th and 16th centuries **(Chauhan, 1994).** Chauhan further noted that architectural practice evolved together with the society it served, first being defined as art, then science, and recently being defined as the business of designing buildings. The business aspect was buttressed by Symes, Eley, and Siedel (1996) who stated that architects define themselves as professionals, claiming financial rewards for knowledge and skill in the design of built environments.

Like most other professional organizations, architectural practices have metamorphosed through various stages in history. **Chauhan noted that** in the early history of man, architecture was purely for functional purposes, and the user was his own architect and builder. As man became more civilized, his shelter became more sophisticated, it also became more of an object of beauty than of function. Architects were generally described as master masons**, as they were** concerned with the entire field of the built-environment rather than mere shelter. They considered their creations as works of art, working primarily as individuals and receiving their patronage first from the priests and in the renaissance period from the nobles.

Chauhan,, further noted that the architect of the twentieth century was a professional man set aside from the building trade by education and specialized training. Symes et al., (1996) noted that at this period, architects increasingly took up salaried employment, with a growing proportion joining government service to assist in implementation of programmes and controlling standards. C**hauhan, however observed that t**he late twentieth century witnessed the emergence of the architect entrepreneur, taking up the role of an artist, a business expert, bureaucrat, social reformer, user advocate, a scientist and technician. The emergence of the architect entrepreneur marked the period after the Second World War (Symes et al., 1996), with the design team seeing itself as a business organization providing services in the marketplace. The business aspect of the architectural firm makes it an organization accompanied by some bureaucratic features. Bunham, (1988) however noted that design has always been a small part of the practice of architecture, with other tasks like technical development, management, business and supervision taking more of the architect's time. Increasing exposure of architectural practice to market forces has, according to Symes et al., (1996), led to a shift away from the architect as a team leader, the growth of varied specializations and increased importance of management techniques to help the firms adapt to changing circumstances. They suggested that this increased exposure to market forces led architectural firms to pay more attention to business to survive.

The practice of architecture in Nigeria is however little documented. Although there are evidences that the practice of the profession went through the architect-user and master-builder stages, the information available on the practice of the profession is almost non-existent, with the exception of Arayela, (2001). Arayela noted that the establishment of the Architectural practice in Nigeria dated back to the founding of University College, Ibadan, in 1948 as an affiliate of London University, when Maxwell Fry and Jane Drew (two British Architects) were commissioned to prepare master plans and design the buildings. About the same time, Watkins Gray and Partners were also commissioned to design the University College Hospital. Expatriates dominated the scene until between 1958 and 1960 when two Nigerian owned architectural firms; Oluwole Olumuyiwa and Associates, and Ekwueme and Associates joined the scene respectively. By 1967-8, only eight out of the 20 existing Architectural firms were owned by Nigerians. They

were owned by the first set of Nigerian Architects, who included late Michael Olutusen Onafowokan, a product of Public Works Department Training School, (1938) and Glasgow University of Architecture (1947); late Oluwole Olumuyiwa (Manchester University graduate, 1954); Alex Ekwueme (Washington University graduate, 1956); Frank Mbanefo; and late Adedokun Adeyemi.

Arayela, (2001) however noted that the setting changed when Ahmadu Bello University graduated the first set of B. Arch. graduates in 1963 and these graduates began to set up architectural practice in 1965 with the others to form practices such as Folabi Kuku and Associates, Danladi Shemu and Associates, Modulor Group and Allied Architects. The register of the Nigerian Institute of Architects has shown an increase in the number of architecture firms from 38 in 1973, 116 in 1978, 286 in 1998, to 444 in 2004. There however appears to be a reduction in the number of architectural firms in 2006, which listed 341 firms. This may however be due to the fact that the names of firms that defaulted in the payment of their dues were not listed in any section, when compared to the previous registers. Apart from the above information, there is not much more documented on the characteristics of architectural practices in Nigeria known to the researcher.

The practice of architecture in Nigeria has not been without challenges. Abdulkarim, (2002) noted that there had been economic fluctuations in the industry, which resulted in the cyclical nature of the industry. Sagada, (2002) also stated that architectural services industry had also become increasingly competitive because of an increase in the number of practices which contended for the few jobs, as well as the infringement of allied professions on the roles of the architect. These challenges may have led to the changing nature of Nigerian architectural industry, and it is not so simple to describe the characteristics of architectural firm without a proper study because there are too many dimensions to examine. As a profession, which needs to make strategic plans for its survival, an understanding of its current characteristics are fundamental. There have also been growing concerns among architects, as the profession seemed to be without any plan for its future sustenance. It is obvious that there is a need to examine the current state of the profession, and especially its practice. This has hitherto been largely hindered by the dearth of information on architectural firms within the country. Similar concerns have led the professions in other countries such as United State of America (California, CBAE, 1997; and Canada, RAIC, 2002), and Britain, (Symes et al., 1996) to carry out extensive studies of architectural firms in their countries. However, in Nigeria, very few studies have examined architectural firms, especially its characteristics as organizations. The study of the characteristics of any object or phenomena is very important. It helps to reveal some elements, which distinguishes the objects from others. It is the primary way by which one understands and apprehends an object or a situation. The study of characteristics is fundamental to development; hence it often precedes other major research endeavours. It is against this background that the study is aimed at critically investigating the characteristics of architectural firms in Nigeria.

1.1 Problem Definition

Research must accompany the development of any profession (Ogwo, 2000). The profession of architecture had been described as a dying profession that requires drastic actions to survive (Stevens, 2005). In line with the foregoing, the Nigerian Institute of Architects (NIA) and the Architects Registration Council of Nigeria, (ARCON) started to develop a strategic plan for the profession of architecture in Nigeria, with the aim of increasing the sphere of influence, making a greater impact on the society, increasing the ability of the firms to deliver through

Continuous Professional Development (CPD), and improving the perceived roles and attitudes of architects. This aim at arriving at a strategic plan is however yet to be realized. The Royal Institute of British Architects in the United Kingdom, on the other hand, succeeded in achieving a similar aim in 2005 (White, 2005). The likely reason for the failure in arriving at a strategic plan for the architectural profession in Nigeria is the dearth of information on the existing firms within the country. It is also likely that this dearth of information and thus, the lack of understanding of architectural practices in Nigeria had also hindered the development of the architectural industry. Without the basic information, the professional body is hampered from developing relevant and adequate professional development programmes. The need for the professional body to pioneer the sustenance of the profession cannot be met without an understanding of the existing nature of architectural practice.

With very little being understood about the organization of architectural firms in Nigeria, it appears that calls for relevant changes in the education of the architect and thus the development of the profession have no basis. There is the need to understand how the firms operate, what their strategies are, who their patrons or clientele are in order to sustain and develop the profession. The reason why this is important is because architectural organizations are the places where most architects work. This suggests that a study of architectural firms where the largest numbers of architects work could be useful for strategic planning Very little statistics however exist. There is need for the profession to be better understood, with a clear understanding of the types of firms in existence. There is also a need to know the strengths and weaknesses of the firms and how they are responding to the external environment. Also, there is a need to know what makes for successful and failing architectural practices, as well as the impact of the global world and the local context on the practices. Architectural firms also need to gain from one another through networking, which is only possible if the strengths and the weaknesses of the firms are known.

The education of the architecture student also suffers from a lack of information on the local context of practice. Unfortunately, it is the knowledge about architecture practices abroad, which abounds. This knowledge about foreign practices contained in books on what architecture firms ought to be is what is taught in Nigerian schools of architecture. A cursory look at the training of the architect reveals that the teaching of the organization of architectural firms is treated in the curriculum of architecture schools in Nigeria using foreign practices as examples. Gutman (1987) also noted that one of the central issues in architectural education is the relationship between what is taught in schools and the skill required for practice. He condemned the attitude of schools in concentrating on educating designers, leaving students to pick up all other skills through office experience. Young architects are left to grapple with the understanding of their local contexts of practice only when they start practicing. It is very likely that the frustration of both bosses and new interns in architectural firms is a result of the dearth of information about the context of practice in Nigeria for teaching. Gutman, (1987) suggested that schools of architecture should assume the responsibility for the continuing education of the profession. There is thus a need for a thorough understanding of the local architectural firms, which may inform relevant changes in the training and curriculum of the profession in Nigeria to ensure that graduates of architecture are familiar with the local context of practice.

All organizations are confronted with trends and new developments that gradually and speedily produce changes important enough to require strategic responses from participating firms, (Thompson, Gamble and Strickland, 2004). Emmitt, (1999) and Allison, (1993) noted that the success of an architectural firm is determined by the firm's anticipation of changes and responses to the change. There are indications that architectural practices are being challenged.

They also appear to be changing rapidly due to growing use of the Internet; increasing globalization of the industry; shifts in competition to international and global levels; changes in who uses the services and how they use it; and service delivery. They appear to have been confronted with unstable market demands due to volatile economic cycles. While it is true that the challenges firms face could be due to the economy as a whole, a cursory look at the industry shows that there are firms that struggle through to keep their head above waters, while others are successful, even in a dwindling economy. Responses to these changes in the external environment have however not been examined. One way of examining the responses is to study the current characteristics of the practices because they best reflect the organizations' responses. Concurrently, an examination of the characteristics would also permit researchers to identify the various external influences on architectural practices.

Emmitt, (1999) noted that architecture is a unique profession, which cannot be assumed to have similar characteristics with all other professions. Hence it needs to be studied as a profession on its own. However, very few studies on its characteristics exist (Akinyosoye, 2005). In fact, the study by Blau, (1984) suggested that architectural practices differ from other organizations. Even within the building industry, architecture is unique. The uniqueness of the architectural profession, according to Blau stems from its heavy reliance on the real estate industry, resulting in its fluctuation with the property development cycles. There is also the strong emphasis on arts and innovation in the profession of architecture. Blau (1984) also noted that architectural practice is more fully involved with technocrats and corporate elites than other professions, creating unusual difficulties. Ethically, professions have the objective of providing services for all clients, however, for architectural practices; the patrons are the rich and powerful (Blau, 1984). This could be the reason for the observed reduction in legal protection accorded the profession, when compared to other professions such as medicine. These characteristics probably make the architectural profession a unique profession. There is thus the need to understand the characteristics unique to architectural firms and the patterns, which can be found in these firms in order to see the way architectural organizations are distinguished from other professional organizations. The literature has also shown that the architectural firms differ from country to country (Knox and Taylor 2005). What is not certain however, are the dimensions along which architectural firms in Nigeria differ or are similar to others around the globe. For example, in the United States of America, architectural firms start as opportunity-based general design practice (Pearson, Egan and Nakazawa, 2003). Also, the survey by the International Union of Architects, cited by Schwennsen, (2004), revealed that nearly 1,000 new architecture firms are started every year, but only 25% are still in business 3 years later. Larsen, (2005) also noted that sometimes, an architecture firm in the United States, headed by a rising star may win a major coveted award but struggle to meet the payroll; others are busy architectural firm, which work for almost a year to complete multiple projects, only to discover they have no new jobs in the pipeline. In addition, although they keep working non-stop, they sometimes never make a dime. The situation in the Nigerian context is however little known. There is need to know the characteristics that are peculiar to architectural firms in Nigeria.

Studies of the characteristics of architectural practices have also tended to approach the problem piece-meal. Empirical researches have been conducted on important aspects of architectural practices, with scholars investigating only organizational issues (Ogundiran, 2006; Symes et al., 1996; RAIC, 2002; CBAE, 1997; White, 2005); or employee characteristics (RAIC, 2002; CBAE, 1997); or technological characteristics (Akinyosoye, 2005; Fasheun-Motesho, 2002) of architectural firms. Other scholars have studied either the organizational structures

(Schwennsen, 2004); practice models (**Pearson, et al.., 2003); ownership forms (Pinnington and Morris 2002) or business strategies** (Katsanis and Katsanis, 2001), of architectural firms. This piecemeal approach has not allowed for a full understanding of architectural firms within their contexts. However, a holistic and comprehensive view would be more useful because each of these dimensions may be intricately bound to the others and thus work together to produce the complete description of practices.

These various studies have also examined architectural practices without much rigour. Very few rigorous empirical and analytical studies exist. Only a handful of studies (e.g. Symes et al., 1996; CBAE, 1997) have attempted to investigate the association between the variables studied. Meyer, Tsui and Hining (1993), and Rich, (1992) noted that although organizations are complex amalgams of multiple attributes, the attributes have a tendency to fall into coherent patterns because they are interdependent. It has been established that the patterns of association of variables results from the interdependency of the variables, (Meyer et al.., 1993; and Rich, 1992). Roberts and Grabwoski (2003) asserted that organizations could not be understood without specifying the interrelationship among components. However, architectural firms have hitherto been so superficially studied and generalizations about the types of firms have been carelessly drawn, hence, the usefulness of the results is low. Also, differences and similarities across firms remain fairly unanswered. Without an adequate understanding and description of the firms through research, users cannot be sure that findings are relevant to their context. Studies are thus required to describe and understand the complexities and diversities of existing practices as well as the combinations of variables that produce distinct types of practices.

The central problem lies in the observation that very little seems to be known about the patterns of architectural firms that exist in Nigeria, despite rapidly changing nature of the industry, making it nearly impossible to propose strategies to advance the profession in the face of an increasingly sophisticated construction industry. Anecdotal evidence suggests that the architectural profession in Nigeria has remained conservative and static, taking decisions based on assumptions, rather than adopting strategies that fit their characteristics and goals. This has also made it difficult to plan for the development of the profession.

The study therefore seeks to fill some of the gaps in existing knowledge by investigating the types and characteristics of architectural firms. The study seeks to explore the relationships between certain aspects of the architectural organizations, which as stated by Kast and Rosenzweng, (1985), include socio-economic, personnel, cultural, strategy, structural and technological. Investigating these relationships within variables may help to explain the types of practices, which exist among the firms.

This study seeks to answer the following questions:

i. What are the socio-economic, personnel and cultural characteristics of architectural firms in Nigeria?

ii. What are the managerial (strategy and structure); information technology; task and environmental characteristics of architectural firms in Nigeria?

iii. Are there relationships between the socio-economic, managerial and information technology, task and environmental characteristics of the firms?

iv. What types of architectural firms exist?

1.2 Aim and Objectives of the Research

The aim of this research is to examine the professional practice characteristics of architectural firms in Nigeria. More specifically, the objectives are as follows:

1. To examine the organizational profiles of the selected architectural firms in Nigeria.
2. To examine the operational (information technology, task and managerial -strategy and structural) characteristics of the selected firms.
3. To identify the external influences on architectural firms.
4. To investigate the relationships which exist between the profiles of the firms, operational characteristics and the external influences of the selected firms.
5. To identify the types of architectural firms that exists in Nigeria based on the characteristics.

1.3 Justification

A study of the characteristics of architectural firms in Nigeria is important for several reasons. First, Haas, Halls and Johnson, (1966) and McKelvey, (1982) suggested that an understanding of the parts of an organization could be gained by looking at the overall patterning. Meyer et al., (1993) also suggested that there are different kinds of organization and that many (or all) aspects of organizational functioning are related to organizational type. However, Haas, et al., (1966) and McKelvey, (1982) argued that, to understand commonalities across organizations, a science of diversity must first be developed. This suggests that understanding what architectural firms are like in Nigeria can help to reveal the underlying logic of the organizational activities of the firms; thus helping to predict the firms and describe the range of capabilities available in the industry. Previous studies on architectural firms (Symes et al., 1996, Knox, and Taylor, 2005; Pinnington, and Morris, 2002 1996; CBAE, 1997; RAIC, 2002) approached the study piecemeal, thus the underlying logic of the organization was not found. This study is thus justified on the ground of the need to understand and predict architectural firms as well as describe the range of capabilities available in the industry Second, further research, which would focus on particular types of the practices, is made possible by the basic knowledge of the types of firms that exist.

Third, Ogwo, (2000), noted that every progress that has been attained in industry could only be attributed to what has been successfully adopted from research and development efforts. It could be suggested that knowledge of the relationships between contexts of firms and their characteristics can serve as an input to the fundamental decision every firm has to make concerning the adoption of practices that best suits their context decision. This perspective has to do with the fact that research must precede the development in any profession. No profession should remain static in a world increasingly characterized by rapid advances, lest it becomes obsolete. The profession needs to adopt best practices, and this is possible if the relationships between organizational variables are known. This research, investigating into the above areas, is justified on the grounds of the expediency of moving the profession forward

Fourth, this research is justified because of the need to ensure that graduates of architectural schools are relevant to the local context of practice and thus reducing the challenges faced by graduates of architecture. White, (2005) cited an example where some schools of architecture in Britain focused on preparing students for new building works, while in reality; it was refurbishment and recycling of existing building stock that was of increasing importance in

their context. The case in Nigeria appears to be more critical as very little is known about the firms where 64.8% of architects work (ARCON, 2004a). Relevant changes in the curriculum can only be made if the context of practice is studied.

The last justification is based on the need to bridge the gap between academic theory and professional practice. This dearth of existing research has hindered the adoption of strategies proposed by the academia for the practitioners. It is only through studies, which investigate how best to make practitioners adopt strategies proposed by academia, that professional practice can be refined, made more profound, and brought up to date. Worthy is the fact that the academia has been accused of constructing more and more technical theories and research methods, getting further and further from the realities of life of those they seek to analyze and support (Khosla, 1999). This study is thus justified on the grounds of bridging the gap between practice and education.

1.4 Scope of Study

The scope of the study would be defined in terms of geographical borders and the exact subjects of study. The study focuses on Nigeria. A look at the concentration of firms in different parts of Nigeria revealed six clusters of architectural firms in Nigeria, (table 1). Two hundred and sixty five (77.7%) of registered architectural firms in Nigeria are in these cities.

Table 1: Location of Registered architectural firms in Nigeria

S/N	Town	No of Registered Firms
1	Lagos	140
2	Abuja	32
3	Enugu	31
4	Kaduna	29
5	Port Harcourt	19
6	Ibadan	14
7	Uyo	14
8	Ilorin	8
9	Kano	8
10	Jos	8
11	Benin City	6
12	Calabar	5
13	Makurdi	5
14	Owerri	4
15	Warri	4
16	Onitsha	3
17	Asaba	3
18	Maiduguri	2
19	Akure	2
20	Aba	1
21	Sokoto	1
22	Minna	1
23	Awka	1
TOTAL		341

Source: Adapted from ARCON, (2006)

Samples of firms were selected from cities where the firms were concentrated in Nigeria. Six clusters were identified. These are Kaduna, Enugu, Lagos, Abuja, Port Harcourt and Ibadan.

This study was also only limited to architectural firms and did not include all types of architectural practices. The terms practice and firm have been used interchangeably in literature. While the term practice implies the application of an expert body of knowledge to certain social needs, (otherwise referred to as the business of a professional person, Roweis, 1988), the firm is the organization where the business of the professional person is carried out (American Heritage Dictionary, 2004). Therefore, since this study was concerned with the organizations where the profession of architecture was carried out, rather than the practice of the profession, the term firm is used and only architectural firms are used in this study.

This study considered only firms headed by registered architects. A few firms that were not listed in the register (ARCON, 2006) were however included in the study, after the researcher ascertained that they were headed by registered architects. Lastly, this study was carried out at the level of the firm rather than the individuals of the firms in order to give the details of the operations of the firms.

1.6 Chapter Summary

An attempt has been made to give an introductory overview of the present study. The problem of the study was defined against the background of the dearth of information about the organizational characteristics of architecture firms even in the face of the rapidly changing context of architectural practice in Nigeria. The needs for the study were therefore premised on the need to understand practices adopted by firms and predict their operations; aid further research; aid organizational choices and contribute to the education of the architect. The aim of the study is to understand and describe the characteristics of architectural firms by identifying the organizational characteristics of the architectural firms and investigating the relationships between the characteristics. The scope of this research was limited to firms headed by registered architects located in Abuja, Kaduna, Lagos, Enugu, Port Harcourt and Ibadan.

The next chapter is the review of literature, followed by the conceptual framework in chapter 3. The methodology for the work is discussed in chapter 4. The results section begins from chapter 5 and ends in chapter 9, divided based on each characteristic of the architectural firms studied. The summary and conclusion for the work is the last chapter (chapter 10).

CHAPTER TWO
LITERATURE REVIEW

2.0 Introduction

This section reviews the literature related to organizational characteristics and architectural practice. The relevant literature was drawn from organizational studies, sociology of the profession, and architectural studies. The review of literature identified the research gaps which exist in these studies and which this study will attempt to fill, as well as the, methodological approaches that are relevant.

Specifically, the review first examined the theoretical perspectives adopted in the study of organizations with the aim of identifying the most appropriate approach to the study at hand. Second, it discussed the relevance of the contingency theory to discussions on the characteristics of organizations. Third, the various characteristics of the organization, which come to play when the organization is viewed holistically, were reviewed. Fourth, the review then examined how patterns and configurations, of organizations were defined and identified in the literature. Next, the literature on sociology of the professions was reviewed, with the approaches used in the study of professions being the focus. The study of professional organizations was emphasized. The review also considered studies on the architectural profession. This culminated in the review of studies on architectural practice. The last sections identified terms, which were used to describe architectural firms as well as the methodological approaches to the study of architectural practices.

2.1 Perspectives in the Study of Organizations

Kast and Rosenzweng (1985) noted that the term 'organization' connotes a structure through which individuals cooperate systematically to conduct business. They further noted that it is a permanent arrangement of elements. These elements and their actions are determined by rules so that a certain task can be fulfilled through a system of coordinated division of labour.

There are four main philosophical perspectives to the study of organizations, which stem from the ways organizations are conceived by scholars. They are, according to Clegg and Hardy, (2003) the interpretive perspective, the postmodernist perspective, the critical perspective and the functionalist perspective. The interpretive perspective conceives the organization as social processes emphasizing actors in the organization as opposed to systems, social construction as opposed to social determinism, plural definitions of situations rather than singular definitions based on organizational goals.

On the other hand, the postmodernist and critical perspectives conceive organizations as theoretical discourses. Both are alike in that they are disillusioned with the modernist assumptions of grand narratives, the notion of totality and essentialism. They both draw attention to social, historical and political construction of knowledge, people and social relations. However, while the critical theory has the orientation towards investigating exploitation, repression, unfairness, asymmetrical power relations and distorted communications; the postmodernism perspective question the existence of grand theory, the centrality of the subject and the ontological status of the social world.

The oldest and the most common perspective to studying organizations is the functionalist perspective, arising from normal science. The organization is conceived as a rational element to be dealt with empirically. The emphasis of this perspective is consensus and coherence as against dissensus and operations of power, which the postmodern and critical theory perspectives, emphasize (Clegg and Hardy, 2003). The key idea of the functionalist

system is that the organization is conceived as a system, which is functionally effective, has explicit goals, defined through rational decision-making. The organization is defined as a rationally constructed artifice directed to the solution of collective problems of social order and administrative management.

Different theoretical approaches to the study of organizations from the functionalist perspective also exist. Such theoretical approaches include organizational economics, contingency theory, institutional theory, organizational ecology and organizational behaviour. While the institutional theory shows how symbolic properties of organizations help in securing support of external interest (DiMaggio and Powell, 1983), organizational behaviour emphasizes the centrality of the individual in the organization (Schneider, 1985; Scott, 1992). Also while organizational economy addresses why firms exist, how they should be managed and why some firms outperform others using economic models (Cyert and March, 1963; Aldrich, 1979, Hannan and Freeman, 1989), the organizational ecology theory seeks to explain organizational founding, failings and matters of organizational change based on biological and ecological models (Pfeffer, 1993; Donaldson, 1995).

Sanchez, (1993) noted that proponents of the foregoing perspectives conducted their studies as if organizations were all alike. The rise of contingency theory may however be interpreted as the expression of an explicit recognition of the limits in generalizing organizational theories. Rao and Narayana (2000) suggested that contingency approach was the first serious attempt to explain the phenomenon of organizational design. It works on the principle of 'it all depends', drawing attention to environmental and structural variables, which ultimately limit the generalizability of research findings. The contingency theory has at its root organic analogy. This means that the organization develops depending on features of its organic form and the environment that sustains them. It deals with finite but flexible set of variables such as environment, technology and size to account for variations in organizational designs and effectiveness. Reed, (2003) asserted that this theoretical approach provides an internalist focus on organizational design, with the externalist focus on environmental uncertainty. The relevance of this theory is that it allows one to understand the various dimensions of organizations from which their characteristics may be identified.

2.2 Contingency Theory and Organizational Characteristics

Understanding the characteristics of organizations depend on how the organizations are designed. The contingency theory asserts that there is no simple one right way to organize a business. The general orienting hypothesis that organizations whose internal features best match the demands of their environments will achieve the best adaptation guides it. The optimal organization is dependent on internal and external constraint. Examples of such constraints include size of the organizations, how the organization adapts itself to its environment, differences among resources and operation activities, the personnel, strategies and technology being used. Contingency theory researchers attempt to identify the feasible set of organizational structures and processes that are effective for different context configurations and to understand which patterns of organizational structure and process are internally consistent or inconsistent (Drazin and Van de Ven, 1985). The contingency theory has demonstrated that attributes of the organization interact to restrict the range of viable organizational forms. These different forms of organizations are marked by different characteristics depending on factors such as vertical control, horizontal coordination, size, ownership and control, communication culture and core service/ products (Fulk and DeSanctis, 1995).

2.3 Characteristics of Organizations

The starting point in understanding any organization is to carry out an extensive study of the characteristics of its components (Rich, 1992). The knowledge of the distinct characteristics of a phenomenon can significantly advance the understanding of such phenomenon. Rich (1992) defined a character (also referred to as attribute, variable, characteristic, parameter or dimension) as essentially any feature by which an individual can be compared against another. It allows the similarities and differences between individuals to be measured (Crowson, 1970, McKelvey, 1982). Characteristics are thus the distinctive make up of a particular item that distinguishes it from another (Meyer et al. 1993)

While Sells (1964) suggested that as many as 500 variables might be necessary to describe an organization fully; Haas et al. (1966) identified 210 variables, and Pugh, Hickson and Hinings, (1969) identified 64. Meyer et al. (1993) and Donaldson, (1986) however noted that although organizations are complex amalgams of multiple attributes, the attributes have a tendency to fall into coherent patterns because they are interdependent. The contingency theory has also demonstrated that the attributes of environment, technology and structure interact to influence the range of viable organizational forms (Rao and Narayana, 2000). This had probably prompted researchers to seek to generate typologies and taxonomies.

Rich, (1992) and Sells (1964) broadly identified the variables necessary to adequately describe an organization as employee, organizational and environmental characteristics. The expanded version was given by Mayr, (1969), and Mckelvey, (1982) who identified possible kinds of characters that can be used for classification as follows:

a) Morphological characters
   i. General formal structural (formalization, specialization, levels.);
   ii. Special structures (technical, accounting, control planning systems);
   iii. Internal morphology (workflow configuration, division of labour, staff groups);
   iv. Subunit characteristics (subunit types, formal/ informal nature);
   v. Variance characteristics (variance in subunit size, formality); and
   vi. Interdependency networks (coordination structures).

b) Physiological (process and functional characters)
   i. Metabolic flows (personnel, communication, workflows, rates);
   ii. Managerial functions and processes (decision making, conflict handling);
   iii. Adaptation and change characteristics (managerial succession, changes in influence postures); and
   iv. Workplace throughput and conversion process (assembly lines, work stages)

c) Ecological characters
   i. Environmental (physical, cultural, economic, social technical);
   ii. Epiphysical (buildings, layout, personnel characteristics);
   iii. Dependency networks (on others, by subcontractors);
   iv. Environmental variances (diversity, dynamism, uncertainty changes); and
   v. Input-output characteristics (supplies, products, information, energy)

d) Behavioural characteristics
   i. Attacker, avoider, achiever styles;
   ii. Competitive posture (monopolistic, oligarchic); and
   iii. Human resource posture (conserver, user, developer, of people)

e) Geographic characters
   i. Location patterns (local, national, multinational);
   ii. Product distribution patterns;
   iii. Employee recruitment patterns; and

iv. Variance in cultural-social forms dealt with

To adequately describe an organization in terms of the foregoing characters, Kast and Rosenzweng, (1985) suggest that the organization has to be studied holistically; that is, a systems approach should be adopted. Since the attributes of an organization have a tendency to fall into coherent patterns because they are interdependent (Meyer et al., 1993), the systems approach provides a framework to investigate the patterns of relationships found among those attributes. Rao and Narayana (2000) noted that the contingency theory is based on the system view of organizations. The contingency theory provides a framework, which utilizes the systems approach to systematically study the characteristics of organizational components and their interrelationships. The systems approach according to Kast and Rosenzweng, (1985) considers interrelationships within subsystems as well as between the subsystems and their environment, providing a means of understanding synergistic aspects. It provides a way to view the total organization in interaction with its environment and for conceptualization of relationships among internal components or subsystems. It also reflects a search for patterns of relationships and congruencies among subsystems.

Selznick, (1948) was the first to utilize structural functional analysis and systems approach in his study of organizations. Lewin, (1951), was however particularly influential in developing the systems perspective within organizational theory. These researchers state that a system is an organized, unitary whole composed of two or more interdependent parts, delineated by identified boundaries from its environment. In this context, an organization is described as consisting of goal oriented arrangements (goals), psychosocial systems (people interacting in groups), technical systems, an integration of structured activities and a managerial subsystem. Systems theory thrives on the gestalt principle. Gestalt is German for configuration or principle and is an organized entity or whole in which the parts, though distinguishable, are interdependent and have certain characteristics produced by their inclusion in the whole. The whole however, has some characteristics belonging to none of the parts. The Gestalt principle states that the whole is more than the sum of its components. The whole is not just the sum of its parts but the system itself can only be explained in totality- holism, as opposed to elementarism, which views the total as the sum of its individual parts. The holistic view is basic to the systems approach.

Systems are composed of a number of subsystems. Fig 2.1 below illustrates the systems view of organizations.

Fig 2.1: The Organizational System.
Source: Kast and Rosenzweng (1985)

The organizational components are grouped as follow:

- Technological characteristics
- Structural characteristics
- Strategy
- Personnel characteristics
- Goals and value systems
- External environment

A discussion of these characteristics follows.

2.3.1 Technological characteristics

The technologies of organizations are based on the knowledge and equipment used in task accomplishment. Computer and related technologies appear to be having significant effects on organizations. Computers are the means of efficiently gathering, analyzing, and transmitting of large amounts of data.

Traditionally, technology was defined as machinery and hardware (Scarbrough and Corbett, 1992: 3). But most authors (e.g., Flores, Graves, Hartfield and Winograd, 1988; Porter and Millar, 1985) seem to agree with Scott (1992: 227) who proposes that "*technology includes not only the hardware used in performing work but also the skills and knowledge of the workers and even the characteristics of the object on which work is performed*" Rather than just technology in the broad sense, Information Technology (IT) is what has been the focus of studies in organizations.

Using 155 information systems articles published from 1983 to 1988 as source, Orlikowski, and Baroudi (1991) identified three philosophical approaches to the study of information technology in organizations. The positivist approach investigated the relationship within the phenomena using structured instrumentation, while the interpretive approach attempt to understand phenomena though accessing the meaning participants assign to them. Within the positivist category, there is the theoretical and the descriptive group, which attempt no theoretical grounding or interpretation of phenomena. The critical approach, however aimed to critique the status quo, through the exposure of what are believed to be deep-seated contradictions within social systems.

Orlikowski and Baroudi, (1991), also noted that different groups of researchers studied different aspects of information technology. The first group which he referred to as implementation researchers was concerned with how technology has been successfully introduced into organizations (Fasheun-Motesho, 2001), while the second group referred to as the system development group was concerned with efficiency and effectiveness of building information systems. The concern of the third group was with understanding the process, which results in job satisfaction. This group was called the personnel researchers. Finally, there is the power group, which studied the power shift generated by technology

When the same computers are found in different companies, their use and meanings may be different from one company to the next. Computer systems can be crucial for the flow of production in one company, a status symbol in another or the hobby of an engineer in a third (Sackmann, 1991). Each firm is said to appropriate information technology (IT) in its own and

unique way. Appropriation is the process whereby a user selects and gives meaning to the features of the technology.

Computing, the child of technology has been viewed in three ways: firstly, computing was viewed as a ***tool*** or an appliance, "a piece of equipment like a hammer, a drill or a saw, which extended and enhanced the capabilities of a person in a particular task" (Vitalari and Venkatesh, 1987: 65). Tools can be used to get the job done, and someone (users or IT staff) determines what purposes need to be accomplished with what tools (Benbunan-Fich, 2002).

As the technology developed, the computer demonstrated its ability to stand alone, to informate, automate (Zuboff, 1988) and "supervise" production processes. In this respect, IT was more like a ***machine*** because computers were working by themselves, emancipated from human operators, and even replacing many human workers (Benbunan-Fich, 2002). The distinction between tools and machines is based on argument that the tool is an extension of the user, while the machine exhibits more autonomy of operation.

Thirdly, computer was used as a strategic ***weapon*** to gain competitive advantages over actual and potential competitors (Ives and Learmonth, 1984). Information technology can be used to raise entry barriers, or to lock in customers and suppliers, or to change the very nature of the business by introducing new or related products (Parsons, 1983; Porter and Millar, 1985).

The Internet and the increasing degree of connectivity at all levels of society are amplifying the role of IT from a mere weapon to a brand new ***channel*** to exchange information and to conduct business. The Internet provides the infrastructure for an electronic marketplace in which buyers and sellers meet and carry out their transactions (Kambil, 1997). The web can be seen as a distribution channel, a medium for marketing communications and a market in and of itself (Hoffman, Novak and Chatterjee, 1995)

2.3.2 Structural characteristics

The structure is of an organization is defined as the recurrent set of relationships between organizational members (Donaldson, 2003). It is the formal system of task and job reporting relationships that determine how employees use resources to achieve organizational goals. Organizational charts, job description, rules and procedures set the structure forth. Organizational structure is concerned with patterns of authority, communication and workflow. Structure is defined in terms of differentiation and integration (Donaldson, 2003).

Donaldson, defined differentiation as the state of segmentation of organizational systems, with each segment developing particular attributes in relation to the requirements posed by its relevant environment. Organizations exhibit varying levels of vertical and horizontal differentiation. Vertical differentiation depicts specialization of activities represented by organizational hierarchy. It sets basic authority and communication structure. On the other hand, horizontal hierarchy depicts specialization of activities represented by departmentalization. Bases of departmentalization include function, product and location.

The need to coordinate different activities of an organization necessitates integration. Integration is a process of achieving unity of effort among various subsystems in the accomplishment of organizational tasks. The three general methods used for this, according to Kast and Rosenzweng, (1985), are directive, voluntary and facilitated coordination. Directive coordination implies hierarchical coordination in which the various activities are linked by placing them under central authority. When individuals or groups voluntarily find means to integrate their activities, the coordination is referred to as voluntary. However, organizations facing change develop mechanisms to facilitate integration by setting up committees, taskforces, teams, and project offices

Miller and Droge (1986) noted that landmark researchers have reached a consensus on the key dimensions of organizational structure. These are centralization, specialization and formalization. Centralization refers to the extent to which decision-making power is concentrated in top management level of the organization. Specialization refers to the extent to which organizational tasks are divided into subtasks and people are allocated to execute only one of these subtasks. High-level specialization exists when each person performs only a limited number of tasks, while low-level specialization imply that people perform a range of different and frequently changing tasks. There can be vertical specialization, when different units and people have different decision-making authority, and horizontal specialization, when operational tasks are allocated among different people and units. Formalization indicates the extent to which the rights and duties of the members of the organization are determined and the extent to which these are written down in rules, procedures and instructions. Formalization is not limited to fixing what one's tasks are and how they should be done, but can be broader, prescribing all kinds of behaviour in the organization such as dress code, working hours, smoking regulations, use of office equipment, or internet use.

2.3.3 Strategy

Kast and Rosenzweng, (1985) noted that managing is a complex system. They further noted that there are demands, constraints and choices involved in managerial jobs. The choices are however more influential on the nature of organizations. Kast and Rosenzweng thus asserted that the development of strategy provides overall guidance for organizational endeavours. A company's strategy may consist of the combination of moves and business approaches that managers employ to please customers, compete favourably, conduct operations and achieve organizational goals. It often indicates the choices managers make.

The actions that indicate a company's strategy, according to Thompson et al., (2004) include responses to changing external circumstances, actions to enter new geographic market or exit existing ones, actions to merge with or acquire rival markets, actions to form strategic alliances, actions to strengthen a company's resource base, and actions to build competitive advantages.

Thompson et al., (2004) further noted that organizations adopt strategies at the corporate, business and functional levels. These strategies could be for growth, competition, or staffing. The strategy adopted by an organization could influence its structure, technology, characteristics of the personnel and the profile characteristics of the organizations.

2.3.4 Personnel characteristics

Organizations comprise individuals. The characteristics of the personnel of any organization are important determinants of its overall form (Kast and Rosenzweng, 1985). Demkin, (2004) highlighted the need to examine and evaluate the staff's knowledge and skills, education and licenses, experience, career ambitions and paths, motivating factors, and demographics to gain a thorough understanding of the composition and motivation of the staff. This, according to Demkin, (2004) is important because the characteristic of the personnel of an organization is determined by the goals of the organization but it determines the structure, technology and strategy to be adopted by the organization. The task an organization aims at achieving determines the education, experience and skills of the personnel it employs.

2.3.5 Physical Environment

Carlopio and Gardner, (1992) identified three types of offices. While the open office environment has been considered as a pool environment in which any number of desks or work areas are grouped together without any physical barriers between them; the cube type of office is frequently defined by partitions that can range in height and may or may not have doors, and that may have from one to four surrounding walls. The traditional offices have ceiling to floor walls, either permanent or semi-permanent, and doors.

Carlopio and Gardner further argued that the type of office is determined by the type of job being done in the office space (clerical, professional, managerial), which further determines the physical artifact (personal computers, ergonomic furniture) in individual workstations.

Vilnai-Yavetz, Rafaeli and Yaacov (2005) suggested that the physical environment is influenced by the structure of and the task to be carried out by the organization. This is however yet to be empirically tested in the context of the architectural firms.

2.3.6 Culture of Organizations: Goals and value systems

Goals represent the desired future conditions that individuals, groups, or organizations strive to achieve. They include missions, purpose, objectives, targets, quotas and deadlines. There are official goals stated in broad terms to justify the activities of the organization and there are operational goals, which are pursued. This study is concerned with the operational goals.

Druker, (1954) advocated that businesses set objectives in areas such as market standing, innovation, productivity, physical and financial resources, profitability, manager performance and development, workers performance and attitude, and public responsibility, which determined the cultures that the organizations adopt.

Jaskyte and William, (2004) however defined organizational culture as a set of shared values that help organizational members understand organizational functioning and thus guide their thinking and behavior. O'Reilly, Chatman and Caldwell (1991) developed the Organizational Culture Profile. The instrument contained a set of fifty-four value statements, twenty-three of which factored substantially alike in numerous studies, forming seven value dimensions: attention to detail, innovation, outcome orientation, aggressiveness, team orientation, stability, and people orientation (O'Reilly et al. 1991; Sheridan 1992; Chatman and Jehn 1994).

Cameron et al., (1999) asserted that cultures of organizations are different and these cultures could be clan, adhocracy, hierarchy and market cultures. The clan according to Cameron et al. feels like an extended family and is characterized by teamwork, open communication, empowerment, and leaders who act as mentors. The adhocracy is characterized by innovation, creativity, risk taking, and visionary leaders. The hierarchy is characterized by efficiency, control, and leaders who are monitors. The market is characterized by achieving goals, beating competitors, productivity, and hard-driving leaders.

2.3.7 External Environment

Kast and Rosenzweng (1985) stated that organizations are a subsystem of the broader environment. The environment could be in terms of the general environment, which affects all organizations in the society, or in terms of the task (specific) environment. These researchers further asserted that the general environment has components, which include cultural, technological, educational, political, legal, natural resources, demographic, sociological and economic characteristics.

The task (specific) environment is made up of more specific forces, which are relevant to the decision-making and the operations of individual organizations. While general environment is same for all organizations, the task environment is different for each organization.

The external environment is made up of the legal/political environment, the economic environment, technological, demographical and social environment. While the legal/political environment includes the policies of the government, tax laws, and regulations, the economic environment includes the per-capital income of the area as well as the gross national product rating of the country. The technological environment includes the new products, production techniques and management that the organization is exposed to, while demography measures the various characteristics of the people comprising the organizational external environment. Last, the social environment includes the level of perceived rivalry among current competitors, threats of new entrants, threats of substitutes, power of suppliers, power of customers, and entry barriers into the industry.

2.4 Organizational Configuration and Organizational Patterns

The terms configuration and patterns have been used interchangeably in literature. These two terms however connote the same phenomena of design. There appears to be a link between contingency theory and configuration. Both the contingency theory and the configurational approach suggest that attributes of an organization interact to restrict the range of viable organizational forms (Fulks et al., 1995 and Meyer et al., 1993). Also, configuration, according to Pugh,et al. (1969), works on the assumption that the context, purposes, structure and functioning of an organization are intimately interrelated (a core assumption of the contingency theory). However, while the contingency theory investigates how contextual variables of an organization interact with structural variable, the configurational approach asserts that an understanding of the parts within an organization can only be gained by looking at the overall patterning (Meyer et al., 1993). Although, Rich et al., (1992) asserted that classification, a presentation of configuration, replaces contingency theory, Sanchez, (1993) and Meyer et al., (1993) noted that configuration builds on the contingency theory. This suggests that configuration is a progeny of the contingency theory. Meyer et al., (1993) further noted that organizations are best understood in terms of overall patterns rather than in terms of narrowly drawn set of organizational properties. It thus appears that configuration, builds on the contingency approach by synthesizing broad patterns from contingency theory's fragmented concepts and grounding them in rich, multivariate descriptions.

Scholars have also asserted that the subsystems generate patterns, which defines the organization (Meyer et al. 1993, and Rich, 1992). Such configuration or patterns, they argued, richly describe organizations, revealing their systemic nature. They also draw important distinctions between organizations, aiding better understanding of individual organizations. The term configuration connotes any multidimensional constellation of conceptually distinct characteristics that commonly occurs together (Meyer et al., 1993). Meyer et al. (1993), and The configurations may be situated at multiple levels of analysis, depicting patterns common across individuals, groups, departments, organizations, or networks of organizations.

A configuration inquiry represents a holistic stance, an assertion that the parts of an entity take their meaning from the whole and cannot be understood in isolation. It explains how order emerges from the interaction of the parts of the entity as a whole. Configurations provide an avenue to make sense out of phenomena by sorting things into discrete and relatively homogeneous groups.

Scholars have suggested many forces capable of causing organizational attributes to cluster systematically. While Hannan and Freeman, (1989) suggested environmental selection for

competitive fitness within ecological niches, DiMaggio and Powell, (1983) suggested normative diffusion of strategies and structures arising from the demands of powerful institutional actors. Miller, (1987) and Berger and Luckman, (1967) however suggested that forces within the organizations are responsible for observed patterns. Such forces could be functional relationships among organizational elements (Miller, 1987), or replication of time-honoured practices through social construction (Berger and Luckman, 1967). Hinning et al., (1988) also suggested shared interpretive schemes and ideologies as the reason for configurations in organizations.

Haas et al., (1966) and McKelvey (1982) have argued that to understand commonalities across organizations, a science of diversity must first be developed that allows their classification into more homogeneous categories. However, underlying attempts to create classification system are two important principles. The first is the idea of coherence between organizational elements, while the second is the holistic nature of organizational phenomena. These principles suggest that there is a limited range of organizational forms and that an understanding of the parts within an organization can only be gained by looking at the overall patterning (Meyer et al., 1993). Classification is thus viewed as a basic step in the conduct of scientific inquiry into organizations (Rich, 1992). Classification or categorization, according to Mayr, (1969) is a communication system. The role of classification, according to Rich, (1992) is both to order and to make sense of the data it contains. The basic reason for classification, according to Meyer et al. (1993) and Sanchez, (1993) is an attempt to understand organizational diversity.

2.5. Organizational Classification

Meyer et al. (1993) defined classification as the categorization of phenomena into mutually exclusive and exhaustive sets. It is used to support the notion that there are different kinds of organizations and that many (or all) aspects of organizational functioning are related to organizational type (Meyer et al., 1993). It is the means by which configuration is presented. There had been an extensive attempt to classify organizations as McKelvey (1982) had documented. Underlying each of the classification schemes was an attempt to understand organizational diversities. The purpose of classification had been to abstract and systematically explore key theoretical ideas such as rationality, bureaucracy and control (Meyer et al., 1993).

The creation of organizational classification is justified in two ways. First, it helps to understand commonalities across organizations (McKelvey, 1982). Secondly, it enables knowledge about generalizable principles of organizational functions and processes to grow. Its usefulness is also in many folds. Rich, (1992) stated that organizational classification provides the basis for strong research by breaking the continuous world of organizations into discrete and collective categories well suited for detailed analysis. Second, it helps to establish the limiting conditions of scientific hypotheses and propositions. Third, it permits fundamental structures and relationships (McKinney, 1966). Fourth, it serves as a basis for theory development and hypothesis testing (Haas, 1966). Fifth, it is a shorthand device by which organizations may be compared (Hambrick, 1983), providing a means of ordering and comparing organizations and clustering them into categorical types without losing sight of the underlying richness and diversity that exist within the type. Sixth, it allows the researcher to form opinions and to develop theories without resorting to grand style theories that purports relevance to all organizational types. It presents a conceptual framework for describing and understanding the diversity of presently existing organizations. Mayr, (1969) concluded that it provides classification schemes useful to other areas investigation such as organizational behaviour, organizational development and design, policy, and practical management. Classification is thus an important and basic step in the

conduct of scientific inquiry into organizations

However, the product of a classification scheme depends on the way it is conceptualized and carried out.

2.5.1 Approaches to Organizational Classification

Warriner, (1984) identified three types of procedures used for classifying organizations: traditional, theoretical and empirical. The traditional procedure uses common sense in its classification, failing to define the contents of assigned organizational groups. The theoretical procedure is based on a priori or heuristic classes into which organizations are now placed. Conversely, the empirical procedure assigns classes a posteriori with classes emerging from empirical procedures used to sort organizational features on the basis of similarities and contrasts

Cross referencing Warriner's, (1984) procedures, against Mayr's, (1969) philosophical approach, Rich, (1993) identified four categories of philosophical underpinnings and procedures by which entire families of organizations may be classified. The categories were based on Mayr's categories (essentialism, nominalism, phyletics and empiricism).

The essentialism philosophical approach is based on the assumption that all properties of an object can be traced to essential definitive roots. It defines groupings that are believed to appear naturally as a consequence of fundamental similarity of phenomena. While the essentialism-traditional category is based on untested public opinion and commonsense observation of organizations, being built on single organizational variable; the essentialism-theoretical category is based on a priori theories. Most typologies of organizations such as those of Blau and Scott (1963), and Thompson (1967) among others are based on the identification of a few essential attributes. Essentialism thus generates a special classification. While essentialism simplifies the task of classification, because only a few attributes are considered, many objects prove not to be totally analyzable entities.

The nominalism approach views grouped phenomena as artificial constructs that serve science, rather than natural consequences of theory or mathematical procedures. It argues that only individual objects exist as opposed to naturally existing grouping of objects, thus all grouping of objects are artifacts of the human mind. The nominalism-theoretic category bases its classification on heuristic ideas, while the nominalism empirical category bases its classification on scientifically quantifiable lines.

The phyletic approach postulates that natural groupings occur because of descent with modification from common ancestors. It thus seeks to classify organisms to readily delimitable groups of species, and explain how species came to exist in the first place and in particular form. This it does by recognizing environmental diversity and inquiring how organisms adapt to their environment. However, data on past evolutionary branching are often weak and scattered. This approach hypothesizes classes a priori by tracing organizational lines of development. The a priori classes are then tested using numerical taxonomic method, the significant attributes having been defined by a priori phyletic theory. While, the phyletic-theoretical approach bases its classification on shared ancestry, the phyletic-empirical approach combines numerical phenetics with evolutionary theory to arrive at groupings.

Lastly, the empiricism approach asserts the objective existence of groups that emerge through quantitative analysis. The approach argues that there is naturally existing grouping of

objects and that if investigators carry out empirical studies they will eventually be identified. Empiricism emphasizes phenotypical similarities, with classification based on many equally weighted attributes. It uses multivariate numerical methods, principally cluster and discriminate analysis, to form groupings. Numerical taxonomy is based on large samples and bases its classification on the analysis of many, if not all, known attributes, though with no means of separating the trivial from significant attributes. Pioneering numerical taxonomic works include the works of Haas et al. (1966) and Pugh et al. (1969). This approach appears to hold value for the present study as it allows the types of the architectural firms to emerge naturally, rather than using the theoretical approach, which relies on the creativity of the researcher.

Two procedures common in organizational classification have been identified. These are the taxonomic and the typological procedures. These are discussed in the next section.

2.5.2 Typological and Taxonomical Procedures in Organizational Classification

Underlying classification is an attempt to understand organizational diversity through typologies and taxonomies (Meyer et al., 1993). The terms, classification, typology and taxonomy have however been used interchangeably in literature. Classification is the categorization of phenomena into mutually exclusive and exhaustive sets. The conceptually derived sets of configuration are known as typologies, and the empirically derived sets of configurations are taxonomies (McKelvey and Aldrich, 1983, Rich, 1992, Sanchez, 1993).

A typology, as noted by Tiryakian (1968), goes beyond sheer description by simplifying the ordering of elements of a population, and the known relevant traits of that population, into distinct groups. It identifies ideal types, each of which represents a combination of the organizational attributes that are believed to determine relevant outcomes. Typological procedures, according to Meyer et al. (1993) involve the use of Weberian logic of ideal types, accentuating key characteristics so as to draw a priori distinctions between organizations (organic and mechanistic forms- Burns and Stalker, 1961; technology-Thompson, 1967; structure-Mintzberg, 1979 and business unit strategy- Miles and Snow, 1978). The evolving classification is based on few dimensions, when not based on just a single one. It is an invention of individual creativity and involves a priori approach to classification. Organizations are assigned to specific types on the basis of the theorist judgment and not on the degree of presence of the characteristics at hand. Typological procedures have twofold function of creating order out of potential chaos of heterogeneous observations and permitting the observer to seek and predict relationships between phenomena that do not seem to be connected in any obvious way. Typologies are however difficult to use empirically because of their a priori nature and frequent lack of empirical referents.

Pugh et al., (1969) defined taxonomy as a classification based on dimensions that are measurable and empirically established. They suggested that taxonomy could be useful for refining hypotheses, as well as a basis for predicting organizational decisions or change. The taxonomical procedure uses the logic of empirical classification based on multivariate analysis of empirical data on multiple dimensions or variables referring to organizational structures, processes, strategies and contexts (Sanchez, 1993), and is basically interested in the classification of organizations as they are in a given point in time. Attempts are then made to identify natural clusters, to serve as a basis for the configuration. It is a specific classification scheme that expresses overall similarity between organisms in a hierarchical fashion. Thus, phenomena can be compared to and contrasted against one another at several points, either as individual species or as members of larger division. One of the first attempts at this was made by Haas et al. (1966) while trying to validate the approach of Blau and Scott (1963). Other attempts made were by Pugh et al.

(1969), who attempted a multidimensional analysis of bureaucracy; and Ulrich and McKelvey (1990), who identified distinctive subpopulations within the US and Japanese electronic industries

The rest of this section focuses on taxonomical procedures. Various studies have been carried out to contribute to this approach of classification. It may thus be useful to briefly review these studies, to gain insight of the methodologies used. The studies by Haas et al., (1966); Pinto and Pinder, (1972) and Miller and Friesen, (1984) set out to empirically determine natural classes of organizations, using a sample of seventy five (75) organizations; two hundred and twenty seven (227) organizations and eighty one (81) organizations from a variety of industries respectively, selected in a non random manner. However, while Haas et al. selected variables referring to organizational structure and processes, Pinto and Pinder, used organizational behaviour variables and Miller and Friesen, (1984) selected variables of the external environment, structure, strategy and performance. With the studies of Haas et al. and Pinto and Pinder, interviews were used to collect data from the top executives, who were the chosen informants, with additional information obtained from organizational records and documents, while Miller and Friesen used previously published case studies. Also while Haas et al. and Pinto and Pinder used cluster and hierarchical cluster analysis to arrive at groupings, Miller and Friesen used inverse factor analysis (Q-type) that factored cases instead of variables.

The study by Pugh et al., (1969) and Samuel and Mannheim (1970) specifically set out to develop taxonomy of organizational structures and bureaucratic structures respectively. While Pugh et al., (1969) studied fifty two organizations in the United Kingdom; Samuel and Mannheim, (1970) studied thirty production plants in Israel, using random stratified sampling to select the samples. The chosen informants in this study were the top executives and the instruments used were interviews, documents and questionnaires. While Pugh et al., (1969) carried out the analysis by correlation analysis of the data obtained, Samuel and Mannheim utilized Guttman-Lingoes multidimensional scalogram analysis-I computer program.

Recent taxonomy study by McMahon, (2000) set out to derive an empirically- based development taxonomy for small and medium-sized enterprises in manufacturing sector in Australia. The data used was obtained from Australia's Business Longitudinal Survey. Cluster analysis was used with key enterprise size, age, and growth variables.

2.6 The Study of Professions

Most definitions of professions are very similar. Defining professions from the economist perspective, Savage (1994) stated that a profession is a knowledge-reliant occupation, requiring extensive training and the study and mastery of specialized knowledge; and usually has a professional association, ethical code and process of certification or licensing. Savage also noted specific attributes of professions. First, she states that a profession is an occupation whose core element is work based upon the mastery of a complex body of knowledge. Second, its members are governed by codes of ethics and profess a commitment to competence, and the promotion of the public good within their domain. Third, professions differ from other occupations in that they exhibit complex relationships with people, are well organized, require long training, require licensing and often enjoy high prestige. Fourth, professions rely on a network for the development, maintenance and validation of core competences. This network internalizes knowledge and coordinates its transfer without integrating ownership, though network members remain competitors across many dimensions. Finally, Savage suggests professions may be practiced in organization, either as a department a larger organization or solely as a professional organization, where the main task of the organization is the practice of the profession.

Larson, (1977) and Bucher and Stelling, (1969), identified three definitions of profession

in sociology. The first definition differentiates professions from other occupation in terms of the character of the work itself, defining profession as a work requiring the possession of an intellectual technique acquired by special training. The second, asserting that the recognition of the society is important in defining a profession, defines it as any occupation, which a given society regards as a profession. While acknowledging that reality is socially constructed and what is defined as profession is as agreed by society, the third definition states that social construction is not a random process but a political war. Profession is thus defined as a particular form of political control that an occupation gains over work.

A profession arises when any trade or occupation transforms itself through "the development of formal qualifications based upon education and examinations, the emergence of regulatory bodies with powers to admit and discipline members, and some degree of monopoly rights. The process by which a profession arises from a trade or occupation is often termed professionalization and has been described as, starting with the establishment of the activity as a full-time occupation, progressing through the establishment of training schools and university links, the formation of a professional organization, the struggle to gain legal support for exclusion, and culminating with the formation of a formal code of ethics.

Larson, (1977) argued that the professions as we know them today are of the nineteenth and twentieth century origin. It was during these centuries that professions expanded. He further asserted that in professions, the organizations are democratic and authority is based on possession of knowledge and skill. This is as unlike other bureaucratic organizations, which are hierarchical and authority is based on official position. Another important aspect of the professions is that the images professions project serve central ideological functions in advancement of capitalism (Larson, 1977).

Professions have also been divided into primary and secondary professions. The primary professions enjoy high esteem in the society arising from the vitality of their services to the society. Such professions include medicine, law, and the military. Secondary professions (e.g. architecture) however enjoy less esteem, as their work is less vital to the society.

Albertsen, (2001), identified internal and external approaches to the study of professions. The external approach is viewed as the objectivising, distancing, and detached approach, finding underlying mechanisms of explanation. On the other hand, the internal approach seeks to understand the content and substance of professions. Albertsen actually suggested that the scholars adopting the external approach focus on the mechanisms of power, domination and legitimation of professional activity, while those adopting the internal approach; focus on the content and substance of professions.

Albertsen highlighted four main approaches to studying professions from the externalist perspective. While the functionalist approach studies the contributions of professions to society (Parsons, 1964) the interactionist approach studied everyday actions and interaction of professionals, how they constituted their social world as participants and how they constructed their careers (Hughes, 1967). The power approach also focuses on professionalization as a strategy for gaining power positions within the larger society (Larson, 1977). Contrary to the functionalist, interactionist and power approaches which work while studying only one profession; the division of labour approach looks into the inter-professional competitions between professions. It tackles the issue of jurisdiction over work area. (Abbott, 2002)

2.7 The Study of Professional Organizations

The externalist approach fails to address the 'how' question of professional practice. An understanding of the content and substance of practice can be gained using the internalist approach, which according to Bucher and Stelling, (1969) focuses on diversity within a profession. The researchers noted that most professionals carry out their work in formal organizations. They however further assert that bureaucratic theory is of limited value in the study of professional organizations. In the study by Bucher and Stelling, (1969), which focuses on the structural characteristics of health organizations, the researchers argued that professional organizations are different from other organizations in various ways. First, they suggested that there is continual internal differentiation within the professional organization arising from differences in professional interest, with the proliferation of teams, divisions and departments. Second, hierarchy/ authority by position or office is relatively rarely in these organizations. Third power is extremely important and the value of the profession in the market place is the basis such power. This suggests the peculiarity of professional organizations.

All approaches to the study of organizations are also applicable to study of professional organizations. The functionalist approach, which applies most to this study, has been used to study professional organizations from different perspectives. While Pinnington and Morris, (2002), used the institutional approach to study how firms have been transformed from one type to another, Cohen, Wilkinson, Arnold and Finn (2005); and Scott, (1992) approached the study of professional organization from the organizational behaviour perspective. The contingency theory perspective however, seem to have been popular in the study of professional organizations. Smith, (1958); Jungman and Bucher. (1967); and Bucher, (1961) approached the study of professional organizations from the contingency theory perspective.

As in other organizations, the characteristics of professional organizations are highly interrelated, and that given some of them, the others will tend to follow (Bucher and Stelling, 1969). However, as noted previously, there may be non-conformity with the patterns observed in other organizations when same parameters are measured in professional organizations. With the professions, the independent professional is guided in his relationship with the client by a professional subculture and normative system. This suggests a need to study particular professional organizations rather than apply a general rule to all organizations.

2.8 The Architectural Profession and its Characteristics

Architecture is primarily the art and science of designing spaces for serving the multifarious activities of human beings and for meeting their specific needs in a meaningful built environment. Academic American Encyclopedia, (1998), defines Architecture in four ways; first, architecture is defined as an art and method of erecting structures. Second architecture is defined as a planned entity and the result of a conscious act. Third, architecture is referred to as a way to build. Last, architecture is defined as a body or corpus of work.

The Architects Registration Council of Nigeria (ARCON) definition however, attempting to include all other aspects of the built environment, defines architecture as 'the art and science in theory and practice of design, erection, commissioning, maintenance and management and coordination of allied professional inputs thereto of buildings, or part thereof and the layout and master plan of such building or group of buildings forming a comprehensive institution, establishment or neighbourhood as well as any other organized space, enclosed or open, required for human and other activities. It involves a social structure that enhances the planning of the built environment to meet shelter needs (ARCON, 1990). This social structure however needs to be understood if it is to be sustained.

Architecture has all the attributes of a profession, which in line with the definition of Savage (1994) is a knowledge-reliant occupation, requiring extensive training and the study and mastery of specialized knowledge; and usually has a professional association, ethical code and process of certification or licensing. The architectural profession is an occupation whose core element is work based upon the mastery of a complex body of knowledge in which knowledge of some department of science or learning is required The members of the profession are governed by codes of ethics and profess a commitment to competence, and the promotion of the public good within their domain. The architectural profession may exist in organization, either as a department in the organization or as organizations, where the main task of the organization is the practice of the profession.

Architectural profession is unique in several ways as noted by Blau (1984). First, it relies heavily on the construction industry. Second, there is also the strong emphasis on arts and innovation in the profession of architecture. Third the architectural profession is more fully involved with technocratic and corporate elites than other professions. Fourth, architectural profession provides for the rich and powerful, as opposed to the ethics of other profession that have the objective of providing services for all clients. Finally, the product of the architectural profession is an investment, as opposed to other professions that provide services necessary for the peace and well being of man. The architectural profession is the specialized occupation, which is carried out in practice.

2.9 The Architectural Firm

American Heritage Dictionary (2004) defined practice as the *business of a professional person.* Professional practice is the application of an expert body of knowledge to certain social needs (Roweis, 1988) while the aim of the professional firm is profit. The knowledge applied includes both the theoretical knowledge, and the non-theoretical knowledge (interpretative, normative, and subjunctive). Practice requires the use of generally valid knowledge to arrive at specifically valid conclusions. Professional practice thus involves the production of context specific solutions.

Chappell and Willis, (2002) argued that, three decades ago, architectural practice was carried out in private practices and local authorities. All of the activities of the architect in private practice are coordinated by the architect's office. The way the architect's office is organized and managed is thus important for the success of the practice. The firm is the organizational form that provides a framework for the operation of architectural practices, as with all professional practices. With the current challenges facing the profession, there is reason to expect that these roles of the architect might have changed significantly. It is thus pertinent to study the nature of architectural firms and understand how various parts interact to give form to the current architectural firms.

Scholars have highlighted different dimensions of architectural practices. The architectural practice has been studied as a professional service, a creative endeavour and as a business venture. A brief review of these dimensions is carried out below.

2.9.1 *Architecture Practice as a Professional Service*

A key factor in architecture is that it is a professional service. The profession revolves around providing value for the customer. Providing such value has come to mean creating

structures that last longer and using energy more efficiently to create structures that are cost efficient to owners (Jaiyeoba, 2002). Fitzsimmons and Fitzsimmons (2004), defined service as a time-perishable, intangible experience performed for a customer acting in the role of co-producer. Kotler, Armstrong, Saunder and Wong (1999), on the other hand, defined it as any activity or benefit that one party can offer to another which is essentially intangible and does not result in the ownership of anything. Its production may or may not be tied to a physical product. The special nature of professional services is seen in the special nature of what is sold -*expertise*-, as well as the fee and time basis most often involved in charging for it.

Architecture is one of such services with characteristics such as direct customer interaction, intangibility, and perishability (Davis and Heineke, 2003, Fitzsimmons and Fitzsimmons, 2004, Palmer, 2001, and Forsyth 2003). However, Blau, (1984) suggested that architecture differs from other professional services in a number of ways. It is more involved with the technocrat and corporate elite than other professions and thus enjoys less legal protection than other professions like medicine. The integral importance of architectural practice to the general public is also low, as the regular middle class man hires shelter from the elite, who is the one in contact with the architect.

Architects provide services, which includes feasibility studies, planning, designs, construction, conservation, and development. Architectural firms design a multitude of different structures for all sectors of the market. Office and apartment buildings, schools, military installations, churches, factories, hospitals, houses, and airport terminals are but a few of the facilities that they design for private individual clients, as well as commercial, government, and private nonprofit organizations. Blau (1984) noted that while some firms specialize in serving one niche or a few segments of the market, others are highly diversified and offer a variety of architectural services to all types of clients.

Over the years, Architecture has generated specializations such as structural design, urban design, city planning, landscape architecture and interior architecture. Retrofitting of buildings, architectural conservation, and construction management have also lately emerged as specializations. Each of these compliments and supports each other.

2.9.2 Architectural Practice as a Creative Endeavour

Architecture is distinctive for its intrinsic creative dimension (Blau, 1984). Architects are commissioned by clients to provide individual design solutions to unique problems. They are primarily concerned with creative works. Architectural practices are thus characterized by a unique set of values that set them apart from other construction outfits. Every architectural firm has agenda for innovation apart from other agenda, which are necessary for other aspects of the architect's job in practice (Emmitt, 1999).

2.9.3 Architecture as Business

The practice of architecture is also defined in business terms (Blau, 1984). The American Institute of Architects, (http:// www.aia.org); defined architecture as a passion, a vocation, a calling, and a *business,* with Schwennsen, (1999), corroborating this by stating that architecture is a *producer-service business*, providing services to clients in the volatile construction industry. Winch and Schneider, (1993), while agreeing that creativity is important in the practice

of architecture, emphasized the importance of organizational and market contexts in the face an increasingly competitive business environment. These appear to be business concerns and further confirm that architectural practice is a business.

Business is essentially transaction. It is the exchange of one kind of value for another. Businesses have products or services that customers want or need while customers have value (money) that businesses want and need. Business is an organization engaged in producing and selling, at a profit, goods and services that a consumer wants. Inegbenebor, Eheduru (1999), defined it as a decision-making unit concerned with serving certain needs through the production and distribution of goods and rendering of services at a profit for the owners. They further stated that the primary objective of any business enterprise is profit, while the secondary objectives include growth of the business, innovation in meeting consumer needs, productivity, employee satisfaction, as well as a positive public image. Architectural practice fits into the foregoing definition, and is thus a business.

Winch and Schneider, (1993) suggested that there may be difficulties in viewing architectural practice as business. They noted that achieving financial success and market share may sometimes be in conflict with success in creative works and innovation. The study by Cohen et al. (2005) however revealed that when an architectural firm has an aim to remain solvent (which is a business concern), it absorbs creativity within this aim. Creativity on its own does not guarantee financial success in practice. Every architectural firm has to be run to generate profit for its Principal(s) or else, it ceases to exist. The strength of the business objective however differs from one firm to the other.

Organizations exist for various reasons, with the values and ideologies of the organization being strongly influenced by the norms and ideologies of the society. Ideologies are the aggregate of ideas, beliefs and modes of thinking characteristics of a group. Organizations may exist for community service or for profit maximization. The agendas, which principals have about practice, are found to be efficacious only if they are logically related to particular conditions of practice (Blau, 1984). Both Thompson et al., (2004) and Blau, (1984) assert that the driving force of firms, which is their ideology, is the major underlying cause of differences in organizations. This however needs to be examined empirically.

Larson, (1977) in seeking to explain architecture's non-financial allure identifies an ideology of the profession based on three central ideas: a belief in the intrinsic value of work as a vocation or calling (as distinct from entrepreneurial work ethic or a means of capital accumulation); the ideal of public service; and a secular version of noblesse oblige.

Pearson, et al., (2003) stated that traditionally in the United States of America, most design firms begin life as opportunity-focused general design practices, with one or more Principals who have the desire to build a portfolio of work. They have a diversity of building types and clients, often within a defined geographic reach. These Principals determine the challenge of different types of clients and projects they like and choose to build on that diversity. Pearson et al. further suggested that the Principals could also develop relationships that guarantee access to decision-makers and decision-influencers, thus enhancing their value in the eyes of their clients and potential clients. The question of what the firms are like, especially in the Nigerian context however remains unanswered.

Commissions in any architectural firm, just as with other professional service firms, come from a variety of sources (Fig 2.2 below). The first source is repeat business, which implies doing similar work, on new project, for clients the firm had worked for in the past. This according to Franklin (2000) is the major source of business for architecture firms. Second, architects source of commissions from extension businesses where more work, is done with existing or recent

clients. As stated by Strauss and Attner, (1994), many companies find it much easier to get current customers to do more business than it is to get business from prospective customers. The third source of business is referral business, which comes from intermediaries or recommenders. This is when the clients a firm has done some works for in the past refer new clients to the architect. The last type of commission for architects is businesses from the scratch, which makes up all the other businesses a firm gets involved in. According to Johnston and Marshall, (2005), businesses need to search for new customers because a customer may get into financial difficulty and go out of business; the main contact in a client firm may leave or change position; the firm may need to increase revenue to pay for expansion and other items; and a customer may move to a new location outside the firm's area.

Fig 2.2: Sources of Business for Professionals.
Source: Forsyth, (2003), Marketing and Selling Professional Services (pg 8)

As with most other professional service organizations, architecture firms proceed through different stages as they mature. These stages, according to Strogoff, and Dubinsky, (2005), are infancy, concentration, momentum, stability and mastery. At the infancy stage, most architecture firms start as one- or two-person businesses, although some start with several Principals and a small staff. During the infancy period, the owner (or owners) determines the firm's concept; makes almost every design, management, and business decision; and wears many operational hats (designer, marketer, manager, and technician). Few accounting or management systems exist and the owner easily manages by walking around. During the infancy stage, the business depends on the owner and would come to a screeching halt in the owner's absence. It should be noted that some firms move beyond the infancy stage within a year or two while others, sometimes consciously and sometimes not, some, however, never move beyond this point.

At the second stage of business, the concentration stage, the firm starts to prosper as it focuses its marketing efforts and develops operational efficiencies. The owner starts to redefine his or her role, assumes more strategic responsibilities and relinquishes some of the day-to-day operations.

The momentum stage of the architectural business sees the firm expanding its visibility and creating synergies through speaking, publications, awards, networking, and other business

activities, as well as some completed projects under the firm's name. At the same time, an owner starts to redefine the firm's mission, refines the business operations, and assumes more leadership.

At the stability stage, firms enjoy a steady and predictable stream of new work and repeat clients. They expand the services offered as well as their geographical reach; they staff positions with mature and talented people, and reinvest increasing amounts of profit into further defining the next milestones.

At the last stage, the mastery stage, a firm no longer depends on any single person or set of owners and an ownership transition plan is solidly in place. While always requiring talented staff, the business pretty much runs on autopilot. The one exception may be the ardent designer who, while supported by a strong core staff, often needs to be more engaged in most projects. Firms usually get to choose their clients and projects at this point.

2.10 Challenges to Architectural Practice

This section discusses the trends influencing the practice of architecture and the consequent challenges posed to the practice of architecture. Over the years, the central ideas about architectural practice have changed (Haviland 1996). Haviland suggested that profession-based designers no longer do design; people and groups, who are not based in the design profession, do it increasingly. As design and design responsibility spreads, it follows increasingly that independent architecture practice is no longer the only place where design is done. This poses challenges to architecture firms to survive in this increasingly competitive environment.

Also, changes in the economy of nations in the past decades have also been presenting new challenges to the architectural industry. The ability of the architectural firms to respond to them is expected to have significant implications for the firms too. Taking advantage of the opportunities these challenges present is one response that may boost a firm. According to Wang and Yang (2000), the trends that affect the construction industry are fivefold. First, the industry is increasingly globalized. This implies that construction is becoming an increasingly global business, characterized by a trend towards large firms; and globalized market provides access to architectural firms to go global. Globalization means opportunities and threats coexist or are in juxtaposition. Second, a renewed enthusiasm for private enterprise and the ceiling on government spending have led to enhanced claims for privatization- the provision of public services by the private sector. This implies a shift in the major clientele of architectural firms from the public sector to the private sector. Third, the developments in information processing and communication technologies allow firms to operate internationally. Computer Automated Design (CAD) systems is also increasingly being used to increase productivity. Fourth, the increasing community concerns about the sustainable prospects of the environment have been affecting the many aspects of building, construction and operation. There are slogans like sustainable building, global warming and green architecture, which portray the concern for the environment.

In addition, areas like project management, interior design, facilities management, and environmental planning and engineering are increasingly popular services offered by architecture firms (Symes et al., 1996). Symes et al. also asserted that some firms have reduced the services offered, choosing instead to specialize in tiny niche markets where they hold a competitive edge. Niche growth areas in the commercial market for architectural services includes designs for privatized prisons, arenas, hospitals and other health care facilities; long-term care facilities, warehouses, and recreational structures around riverboat gambling casinos. The Egan report (Egan, 1998; RIBA, 1999b) highlighted that the results of this trend are multi-disciplinary

practices, systems building, prefabrication and standardization, and modular coordination.

Three main issues have also dominated the discussions on the practice of the profession (Blau, 1984; Gutman, 1988; and Haviland, 1996). The first is the increased competition from other professionals and the ensuing need to maintain a secure hold on the market. Increasing exposure of architectural practice to market forces has, according to Symes et al., (1996), led to a shift away from the architect as a team leader, the growth of varied specialization and increased importance of management techniques. Gutman, (1988) suggested that some architectural firms concentrate on one area of the profession to survive the competition, while others provided a wide range of services. The position an architectural firm takes in competing favourably influences the staffing of the architectural firm and its structure. There is a need to understand the nature of these relationships in the Nigerian context.

Second, since the aim of any business is to survive and make profit, the cost of running the business must be provided for in its proceeds (Blau, 1984). There is therefore the need to run the office efficiently. Gutman, (1988) noted that one of the difficulties in the application of conventional ideas about effective management to the practice of architecture is the inability of firms to understand the special characteristics of architectural practice and to establish a philosophy of management appropriate for it.

The third issue is the challenge to reorganize the architectural firm in line with the objectives of the firm. Gutman, (1988) argued that the objectives of the Principals of firms determine the staffing policies of the firms. Such objectives include scale of projects on which the firms work, the range of services provided, and the importance Principals assign to maintaining continuity and reducing employee turnover. Gutman further suggested that firms with a commercial orientation are more likely to have gifted designers on their staff list. He stated that large firms provide opportunity for upward mobility of architects. The researcher does however not know the situation in the Nigerian context.

In Nigeria the issues have varied from the influx of the architectural industry by foreign architects in the 80's (Abiama, 1982 and Baikie, 1985) to concerns for professionalism and specialization; and the new skills required (Mgbemena, 2003). The need to maintain a secure hold on the market for services and achieve profitability also underlies discussions within the profession, as noted by Abdulkarim, (2002). It is however the observation that many firms fail for lack of planning (Jaiyeoba, 2002), an issue, which is attributable to faulty organizational set up, that is worthy of study.

2.11 The Characteristics of Architectural Firms

The 2004 edition of the register of architects entitled to practice in Nigeria (ARCON, 2004a) revealed that 64.8% of architects in Nigeria work in private firms, 6% in architectural schools, 23.6% in federal, state and local authorities, 1.6% in physical planning authorities of tertiary institutions and 4% in other organizations. The total number of fully architects registered in 2004 (2147) (ARCON, 2004a) versus the firms registered (462) (ARCON, 2004b) also lends credence to the assertion by Arayela, (2001) that one out of every five architects is a principal of a firm. However, this is all that is known about architectural firms in Nigeria. Dent and Whitehead, (2002) argued that professional identity must be seen to occupy multiple subject positions and shift, maneuver, and negotiate within and across these (2002:10). It is thus pertinent to identify the organizational contexts that have been used to describe architectural firms and the patterns that result from the negotiation of firms within and across the multiple contexts.

Various studies have been carried out on the architecture firms as organizations. While

Symes et al., (1996), Katsanis and Katsanis, (2001) and Pearson et al. (2003) studied strategies in the architectural firm, Schwennsen, (2004) studied the ideologies of organizations vis-à-vis their structure. The personnel characteristics have been most widely studied. It has been studied by Symes et al., (1996); Ogundiran, (2006); Fowler and Wilson, (2004) and CBAE, (1997). Ogundiran, (2006) and Fasheun-Motesho, (2001) also studied information technology of architectural firms, while Pinnington and Morris, (2002); Symes et al., (1996); CBAE, (1997) and Ogundiran, (2006) all studied the profiles of architectural firms. The structure of architectural firms was also studied by Schwennsen, (2004).

2.11.1 Strategies of Architectural Firms

Strategy, according to Walker, Boyd, Mullins and Larreche (2003), is a fundamental pattern of present and planned objectives. Thompson et al. (2004) argued that it was an indication of the choices, which the management made among alternative approaches and ways of operating. It is thus a combination of competitive moves and business approaches that managers employ to please customers, compete successfully, conduct operation and achieve organizational objectives. The basis of strategy is the ideology of the firm.

Thompson et al. (2004) stated that the actions of firms proactively or reactively are the indications of strategies. Such actions include responses to changing external circumstances, actions to enter new market, actions to strengthen the firm's business position, actions to form strategic alliances, approaches that define how the company manages key activities, actions to diversify the company's revenue, and actions to compete with rivals. These are summarized here as business strategies, competitive strategies and staffing strategies.

2.11.1.1 Business Strategies

Scholars have suggested that the agenda a firm pursues form the basis of strategy at all levels in the firm (Blau, 1984, Mintzberg et al. 1979 and Pinnington and Morris, 2002). The actions taken by firms to select market and generate new jobs constitute business strategies. Every firm develops its unique strategy within the confines of the code of conduct of the profession. In Nigeria, the acceptable ways of attracting work include architects' signboard, lectures and articles, practice brochures, contacts, and competition (NIA, 1985). Each firm however, designs its way of selecting its target market. This constitutes the firm's business strategy.

Katsanis and Katsanis, (2001), identified the following business strategies used in the construction industry:

Prestige

Firms pursuing a prestige strategy adopt a set of actions that result in high profile projects (based on technological complexity and/or high esthetic potential) yielding awards and publications, which, by virtue of the ensuing "notoriety," increases the number of commissions a firm receives and improves its position with respect to professional fees. Firms in this category have a high profile and aim to be the preeminent design or engineering firms in the market.

Selective Strategy – Specialization

A selective strategy is characterized by the conscious effort a firm makes in nurturing and developing expertise in a specific area. This area may be in the domain of the technical expertise, which the firm develops to tackle, a perceived market demand, or it may be a market segment or a client profile it wishes to serve or a geographic area. Selective strategies are pursued by firms in response to the diminishing number of viable projects available in the market and the need to allocate resources and effort efficiently. This type of strategy promotes high technological efficiency as it helps to produce a larger number of projects with minimum down time. On the other hand, it requires a high degree of vigilance in maintaining a match between the specialization and the prevailing demand for that particular specialization. Successful implementation of the selective strategy requires that the firms identifies and pursues the latest trends in their practice as well as the most active and profitable market segments.

Sustenance - "Bread and Butter"

The sustenance strategy is characterized by a lack of a coherent strategy. Actions are generic and dictated by long established industry norms or "traditions". Firms in this category are likely to pursue projects from an undifferentiated broad category as they come up in the market and are more likely accept any job as they comes in, or will rely on one big client to keep the practice or firm busy. What is usually perceived as business activity in these firms is limited to tactics that emanate from industry traditions. This would be classified as reactive behavior. The set of tactics followed are primarily generic and consists of responding to Request For Projects (RFP), or pursuing leads generated by single or networks of professional contacts, or even in sending out, 'cold,' letters and expressions of interests and brochures. Commissions generated by such a strategy often result in a very diverse portfolio of work and may diminish the strength of core competence that could be derived from the development of focused expertise.

Profit Driven - "Quick Harvester"

The profit driven strategy comprises a set of connected actions based on prevailing

conditions and trends; changes are undertaken by the concerned entity for the purpose of maximizing the return on their investment based on early entrance into a market segment, that is, the "quick harvesting of opportunities."

Little is known, however, about the Nigerian context. Do Nigerian Architecture firms also adopt these strategies? Scholars suggest a relationship between strategy and other organizational contexts (Pinnington and Morris, 2002 and Symes et al., 1996). There has however been little work done on the interaction of strategy and other organizational contexts with particular reference to architectural firms.

2.11.1.2 Competitive Strategies

Competition has been known to improve efficiency, reduce absolute cost level to customers and improve customers' choice. Architectural practices are however restricted by the code of conduct. Thus architectural firms attempt to build barriers around their organizations by adopting models informed by their driving forces or agenda. The following, according to Pearson, et al., (2003), and Schwennsen, (2004) **are the existing practice models in architectural practice:**

Einstein: This has innovation as its driving force. The agenda is to gain prestige and improve the firm's image. It focuses on generating brand new ideas and technologies. They include individual theorists or thought leaders, who use projects as an opportunity for exploration. Such firms are hired by clients who seek unique solutions or want to attract high-level donors as well as top-tier knowledge workers or students to their facilities—regardless of, and often despite, limited expertise in specific building types. Thought leaders are perceived as being able to rethink the question. They have a high level of distinctiveness, with limited substitutability. They understand they need to work with subject-matter experts to address programmatic issues. The most successful thought leaders have developed a method of approach for these working relationships or collaborations.

Niche Expert: Cutting-edge method is the driving force of this model, with a client agenda of overcoming risky adverse conditions. This model focuses on transferring new knowledge to target niche. Some firms also find out additional services customers want and supply them. This is one of the easiest and quickest ways to grow an existing business (Stephenson 2003). Baker, (1997), suggested that smaller firms apparently are motivated more by a desire to remain profitable in an increasingly competitive environment. Larger firms, on the other hand, are increasing their expanded services in an effort to diversify their practice in response to a changing marketplace for architectural services. Related diversification allows the companies to enter one new potential profitable business, such as hotel, energy supplying, retail and other building-related businesses. This needs huge amount of capital and sophisticated management skills. (Wang and Yang 2000)

Market Partner: This model is more concerned with customer partnership. It strives to augment client's own skills as full service-partner and focuses on expanding ways to help the sector specific clients. **Pearson, et al., (2003) traced the evolution of this model to** the 1980s, when the nature of the client role changed significantly in many market sectors, with expansion in the position of the client facilities manager. Design firms no longer worked directly with the highest

level of decision-makers or decision-influencers, but instead worked with gatekeepers who reported to a variety of stakeholders within their organizations. As a result, professional services were often viewed as a vendor-based commodity, evaluated on the basis of price and deliverables, and customer relationship management (CRM) became a more important differentiator. This evolution encouraged the rise of the client-focused service partner model, in which a practice seeks to form enduring relationships with key clients. The value of this model focuses on relationships building a significant connection or involvement for two or more people or groups. The service partner relies on leaders who have excellent CRM skills and who work in alignment with specific client types. A successful service partner will understand the characteristics of their best clients and seek opportunities to develop relationships with potential clients who meet those criteria. In addition, the service partner will want to capture an increasing share of their client's work, developing new capabilities and services in order to cement their relationship. There are significant financial advantages to this model because it focuses on developing a high percentage of repeat business with existing clients, reducing the need to chase work or reinvent the wheel in terms of project delivery process and decreasing the bargaining power of the buyers.

Community Leader: This group is driven by community connectivity, and seeks facilitation through community gatekeepers. Its focus is nurturing the network of relationships with local leaders.

Orchestrator: Project management is the driving force of this model. It seeks to control project complexity by pushing sophisticated logistic control on large projects. They are vertically integrated firms with unique resources that enable them to amass and allocate significant assets so that they, too, have limited substitutability **(Pearson, et al., 2003).** The result is that only a limited number of firms are considered for the largest projects, which are primarily related to infrastructure development. This may involve forming alliances with partners, to easily expand the firm's capabilities, either complementary or scale.

Efficiency Expert: This model is driven by cost and quality challenge. It seeks to optimize the budget while delivering the project by advancing brilliant new technologies

There is need to empirically validate this classification in the Nigerian context as there is no known study that addresses this issue. The question of how other characteristics of the firms relate with the models adopted also needs to be answered.

2.11.1.3 Staffing Strategies

Symes et al., (1996) stated that the choices that firms make to adapt to their contexts, all affect the type of staff they will need to employ. Most organizations understand the benefits that a longer-term approach to staff planning can bring. Thus, attempts to develop staffing strategies abound. This involves strategies for recruiting, and retaining staff.

Workers in architectural firms can be drawn from the pool of graduates of architecture, and in some cases allied professions. To recruit needed staff, an organization needs to define the job to be done, identifies critical skills and behavioral competencies, writes and places job advertisements, prescreens candidates, schedules interviews, trains the interviewing team, answers candidate questions, handles reference checks, and even coordinates the job offer (Dolan, 2000).

Dolan, (2000) argued that branding is essential for attracting and recruiting staff. Such branding, he argued, could come from the firm being known for workplace flexibility (variable work hours, telecommuting options), access to personal development, job stability and good benefits. Dolan, (2000) also suggested the strategies for retaining staff as adequate compensation in the form of improved basic salary, retention bonus (to retain someone with valuable skills), a performance bonus (to recognize significant efforts that exceed the norm), or a milestone bonus (often offered as an incentive to complete a phase of a project by a specific date); rewards and recognitions; staff development; and leadership development.

Architectural firms adopt different strategies in staffing their organizations. Symes et al. (1996) highlighted different approaches such as offering a full integrated in-house service covering all areas of design, adopting differentiated specialization; taking up teams to deal with each project as they arise; and holding a core of committed staff, with all additional requirements staffed on as-needed basis. They argued that the criteria for hiring new staff vary with the size of the firm. Jones and George, (2003) also argued that the characteristics of the organization's human resources determine the type of organizational structure adopted.

2.11.2 *Structure of Architectural Firms*

A 'structure' is defined as the recurrent set of relationships between organizational members (Donaldson, 2003). Donaldson, (2003) also noted further that it is the formal system of task and job reporting relationships that determine how employees use resources to achieve organizational goals. It is defined in terms of differentiation and integration.

Schwennsen, 2004 identified the alternative structures used in Architectural practice as:

1) ***Departmental*****:** Differentiation is by task, with project moving horizontally through groups of specialists. Department heads are in charge and report to the Principal Architect. This structure has the advantages of quality control and staff training, allowing specialization. The disadvantage however is that of inadequacies in moving clients from one department (thus departmental head) to the other, based on the stage of work.

2) Project Manager Structure: This structure superimposes the Project Manager on departmental structure, with the advantages of quality control, staff training, specialization and the Project Manager now being responsible to clients. The disadvantages include potential conflict between Project Managers and Departmental heads, territory battles, and multiple bosses/employee.

3) Matrix**: W**ith this structure, responsibilities flow in two directions: Departments and Project Managers and the characteristics are similar to the Project Manager structure. Schwennsen, (2004) suggested that in today's workplace, employees are hired into a functional department (a department that performs a specific type of work) but may find they work on projects managed by members of another department. Organizations arranged according to project are referred to as matrix organizations. Matrix organizations combine both vertical authority relationships (where employees report to their functional manager) and horizontal, or diagonal, work relationships (where employees report to their project supervisor for the length of the project). Workers are accountable to two supervisors—one functional manger in the department where the employee regularly works and one special project manager who uses the employee's services for a varying period of time

4***) Project team structure*****:** This structure organizes staff by project, with a Project Architect or Project Manager in charge. The advantages include internally mobile staff structure and certainty as to who is in charge. The disadvantage is that while workloads demand mobility, team members

want stability, or vice versa.

5***) Studio Structure*:** This structure has a team whose members may be permanent. Studios may have more responsibilities: hiring, firing, and profit. The structure can lead to divisive competitiveness

Jones and George, (2003) argued that the nature of an organization's environment, the type of strategy the organization pursues, the technology the organization uses and the characteristics of the organization's human resources all determine the type of organizational structure adopted.

Variables used to describe the structure include staff support for decision making, vertical integration (acquiring of facilities to secure greater control over input and outputs), delegation of decision making, divisionalization, functional departmentalization, extent of participative management at the top level decision making, the use sophisticated management control.

2.11.3 *Organizational Profile of Architectural Firms*

Organizational profile entails broad organizational information (Johnson, 2006). It describes the characteristics of an organization's personnel (demographics) (Johnson, 2006). Demographics are characteristics that differentiate the people in the organization into groups. Examples of demographics include educational levels, special skill types; physical (gender, age, ethnicity); job classification (exempt/non-exempt or salaried/wage earners, administration, faculty/staff, full-/part-time, or contract employees); union membership and/or bargaining units, and/or; special regulatory/accreditation/safety requirements, as appropriate.

Furthermore, the profile of an organization according to Johnson (2006) describes its range of services, clientele and the area it serves. It also describes the equipments and facilities, size and the general capacity of the organization. The profile highlights the organizations' perceived critical success factors

Different aspects of the profile characteristics of firms have been discussed in literature varying from the size of the firms, the business forms, services provided by the firms, and location of the firms. Size of firms have been described in terms of the number of employees, (Ogundiran, 2006, Symes et al., 1996) and the cost of projects undertaken by the firms (Symes et al., 1996)

The demographic variables are the most widely studied factors (Symes et al., 1996; CBAE, 1997; Fowler and Wilson, 2004; Ogundiran, 2006). To measure the architect's professional background and situational characteristics, certain variables were selected. These were grouped into three measure combinations: professional background, work situation and work context (CBAE, 1997).

The concept of professional background derives from the education, training, and work experience. In the study by CBAE, (1997), this concept was developed by the measures of formal education, other certifications/state licenses/ registrations and number of years worked as a licensed architect. The study by Symes et al., (1996), revealed that architectural firms could maintain a design driven group of talented professionals, those with organizational skills, or keep those with construction experience to achieve its aim.

The concept of work situation refers to the office environment and associated attendant conditions within which the professional engages in practice. This concept was constructed by the measures of primary position in the firm, number of full-time employees in the office, number of licensed architects in the office, and number of hours worked per week

Demkin, (2004) highlighted the need to examine and evaluate the staff's knowledge and

skills, education and licenses, experience, career ambitions and paths, motivating factors, and demographics to gain a thorough understanding of the composition and motivation of the staff. However, little is known about the personnel characteristics of architectural firms in Nigeria. Less still is known about the relationship between the personnel characteristics of the firms and other attributes of the firms.

There have been studies, which focused on gender in architectural practice. The focus of these studies was the gender gaps and discriminations in this context. Fewer women were seen in practice compared to their male counterparts. The study by Symes et al., (1996), working on Britain firms, revealed that one out of every twenty Principals that responded to the questionnaires were women. Symes et al., (1996) suggested that the late entry of women into the profession was probably responsible for this. A later study by Fowler and Wilson, (2004), investigated the discontent of women architects. They also found more women in practice ranging from 9 percent in Scotland, 10 to 16 percent in Spain, France and Germany and 20 percent in Scandinavia, which has generous maternity provisions. CBAE, (1997) also found that 17 percent of architects surveyed in California were women. The study revealed that a ratio of women to men in interviews with Principals and senior partners of firms was 1:4. Furthermore, it was shown that the ratio of men to women with lower ranks in firms in Britain was 1:3. There has however not been such study of the gender characteristics of architecture firms in Nigeria. The question of how gender influences other characteristics of the firm also remains to be answered.

2.11.4 *Technological Characteristics*

The use of technology in architectural firms is widely discussed in literature. Most of the studies concentrated on the adoption of information technology (Fasheun-Motesho, 2001), as well as the appropriation of information technology (Symes et al., 1996, and Ogundiran, 2006) by architecture firms. The way architecture firms use technology is of importance to this study because technology is becoming an indispensable tool if firms are to face the current challenges poses by advances in information technology (Thompson et al., 2004).

Fasheun-Motesho, (2001), apart from studying the reasons why architecture firms used information technology also investigated their applications. She found that firms adopted information technology for various activities including drafting, word processing, graphic presentation, design generation, desktop publishing, project management, spreadsheet analysis, personnel records, database management, financial management, electronic mail, Internet browsing, and data, analysis.

The study by Ogundiran, (2006) revealed that information technology is basically used as a tool in architecture firms. Few firms use it as a channel, even less as a competitive weapon. It may however be useful to investigate the contexts that influence or are influenced by the use of technology.

Lefebvre and Lefebvre, (1996) identified the factors that influence the use of technology as internal factors (firm's past experience with technology, firm's characteristics and firm's strategy); and external factors (firm's industry, macroeconomic environment and national policies). Noting that the specific practices and implementations of information technology are different in each firm, Seyal, Rahim and Rahman (2000), stated that the role of the organizational parameters such as size, structure, profitability is vital in the microcomputer usage. There appears to be a close connection between the technologies adopted, the tasks that are performed by the operatives, and their interpersonal interaction. Currie (1996) also suggested that the business form

an organization adopts has considerable influence on the structure of activities of the organization. This is an indication of the interactions between technology and other organizational variables. It is thus pertinent to empirically test this proposition in the context of architectural firms in Lagos, Nigeria to understand how information technology influences or is influenced by other organizational contexts.

Technology affects all other attributes of the architectural firm. Amole, (2006) noted that technology has resulted in a shift from a centralized management approach to a self-organizing and collaborative management. Workers are more focused on knowledge-intensive activities and less dependent on managers for information and direction. As a result, she further stated that, organizations are flatter, and teams rather than individuals make decisions. Management hierarchies can now be flattened and operational responsibilities evoluted because there can now be real time communication of situation reports. This assumption however remains to be empirically tested.

It has also been suggested that the shift from providing products and services via a single organization to providing them via a network or alliance have been made possible by advances in technology. Amole, (2006) concluded that this has led firms to operate through networks and alliances. There is need however, to empirically test this proposition. Amole asserts that the organization of work in architecture firms is being greatly influenced by new technologies, which has made it possible to produce the same level of output with fewer workers. This Ogundiran (2006), suggested, had placed emphasis on workers having higher value capacities and skills to perform a variety of jobs. It is also believed that technology affects the organization of work tasks. Fasheun- Motesho (2001) called for an information technology literate workforce, and a flexible structure to carry out effective work flow integration with advances in technology. There is need to investigate the true nature of technology appropriation and how it influences other characteristics of the architectural firm in Nigeria.

2.12 Studies of Architectural Firms

Previous studies on the characteristics of architectural firms that the researcher is aware of had been carried out in Britain and California in the United States of America. However, each of the studies, while describing the characteristics of the architect and the architectural firms, appeared to have failed to identify the general patterns of these firms. The attempts at classification that were made were based on univariate and bivariate analysis, which generated classifications based on single characteristics. The survey by Symes et al., (1996) aimed at investigating the works and the opinions of Principal architects in private practice in Britain in the early 1990's. They investigated what the architect did in his/her work and the knowledge, skills and talents one should have to be an architect. The study found that there were differences in the way work was organized by different Principals, depending on the size of the firms, the specialization of the firms and whether the firm is multidisciplinary or not. Small firms (with less than 11 staff) had their works spread over housing, commercial and industrial projects, with the Principal being more involved in design and production drawings. Medium firms (with 11-30 staff) and large firms (with more than 30 staff) were more likely to develop specialization in commercial and industrial projects, with the Principal architect being more involved in coordinating other staff. The Principal in the large firm also spent time recruiting clients.

On the knowledge, skills and talents an architect should have, Symes et al. (1996) found that the Principals believed that radical and innovative ideas was a treasure in their practices,

although only 75.5% of the firms would hire staff based on their talents as designers, indicating that other skills could be overriding. Communication skills and special knowledge in technological innovation, land usage in design, project management, construction management and engineering were also found to be important aspects of the architects' work.

The California study, conducted by CBAE (1997) aimed at identifying patterns in actual architectural practices, using information obtained from licensed practicing architects. The study found that both CADD drafting and CADD design decreased with length of professional experience, but increased with workweek length and firm size. For Internet usage, lack of use was highest among the lowest educated and the most experienced architects, and decreased as work week length, firm size, and number of licensed architects in the office increased, and also decreased for architects involved with non-local projects. Also, as the size of the firm increased, the services delivery method changed from design-bid-build, to negotiated bid and to construction/project management.

The foregoing studies revealed patterns of relationships, which need to be investigated in greater details at the firm level in Nigeria. It appears that the size influences the specialization and the technology adopted by a firm. This may be the reason why architecture firms were classified based on size by Symes et al., (1996). Other classifications in literature were based on the age of the Principals, professional experience and specialization of the firms (CBAE, 1997; and Symes et al., 1996). While Symes et al., (1996), sought to gain insight into the working of architectural practices in Britain, through the investigation of the professional structure, projects, management/ organizational types, working methods and philosophies of the architectural firms, CBAE went further to identify specific details of architectural practices in California, by investigating the professional and situational characteristics of the California architect. The present study seeks to build on these studies to investigate the organization of architectural firms by examining the relationships between the organizational variables, with a view to determining the taxonomies of architectural firms in Nigeria, which no study known to the researcher has done.

2.13 Methodological Approaches to the Study of Architectural Firms

Some ideas can be gleaned from the authors who adopt some degree of practical analysis. Similar studies known to the researcher adopted the quantitative method (Symes et al., 1996; and CBAE, 1997). Symes et al., (1996) adopted both the survey and the case study approach, while CBAE, (1997) adopted a survey method in discovering the nature of practices in California. The adoption of surveys was necessary to permit a generalization of their results to the entire architectural firms' populations in the country. In each of these cases, the investigation was by questionnaires that were analyzed with simple frequency. Also, while Symes et al. (1996) carried out a longitudinal survey to investigate the trends in firms, CBAE (1997), investigating the nature of the architects and firms at a point in time, carried out a cross sectional survey.

The study by CBAE (1997) took a sample of 3,450 subjects (21.5% of the survey population of 16,014 individuals) and was broadly representative of the geographic distribution of architects and weighted equally in terms of newly licensed and experienced architects.

With the study by Symes et al., (1996), information was sought from the Principals/ individuals in management position. This study seeks to take cue from the study of Symes et al., which sought information from the Principals of firms involved in practice in line with the objectives of this study. It is also worthwhile to note the use of the firm as the unit of analysis

While Symes et al., (1996) employed numerical examples and solutions to illustrate

conceptual and analytical problems, CBAE, (1997) went further to carry out a stringent analysis of the survey results on both the importance and frequency scales for the tasks. The studies by CBAE, (1997) and Symes et al., (1996) considered linear patterns of relationships, leaving the non-linear patterns relationships an open question. This study thus attempts to fill this gap, by using multivariate analysis to discover other relationships that exist in the organization of architecture firms. This study however required multivariate analysis, including principal component analysis, discriminate analysis, and cluster analysis.

2.14 Chapter Summary

The purpose of the literature review had been to identify the issues and gaps in the literature on organizational studies, professions and architectural firms. This chapter has thus reviewed literature on organizations, characteristics, configuration classification, professions, and architectural profession. This was in line with the aim of this study, which is to investigate the characteristics of architectural firms in Nigeria.

In the first part of the review, various perspectives in the study of organizations were reviewed. The functionalist approach was found to be most appropriate for the present study. This was developed in the second part to highlight the contingency theory, which suggests that various aspects of the organization interact to limit the number of organizational forms available.

The second major part of the review explored the various characteristics and classifications of the organization, which come into play when the organization is viewed holistically. This section revealed that these components (or subsystems) are interrelated. This led to the patterns or configurations observed which, describes the organization.

Studies of the professions, especially the architectural profession were reviewed in the third major part section. The literature showed that to study the operations of a profession, the profession had to be studied as an organization.

Literature about the architectural practice was reviewed in the fourth section. Both the service and the business aspects of the profession were explored. The business aspect of the profession was adopted upon reflection, as this is the only viewpoint that portrays the architectural firm as an organization. The challenges to the profession, which all indicate a need to further understand how architectural firms are organized, were also reviewed from the literature. Various studies about architectural firms were also examined. It was observed that the firms were studied piecemeal. Little research had been done on the interaction between and within the characteristics, although there were suggestions of relationships between the variables that need to be empirically tested in the context of architectural practices (Jones and George, 2003, Symes et al., 1996, Knox, and Taylor, 2005; Pinnington, and Morris, 2002). The present study attempted to fill this gap.

In the final section, the methodological approaches used in previous studies were reviewed. This revealed the weakness of the case study approach as against the survey method. The survey method gave more generalizable results. The firm was also often used as the unit of analysis. While some studies chose the Principals as the chosen informants (Symes et al., 1996, and Ogundiran, 2006), the study by CBAE, (1997) collected data from individual architects. Choosing the Principals of the firms or their representatives suited the objective of the present study. The studies reviewed also highlighted the importance of choosing a geographically

representative sample.

The previous studies, while addressing key issues towards the understanding of the nature of architectural firms are thought to fall short in some areas. First, these studies have focused on architectural firms outside Nigeria. Very little is known about the nature of architectural firms that exist in Nigeria. Second, the subsystems of architectural firm have been studied separately [structure- (Schwennsen, 2004); strategy- (Katsanis and Katsanis 2001, Pinnington and Morris, 2002, Symes et al., 1996), technology- (Fasheun-Motesho, 2001), personnel characteristics- (Symes et al., 1996, Fowler and Wilson, 2004, Ogundiran, 2006, CBAE, 1997) and socio-economic characteristics- (Symes et al., 1996, Ogundiran, 2006)]. There is need to use a more holistic approach to investigate the nature of architectural firms that exist. Third, bi-variate analysis has been used to determine linear relationship in between the attributes of architecture firms. This leaves out other non-linear relationships, which could reveal patterns that exist in the firms. This study attempts to fill this gap by carrying out the study of architectural firms in Nigeria, in a more holistic manner, using multivariate analysis.

CHAPTER THREE
CONCEPTUAL FRAMEWORK

3.0 Introduction

The purpose of this section is to present an approach to the study of architectural firms. The approach taken in this study was exploratory and descriptive; exploratory since little is known about architectural firms in Nigeria and descriptive since the aim of the study was to understand and describe architectural firms in Nigeria. Therefore, the method was mainly inductive with the use of the quantitative and the qualitative methods.

Following the review of literature, the architectural firms were studied as professional organizations, with goals, which emphasize business. This study adopted the contingency theoretical approach to the study architectural organization. The contingency theory states that the processes, strategies and techniques that an organization adopts in organizing itself will vary according to circumstances or situations (Kast and Rosenzweng, 1985). This implies that organizations are different, providing a framework for studying organizations.

The review of literature revealed that for an organization to be described fully, a holistic approach to the study should be taken (Rich, 1992). This study thus approached the architectural firm holistically, taking the systems perspective. Kast and Rosenzweng (1985) asserts that the systems theory is the fundamental framework by which any group of objects that work in concert, to produce results can be analyzed, described and its behaviour predicted. This was relevant for the aim of the present study. The systems perspective will thus be explored in the next section, with its potentials for the present study discussed.

3.1 The Systems Approach to the Study of Organizations

For the purpose of investigating the characteristics of architecture firms in Nigeria, this study viewed the architectural firm as an organizational system. The research proposed to study the architectural firm holistically, as opposed to the reductionist methods.

A system is a collection of parts (or subsystems) integrated to accomplish an overall goal, (Baath, 1992). It is an arrangement (pattern, design) of parts that interact with each other within the system's boundaries (form, structure, organization) to function as a whole. A system is composed of regularly interacting or interrelating groups of activities.

The systems approach was proposed in the 1940's by the biologist Ludwig von Bertalanffy. Instead of reducing a biological system, such as a plant or animal, to parts (organs or cells), systems approach accepts that each *identifiable component is related to other parts*. The entire system works together but each sub-system is identified by the unique activity that occurs within it. In most cases the whole has properties that cannot be known from analysis of the constituent elements in isolation.

The systems view was based on several fundamental ideas. It is first viewed as a web of relationships among elements, or a system, and secondly that all systems, have common patterns, behaviors, and properties that can be understood and used to develop greater insight into the behavior of complex phenomena and to move closer toward a unity of science.

Organization connotes a structure through which individuals cooperate systematically to conduct business. Thus, they are complex social systems. Lewin (1951), who was particularly influential in developing the systems perspective within organizational theory, suggested that systems' thinking is a way of helping a person to view the world, including its organizations, from a broad perspective that includes structures, patterns and events, rather than just the events

themselves. This broad view helps one to identify the real causes of issues and know where to work to address them. Following the Gestalt principle, an organization, once organized, is not simply a collection of parts but a functional entity that has properties that cannot exist independently.

Rao and Narayana, (2000) noted that the systems approach provides an effective framework for understanding complex organizations. They further stated that it is a means of understanding and appreciating how organizational parts fit together and how they interact with the environment. Systems approach has identified numerous principles that are common to systems, many of which help to better understand organizations. This principle highlights the following concepts as common to all systems. The systems principles, according to Kauffman, (1980) and Egri and Pinfield, (2003) are:

a) The system's overall behavior depends on its entire structure (not the sum of its various parts).

The structure determines the various behaviors, which determine the various events. When only parts are dealt with, the overall picture is lost.

b) A circular relationship exists between the overall system and its parts.

Systems tend to experience the same kinds of problems over and over again. Thus, patterns can be recognized in organizations.

c) Systems comprise of subsystems, which are in states of dynamic change in relation to each other.

The constant interactions between the elements of an organization keep the element in states of dynamic change in relation to each other.

It was thus of interest to study architectural firms in a holistic way to explore how the part work together to make a whole. The systems approach provides a platform for this study. It is within this framework that the present study was carried out, with a view to identifying the model that can be used to describe architectural firms in Nigeria, and classifying the firms within the country based on common characteristics.

Consequently, an architectural firm, as an organization, can be described in terms of its various subsystems (its goal, size, business form, location), technology, management patterns (structure, the strategy adopted) work/ task and physical environment. This is represented in figure 3.1.

One of the implications of the systems approach is that since the subsystems are in states of dynamic change in relation to each other (Rao and Narayana, 2000), sets of relationships are expected between the subsystems of the architectural firms. Relationships are expected between the management and physical variables of the firms, between the general profiles of the firms, and the technology, for example. Other sets of relationships are expected within each of the subsystems of the management, technological, work, general profile and physical environment.

Fig 3.1: Outline of the Researchers Process of Thought

3.2 Empirical Approach to Classification

The objective of this study was also to identify taxonomies of architectural firms in Nigeria. The study adopted the empirical approach, which seeks to discover the existence of groups through quantitative analysis. The emerging classifications are thus based on dimensions that are measurable and empirically established. The taxonomy approach uses the logic of empirical analysis based on multivariate analysis of empirical data on multiple dimensions or variables referring to organizational structures, processes, strategies and contexts (Sanchez, 1993), and is basically interested in the classification of organizations as they are in a given point in time. Attempts are then made to identify natural clusters, to serve as a basis for the configuration. Thus, phenomena can be compared to and contrasted against one another at several points, either as individual species or as members of larger division. These taxonomies can thus provide the basis for explanation, prediction and scientific understanding of a number of organizational phenomena by identifying similarities and differences among organizational elements such as structure, managerial behaviour, strategy and a host of other factors (McKelvey, 1975).

3.3 Chapter Summary

This chapter has presented the approach to the study of architectural firms. The architectural firm is studied as a professional organization. Also, a holistic approach to the study is taken. The architectural firm is approached as a system, which was empirically investigated to determine the relationships and the types of firms.

CHAPTER FOUR
METHODOLOGY

4.0 Introduction

This chapter describes the methodology that was used for the study. First, the methodological approach that the researcher used will be discussed. Second, the study population and the sample frame will be discussed. The sampling methods selected would also be discussed as well as the sample size. The next issue to be discussed will be the data collection instrument. Finally, the way the subsystems were operationalized and for each objective, the data required, the location of data, the instruments to be used in obtaining data and the method of data analysis will be discussed.

4.1 Methodological Approach

This section discusses the methodological approach adopted from the array of methods adopted in literatures reviewed in line with the objectives of the study.

The aim of this study was to investigate the characteristics of architectural firms in Nigeria. Thus, approach to the study is exploratory and descriptive since little is known about architectural firms in Nigeria. This implies that while the quantitative method may be useful to describe some characteristics of the architectural firms, there was also a need to use qualitative method to discover other practices and ideologies of the firms.

The study adopted the survey method, since the method avails the opportunity to make inferences about the characteristics of a population, which was the purpose of the study at hand. The survey method is the preferred approach for three reasons. First, the data generated by survey lends itself to quantitative analysis. Second, the survey method can produce a mountain of data in a short time for a fairly low cost. Last, the survey method produces data, which can be generalized to the population. The survey design was cross sectional to collect data at this point in time.

This chapter now considers more specific methodological issues; that is: the study populations, the sample frame, the sampling technique, data collection instruments and method of data collection/presentation.

4.2 The Study Population

The firms included in the study population were those that are registered with the Architects Registration Council of Nigeria. The primary data collection involved an extensive study of the architectural firms to obtain the profile, technological, physical environmental, work and management data of the firms. Secondary data sources were secured from the official publications of the Architects Registration Council of Nigeria (ARCON, 2006) listed three hundred and forty one firms entitled to practice in Nigeria as shown in table 1.

4.3 Sampling Method

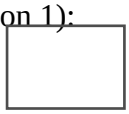
The sampling method that was most adequate for the study of the architecture firms was a hybrid of two methods – purposive sampling and random sampling. It was expected that the combination of two methods and their respective advantages would provide a more rigorous and representative analysis. The procedure of the hybrid involved first purposively selecting the cities

where architectural firms were most concentrated, and then randomly sampling within the cities.

The study took its purposive sample from six cities where architectural firms were most concentrated. These were Lagos, Enugu, Kaduna, Abuja, Port Harcourt and Ibadan. In order to obtain random samples within each of these cities, the sample frame that was used was based on the Register of Architectural Firms Entitled to Practice in Nigeria (ARCON, 2006). Random sampling gave the individual firms in the cities equal probability of being selected.

4.4 Size of Sample

Frankfort-Nachimias and Nachimias, (1992), suggested that in order to secure representative responses, the size of the sample of architectural firms employed should not fall below the representative size determined from statistical estimation theory, which is based on the degree of confidence that the researcher wishes to employ. In this study, the researcher determined how large the sample of architectural firms (n_1) was assuming 95% confidence that the probable error of using a sample rather than surveying the whole population did not exceed 0.05. Frankfort-Nachimias and Nachimias suggested the following mode of determination (equation 1):



…….. (1)

Where: n = desired sample size when sample frame is more than 10,000.

Z = the standard normal deviate (or confidence coefficients), which corresponds to the confidence level adopted.

d = Degree of accuracy desired (probable error) = estimated proportion of target population to have a particular characteristic such as those estimated to accept the null hypothesis

p = the target population estimated to have a particular characteristic (such as accepting the null hypothesis). If there is no reasonable estimate, 50% is used.

q = 1 – p

(See Frankfort-Nachimias and Nachmias, 1992, p. 189)

This equation was considered appropriate for an infinite population, that is, a population exceeding ten thousand. For a finite population (population below ten thousand) such as that to be considered in this research – that is Architectural firms in Nigeria - the equation is more appropriately given by equation 2 below:

……(2)

Where: n = Desired sample size when population is more than 10,000.

n_f = Desired sample size when population is less than 10,000

N = Size of population (Sample frame).

(See Frankfort-Nachimias and Nachimias, 1992)

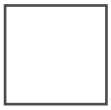
N (the total size of the population/ sample frame) = 265 architectural firms in the selected states.

Adopting a confidence level of 95%, then, Z = 1.96 (see table of confidence coefficients for confidence levels in Spiegel, 1961, p.157). The estimated proportion of success (of accepting the various null hypotheses) = 50%. For a 95% confidence level (which means that there is only a 5% chance of one's sample results differing from the true population average), a good estimate of the margin of error (or confidence interval) is given by 1/?*N*, where *N* is the number of participants or sample size (Niles, 2006), d is thus 0.05.

From (1)

= 384---------- (3)

Therefore, from (2)



= 157 firms

The respective sample sizes for the selected states were selected proportionately using the formula in Kumar, (1999) as follows:

Proportion (p) = no of element in each city

Total population size ---------- (i)

Number of elements selected in each city (n) = sample size x (p) -------- (ii)

The calculated appropriate sample sizes are shown in table 4.1:

Table 4.1: Calculated sample sizes

City/Town	Sample Frame	Calculated Appropriate Sample Size
Kaduna	29	17
Lagos	140	83
Abuja	32	19
Enugu	31	19
Port Harcourt	32	19
Ibadan	14	8
Total	265	157

Each sample was then selected randomly.

4.5 Subjects

This study focused on the Principals/ senior partner of firms, from whom information was sought about the firms. This study took a cue from the study by Symes et al., (1996) where the firm was used as the unit of analysis.

4.6.1 Data Collection Instruments

The combination of self-administered questionnaires, and in-depth personal interviews appeared most appropriate for the present study. This was because of the advantages derivable from those approaches: questionnaires ensure that questions posed to all respondents were uniformly phrased, which permits an objective comparison of results, while interviews gave respondents the opportunity to express views more expansively than would have been possible with a questionnaire (especially a closed ended questionnaire). Moreover, interviews permitted explanation of issues in the questionnaire by the interviewer in areas where some respondents may not be fully knowledgeable. The instruments for collecting data were therefore two – questionnaires and interview schedule.

4.6.2 Questionnaire/ Interview Design

The questionnaire was administered to Principals or senior partners of firms to obtain the profiles, technological, and other organizational characteristics of the firms, with a view to understanding how those firms were organized (see appendix 1).

The questionnaires were a combination of closed and open-ended questions. The open-ended questions where they occurred were to permit the respondents to give detailed answers in cases where their experiences could not be easily articulated into a few options.

The questionnaire was divided into sections with the first section (section A) dealing with the background of the firms, their general and cultural profiles, while the second (section B) asked questions on the management, work, and technological characteristics of the firms. The third section (Section C) asked questions on the external influences on the firms.

An interview schedule was also be prepared and administered to 8 Principals of firms (see appendix 2). The selected respondents for the interview were selected based on their willingness to participate and also to include both genders. In all, 6 male and 2 female Principals were interviewed.

4.7 Data collection and treatment

For the purpose of clarity, a detailed methodology of the thesis is presented for each objective as below.

4.7.1. Sub problem 1: To examine the profiles of architecture firms.

Data used:

The profile of the firm was divided into two sections: the general profile and the cultural profile. The data used for the general profile of the firms include the size, clientele of firm (local/international; individual/organizations/government), and ownership/liability form. The number of full-time employees in the office, number of licensed architects in the office, education of personnel, designations of personnel, demographics (male/female ratio), average number of years personnel worked as a licensed architect, characteristics and experience of Principals were also considered. The data used for the cultural profile of the firms were the level of importance of cultural values including stability, attention to details, innovation, outcome orientation, aggressiveness, team orientation, and people orientation. Other data used for the cultural profile of the firms were that spatial arrangement of the offices in the firms, and territorial and personalization cues, especially in the reception areas of the firms.

Location of data and how they were obtained:

The data were located in the firms. They were obtained from responses of the Principal / senior partners of the firm.

Instrument used in obtaining data:

The data were obtained using questionnaires and interviews.

Treatment of data:

The data obtained were analyzed through descriptive statistics (univariate analysis), using means, frequencies, and percentages. Relationships between the profile characteristics were analyzed through cross tabulation and chi-square tests. These were presented in tables and charts. Data obtained from the interviews, which was qualitative, involved text (word) data. Principal component analysis was used to obtain the basic dimensions of cultures of architectural firms in Nigeria, while the two-step cluster analysis was used to examine the types of profiles that existed.

4.7.2 Sub problem 2: To examine technological, work, and managerial characteristics of the firms in Nigeria.

Data Used:

The data used included the technological, work, strategy and structural characteristics of the firms. The technological data included number of computers in firm, frequency of use of the internet to exchange information, and the application to which information technology is put. The task and information technology characteristics included organization of staff to execute works, services offered and regularity of task. The structural data included standardization of procedures, formalization of recording of role performance, staff support for decision-making, delegation of decision-making, divisionalization, functional departmentalization, and the extent of participative management at the top-level decision making. The strategic data included responses to changing external circumstances, actions to source for projects, actions to strengthen the firm's business position, actions to form strategic alliances, approaches that define how the company manages key activities, actions to diversify the company's revenue, and actions to adequately staff the firm.

Location of data and how they were obtained:

The data were located in the firms. They were obtained from responses of the Principal / senior partners of the firm and observation of the spaces in the firms.

Instrument used in obtaining data:

The data were obtained using questionnaires as well as interviews, which were used to gain more understanding on issues in the questionnaire.

Treatment of data:

The quantitative data were analyzed using descriptive statistics. Tables and charts were be used in presenting the results. Relationships between the technological, work and organizational characteristics were analyzed through cross tabulation and chi-square tests. Data obtained from the interviews which was qualitative, involved text (word) data. They were analyzed using content and thematic analysis. The typologies that existed were deduced using the two-step cluster analysis

4.7.3. Sub problem 3: To identify and examine the external influences on architectural practices.

Data used:

The data used for this were the perceived external influences on the firms. Such data include the policies of the government and regulations, the national economy, the clients, the architectural professional body, advances in information technology and infrastructure. Others include the perceived level of power of customers, the level of perceived influence of infrastructure and the concern for sustainable environment.

Location of data and how they were obtained:

The data were located in the firms. They were obtained from responses of the Principal / senior partners of the firm.

Instrument used in obtaining data:

The data were obtained using questionnaires and interviews to gain an understanding of the perception of the Principal / senior partners of the firms on the external factors that influenced the firms.

Treatment of data:

The quantitative data were analyzed using descriptive statistics. Tables and charts were used in presenting the results. Data obtained from the interviews, which were qualitative, were analyzed using content and thematic analysis.

4.7.4 Sub problem 4: To investigate the relationships which exist between the profiles of the firms, the operational characteristics (the technological, work, structure and strategy characteristics) and the external environmental of the selected firms.

Data used:

The data were obtained from sub problems 1 and 2

Location of data:

The data were located in the questionnaires used in the study.

Instrument used in obtaining data:

The data were extracted from the questionnaires used in the study

Treatment of data:

The data were analyzed using Multiple Analysis of Variance (MANOVA) to investigate the effect of the external environment and the characteristics of the architectural firms that were significantly influenced by the external environment. Disciminant analysis was also carried out to obtain the specific characteristics of the architectural firms, which determined the success of the firms.

4.7.5. Sub problem 5: To identify the types of architectural firms that exists in Nigeria.

Data required:

The data were obtained from sub problem 1, 2 and 3

Location of data:

The data were located in the questionnaires used in the study

Instrument used in obtaining data:

The data were extracted from the questionnaires used in the study

Treatment of data:

The data were analyzed using two-step cluster analysis to discover natural groupings of the firms. Regression analysis was also carried out to obtain the characteristics of the firms, which determined the differences between the firms.

4.8 Pilot Test

The data collection was preceded by a thorough preparation including interviews with key informants and a pilot study in two firms. This preparation led to the development of the interview schedule, and the questions that were relevant to the architectural firms. The relevance was in terms of the language employed in the research instruments. The preparation facilitated the wordings of the questions for the survey and the delineation of categories used in questionnaire and interview schedule.

4.9 Preliminary Survey Details

Data was collected between the months of February 2008 to May 2008. The collection was undertaken personally and with the aid of four field assistants. The various responses were subsequently analyzed between June and August 2008 by means of a Statistical Package for Social Scientists (SPSS version 13).

A total of 92 questionnaires were returned duly completed. The distribution of questionnaires relative to the duly completed forms is detailed out in the table 4.2.

Table 4.2: Distribution of Questionnaires to Architectural Firm According to City Location

Location	Sample frame	Number of Questionnaires distributed (Calculated Sample size)	Number of duly completed questionnaires	Percentage of duly completed questionnaires
Kaduna	29	17	9	53%
Lagos	140	83	50	60%
Abuja	32	19	10	53%
Enugu	31	19	12	63%
Port Harcourt	19	11	7	64%
Ibadan	14	8	4	50%
Total	265	157	92	58.6%

Table 4.2 shows the distribution of architectural firms in the six cities in Nigeria and also presents the proportion of the responses to the questionnaires distributed. The responses from architectural firms in the cities were somewhat low probably due to two reasons. It was difficult to trace most of the firms using the addresses indicated in the Register of Architectural Firms in Nigeria (ARCON, 2006), because most of the firms had moved from those locations. In addition, some firms were reluctant to fill the questionnaire claiming that they were very busy.

4.10 Chapter Summary

The chapter has clarified the methodology adopted for the study in terms of a phased procedure. The survey approach was adopted. The sample size was 157 out of 265.

A combination of questionnaires and interviews were adopted as data collection instruments. The data collected with these instruments were then analyzed with a variety of statistical tests, particularly frequencies, percentages, proportions, means, cross tabulations, the chi-square tests, Principal Component Analysis, Multiple Analysis of Variance, discriminant analysis, regression analysis, cluster analysis and content and thematic analysis.

CHAPTER FIVE

PROFILE OF ARCHITECTURAL FIRMS

5.0 Introduction

This chapter presents and discusses the findings on the general, clientele, economic, staff and Principals' profiles of the architectural firms sampled. First, the ages and ownership forms of the firms are discussed. Second, the total number of staff, number of professionals, and the qualifications, sex and designation of the architect are discussed. Next, the types of clients, perception of success, sizes of projects and remuneration modes of the firms will also be discussed. This section also discusses the age, qualification, experience, gender and description of the Principal of the firms. All figures and tables are from the field survey carried out by the researcher between February 2009 and May 2009

5.1 Age Profile of Firms

The study examined how old the sampled firms were. Figure 5.1 presents the age profile of the firms, while table 5.1 presents the age of firms in the Register of architectural Firms Entitled to Practice in Nigeria, (ARCON, 2006). Figure 5.1 reveals that 27.16% of the firms sampled were between 11 and 15 years old. About 19.75% of the firms indicated that they were between 16 and 20 years old, while 16.05% of the firms sampled were between 6 and 10 years. Slightly lower percentages (13.58%) of the firms were between 21 and 25 years, and an equal percentage (13.58%) was above 26 years. Only 9.88% of the firms are less than 6 years.

These results suggest that architectural firms in Nigeria could be described as old as 74.07% of the firms were more than 10 years old. These results also confirm the predominance of firms as shown in the Register of Architectural Firms Entitled to Practice in Nigeria (ARCON, 2006); which gave the percentage of firms more than 10 years old as 79.4% as shown in table 5.1. The least number of firms in the sample (8 or 9.88%) were between 0 and 5 years. This was also representative of the number of registered firms in the country, which gave the percentage of firms between 0 and 5 years as 8.5%. The results confirm that the sample is representative of the total population of firms in the country.

Figure 5.1: Age of firms

Table 5.1: Ages of Firms as Contained in the Register of Architectural Firms Entitled to Practice in Nigeria

Age (in years)	Frequency	Percent	Cumulative Percent
0-5	29	8.5	8.5
6-10	41	12.1	20.6
11-15	74	21.8	42.4
16-20	83	24.4	66.8
21-25	48	14.1	80.9
26 and above	65	19.1	100.0
Total	340	100.0	

Source: ARCON (2006)

5.2 Ownership form of firms

The ownership forms of the firms were also examined. Figure 5.2 show that 52.27% adopted the sole principal form of ownership. The next most common form of ownership was the partnership (21.59%). The proportions of the firms that used other forms were 17.05%, 7.95% and 1.14% for the limited liability company, unlimited liability company and the public company respectively.

Figure 5.2: Ownership form of firms

This is in line with the findings from the interviews. The participants in the interviews were asked which ownership form they saw as being predominant in Nigeria and why they thought so. The participants confirmed that there are more sole principals than partnerships. Participants were however of the opinion that most architectural firms in Nigeria were owned by sole proprietors for various reasons. One of the interviewees attributed the prevalence of sole principal architecture firms to the dearth of compatible persons suited for partnership, lamenting, *"I've always wanted a partnership but I just have not found somebody who is really ready, like somebody I know I can take along with me and also the issue of fund……. We have more sole Principals because of this issue of no compatibility."* Another reason given was lack of trust in money matters, with one of the interviewees noting that *"what you actually discover is that young partnerships tend to break up because of money……."* The last reason given for the existence of few partnerships relative to sole Principal architectural firms can be inferred from the view by one of the interviewees that *"…..there tends to be selfishness and personal interest in partnerships."* These reasons, they said, caused partnerships to break up and increased the quest for complete independence.

It is interesting to note that the number of firms, which had the limited liability form of ownership, was almost as large as those that were partnerships (17.05% of the firms had the limited liability form of ownership compared with the partnership form, which constituted 21.59% of the firms sampled). This confirms the assertion by Chappell and Willis, (2002), who noted that architectural firms are opting for limited liability as an alternative to the partnership form of ownership. The register of architectural firms entitled to practice in Nigeria (ARCON, 2006) also reveals the predominance of the sole principal form of ownership among the firms registered. This register however did not specify the firms that were limited or unlimited liability companies. Based on the names of the Principals given, the firms could only be broadly divided into sole principal and partnership firms as shown in table 5.2. This table confirms that sole Principals own most architectural firms. It shows that 85% of the firms registered to practice in Nigeria are sole principal type of firms. Only 15% of the firms are partnerships.

Table 5.2: Ownership form of firms from the register of architectural firms entitled

to practice in Nigeria

Ownership form of firms	Frequency	Percentage (%)
Sole Principal	290	85.0
Partnership	51	15.0
Total	341	100.0

Source: ARCON (2006)

Participants in the interview sessions suggested that most partnerships in architectural firms in Nigeria started as sole Principals. They were of the view that partnerships in Nigeria started when older sole principal firms wanted to share the burden of running a firm. One of the interviewees who had been in partnership with another architect for five years buttressed this point by stating that "*we used to be two firms who have practiced independently for at least 20 years and we know the terrain well. It is not easy in the present economic situation to bear the burden of running a firm alone. First, you have to pay staff, pay for accommodation and all that. So we came together so as to share the burden.*" Hence, it may be assumed that there is a relationship between the age of the firm and the ownership form of the firm. This assumption was tested empirically using the chi-square test. The test however revealed that this relationship was not significant (Appendix 3).

It was also of interest to this study to find out if a relationship exists between the ownership form and the city the firm was located. A chi-square test was conducted to test the existence of a relationship between the ownership form of the firm and the city in which the firm was located. The test revealed that the relationship was significant (chi-square, $?^2 = 44.90$, degree of freedom, df = 20, level of significance, p ? 0.05). The results in appendix 4 shows that half or more of the firms sampled in Enugu, Abuja, Port Harcourt and Ibadan were owned by sole Principals. The results also suggest that the limited liability form of ownership thrived in Kaduna with 87.5% of the firms sampled within this city indicating this ownership form. The unlimited liability company form of ownership appears to be found only among the firms sampled in Lagos and Abuja. It is surprising that none of the firms sampled in Abuja and Kaduna had the partnership form of ownership.

5.3 Reasons Why Principals Started Firms

Stolze, (1999) suggested that the reasons why people start businesses vary from rewards, fame and recognition, job creation, personal financial gain to achievement instincts. The researcher asked the interviewees what prompted them to start a firm in order to understand what their driving forces were. One of the reasons proffered was the quest for self-expression. This was because "*In those days, if you design, your boss can decided that 'no, I want it to be this way', so I felt I should leave. I started this firm just to express myself the way I understand architecture*". This suggests that some firms were started by architects who wanted to be known for who they are professionally, instead of practicing under the shadow of a boss. Stolze, (1999) also suggested that people who are by nature; high achievers tend to want rewards based upon achievement and thus start their own businesses. This was found to be one of the reasons why some Principals started their firms as can be inferred from the statement of one of the interviewees that "*I started a firm for independence, and also because I am very result oriented. I am not used to being seen to be busy when I am not and that used to happen a lot in the places where I used to work. I am very hard-working; I just could not mark time*". Two other reasons were given by the interviewees for

starting their own firms. One of the reasons was job creation *("I started my own firm because I could not find a job")*, while the other was personal financial gain *("In the practice now, you can only make money as a principal. There is no salary that is paid a staff that will make him comfortable").*

5.4 Registration Status of Firms

The registration status of the architectural firms sampled was examined. The firms were asked to indicate if they were registered with Architects Registration Council of Nigeria, ARCON. The findings, presented in figure 5.3 shows that 66.67% of the firms were registered, 26.44% were not registered and 6.9% firms indicated that they were not sure.

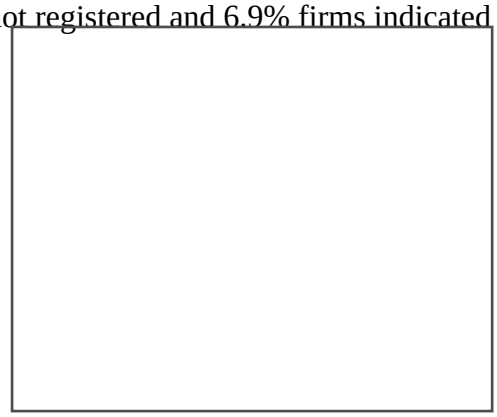


Figure 5.3: Registration of firm with ARCON

It was of interest to the study to find out if the registration status of fiirms was related to their ages. The chi-square test showed that the relationship between the registration status and the ages of the firms was significant ($?^2 = 33.76$, df = 10, p ? 0.05). Appendix 5 shows that most of the firms 10 years and below were not registered, while most of the firms above 10 years were registered. In fact, all the firms that had existed for more than 20 years were registered with Architects Registration Council of Nigeria, (ARCON). This suggests that when architectural firms start, they are not likely to be registered, they then register over the years and acquire the registration status.

5.5 Staff Profile of the Architectural Firms

The study examined the profile of the staff of the architectural firms sampled. The total number of staff, the number of professionals, qualification of architects, the designation of architects and the sex of staff were all examined and the findings are subsequently discussed. The study also examined the relationship between the number of staff in the architectural firms and the age of the firms as well as between the number of staff in the firm and the ownership form of the firm.

5.5.1 Number of Staff in Architectural Firms

Figure 5.4 presents the results of the number of staff in the architectural firms sampled. The results shows that 33.33% of the firms had between 6 and 10 members of staff; 27.59% between 10 and 20 staff; and 14.94% of the firms had between 1 and 5 staff. Lower percentages,

(8.05%, 6.9%, 5.75% and 3.45%) of the firms had between 21 and 30, 31 and 40, 41 and 50 and above 50 staff respectively. The number of staff in the architectural firms sampled varied from 1 to 80.

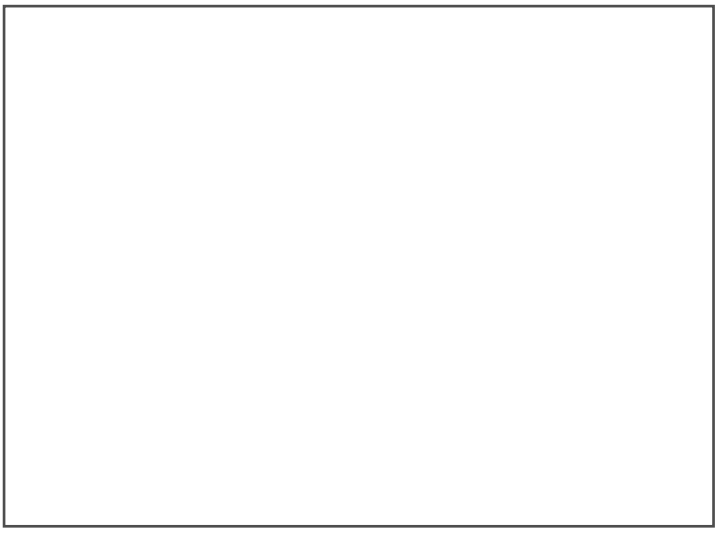


Figure 5.4: Total number of staff in architectural firms

Following Symes et al. (1996) classification of firms into small (between 1 and 10 staff); medium (between 11 and 30 staff) and large firms (more than 30 staff), figure 5.4 reveals that most (48.27%) of the firms sampled were small firms; having between one and ten members of staff. This is followed by the medium sized architectural firms (staff strength of 11 to 30), representing 35.64%% of the sampled; then the large sized firms (31 and above) constituting 16.1% of the sampled firms. This result suggests a predominance of small firms with the highest number of firms having a total number of between 1 and 10 staff (professional and others). Based on these results, most architectural firms in Nigeria can be described as small firms.

The study by Symes et al. (1996) found that in Britain, 71.5% of the architectural firms had between 1 and 5 members of staff. This is not the case in Nigeria, where just 14.9% of the firms had 5 or less members of staff. In addition, 33.3% of the firms sampled in Nigeria had between 6 and 10 staff compared with the 14.6% of the firms in Britain that had this number of staff. While 35.6% of the firms in Nigeria had between11 and 30 staff, 10% of the firms in Britain had that number of staff. It however appears that large firms are least dominant in both countries, with 16.9% and 4.0% of firms in Nigeria and Britain respectively having above 30 staff. Most firms in Nigeria have larger number of staff than the firms in Britain, because 85.1% of the architectural firms Nigeria having more than 5 members of staff, while 29.5% of firms in Britain had more than 5 members of staff.

It was of interest in the study to find out if the total number of staff was related to the age of the firm. The chi-square revealed that there was a relationship between the two variables and the relationship was significant ($?^2 = 23.27$, df = 12, p ? 0.05). The numbers of staff in the firms sampled seemed to increase with the age of the firm as shown in appendix 6. Most (62.5%) of the architectural firms that had existed for less than six years had between 1 and 10 members of staff. As the firms grew in age, there also appeared to be a concurrent growth in the number of staff. This is evident in the fact that 63.6% of the firms between the ages of 6 and10 years had more than 10 members of staff. There however appeared to be a drop in the number of staff in the architectural firms between 11 and 15 years, and 16 and 20 years. The trend was then reversed in firms above 20 years, which mostly had more than 10 members of staff. In fact, none of the firms

above 25 years had less than 6 members of staff.

The data were further examined to investigate the existence of a relationship between the number of staff in the firm and the ownership form of the firms. The relationship was found to be significant ($?^2$ =44.14, df = 24, p ? 0.05). Appendix 7 reveals that the sole Principals firms were mostly small sized in terms of the number of staff, with more than half (69.0%) of the firms having 10 members of staff or less. The unlimited liability and limited liability architectural firms were the mostly medium sized, with 67.2% and 64.3% of the firms respectively having between 11 and 30 members of staff. The results also show that the partnership owned firms were mostly either medium, large sized. Almost the same percentages of firms with the partnership form of ownership had between 11 and 30 (36.8%) members of staff and more than 30 staff (36.9%) respectively. The only public company sampled had more than 30 staff.

5.5.2 The number of Professionals in the Firms

An examination of the number of professionals in the firms sampled reveals that while about half (48.3%, 53.9% and 51.1%) of the firms had quantity surveyors, engineers and builders respectively; most (73.3%) of the firms did not have urban planners (table 5.3).

Most (68.5%) of the responding firms employed between 1 and 5 architects, 21.3% employed between 6 and 10 architects 6.8% employed between 11 and 20 architects and only 3.4% indicated that they employed more than 20 architects (table 5.3). The result also reveals that 46.1% of the responding firms did not employ any engineer, 43.8% employed between 1 and 5 engineers, 7.9% had between 6 and 10 engineers, with only 2.2% firms having more than 10 engineers. About half (51.7%) of the firms sampled indicated that they had no quantity surveyor or accountant; 47.2% of the firms had between 1 and 5 of those professionals and only 1.1% firm each had between 6 and 10 quantity surveyors or accountants. The results in table 5.3 also reveal that while 73.3% of the firms had no urban planners, 24.7% had between 1 and 5. This is an interesting profile because it shows that about half of the architectural firms sampled were multi-professional. Only the urban planners were not represented. This is probably because their profession did not prepare them for design; or architects felt that they could deal with urban projects without the help of urban planners.

Table 5.3: Number of professionals in firms

Professionals	Number of professionals					Total
	None	1-5	6-10	11-20	21 and above	
Architects	0%	68.5%	21.3%	6.8%	3.4%	100
Engineers	46.1%	43.8%	7.9%	1.1%	1.1%	100
Quantity surveyors	51.7%	47.2%	1.1%	0%	0%	100
Builders	48.9%	47.9%	1.1%	0%	0%	100
Urban planners	73.3%	24.7%	0%	0%	0%	100

*figures in cells represent the percentage of firms

Table 5.3 shows that more than half of the sampled architectural firms did not have quantity surveyors or urban planners on their staff list. In addition, about 48% of the firms had between 1 and 5 of other professionals. Larger number of other professionals (6 and above) were non-existent in almost all of the firms except for engineers.

The findings of Symes et al. (1996) on architectural firms in Britain showed that 73.9% of the firms in Britain had between 1 and 5 architects in their firms (68.5% of firms in Nigeria employed between 1 and 5 architects). The results obtained by Symes et al. (1996) also showed that more (85.7%) firms in Britain than in Nigeria (73.3%) did not have planners. However, while

only 8.2% and 6.1% of firms in Britain had quantity surveyors and engineers respectively, more firms (48.3% and 53.9% respectively) in Nigeria had these professionals. It appears that more firms in Nigeria employed quantity surveyors and engineers than the firms in Britain. It thus appears that more firms in Nigeria employed other professionals than the firms in Britain.

5.5.3 The Number of Support Staff in the Firms

The results (table 5.4) show that 20.2% of the sampled firms did not employ any administrative staff. Most of the firms (66.3%) had between 1 and 5 administrative staff; 12.4% had between 6 and 10 and 1.1% had between 11 and 20 administrative staff. Table 5.4 also shows that 51.7% of the firms sampled did not employ any accountants; 47.2% of the firms had between 1 and 5 accounting staff; and only 1.1% had more that 5 accountants. Other staff members such as receptionists, technologists, drivers and messengers were not employed by 40.9% of the firms sampled, while 59.1% of the firms that they had such staff.

Table 5.4: Number of support staff in firms

Professionals	Number of professionals					Total
	None	1-5	6-10	11-20	21 and above	
Administrative staff	20.2	66.3	12.4	1.1	0	100
Accountants	51.7	47.2	1.1	0	0	100
Other staff	40.9	44.3	9.2	4.5	1.1	100

It is surprising that almost half of the firms did not have accountants as members of staff. This finding may account for the findings of the interviews, with one of the interviewees noting, *"We do not really budget because most architectural firms are not so big to engage the services of an accountant to do such things. Those firms that engage the accountant are very few. Most are like one-man business and budgeting hardly comes in. This is because you cannot predict how much income you will get in a given year."* The foregoing statement suggests that the number of accountants employed by the architectural firm was related to the size of the firm. This assumption was tested using the chi-square. The test showed that the relationship between the number of accountants and the size of the firm in terms of the total number of staff was significant ($?^2$ =70.18, df = 12, p ? 0.05). Appendix 8 shows that all (100%) the firms with between 1 and 5 members of staff did not employ any accountant. However, with increasing number of staff, the percentage of firms that did not employ accountants reduced; from 79.3% (for the firms with between 6 and 10 staff), to 33.3% (for firms with between 11 and 20 staff); and to 14.3% (for the firms with between 21 and 30 members of staff). In fact, all the firms with more than 30 members of staff had accountants in their employment. The results also show that larger numbers of accountants (6-10 accountants) were only found in firms with more than 50 members of staff.

The study also examined the relationship between the number of support staff and the ownership form of the architectural firms. Only the number of administrative staff was found to be significantly related to the ownership form of the architectural firms ($?^2$ =29.49, df = 12, p ? 0.05). Appendix 9 shows that more than half (65.9%, 68.4% and 85.7%) of the architectural firms with the sole Principal , partnership and limited liability company forms of ownership respectively employed between 1 and 5 administrative staff. Almost half of the unlimited liability architectural firms employed between 6 and 10 administrative staff, compared to the 21.1% of partnership

owned; 7.1% limited liability owned and 2.3% sole principal-owned architectural firms. Larger numbers of architectural firms (more than 10) were only found among the partnership owned architectural firms sampled. The only public company sampled employed between 6 and 10 administrative staff.

5.5.4 Qualification of the Architects in the Firms

The qualifications of the architects who worked in the firms were examined. Table 5.5 presents the number of firms that had the different numbers of architects with the qualifications specified. The result reveals that 40.0% of the firms had no architect with Ordinary National Diploma (OND) or Higher National Diploma (HND) as their highest qualifications; 25.9% of the firms had just one staff with that qualification; 22.7% had 2 or 3 of such architects and 11.8% had more than 3 architects with the OND or HND qualification. About half of the firms (55.3%) sampled had no architect with Bachelor of Science (BSc) in Architecture as the highest qualification, 21.2% had just 1 architect with the BSc qualification, 20.0% had 2 or 3 architects with the BSc qualification while only 3.5% had more than 3 architects with the BSc as the highest qualification. The results also show that while only 12.8% of the firms sampled did not have any architect with the Bachelor of Architecture (BArch) or Master of Science (MSc) qualifications; 43.0% of the firms had between 2 or 3 architects with the BArch or MSc degree as their highest academic degree, 31.4% (14.0% + 17.4%) of the firms had more than 3 architects with the BArch or MSc degree; and 12.8% had 1 architect with the BArch or BSc qualification. Most of the firms (84.7%, 94.0% and 96.4%) did not have any architect with the doctorate (PhD), Masters in Business Administration (MBA) or any other qualification respectively. Only 15.5% (14.1% +1.2%) of the firms had 1 to 3 staff with the PhD degree, while fewer firms (6.0% and 3.6%) had architects with the MBA or other qualifications. The other qualifications specified were the Post Graduate Diploma in Management Science, and the Post Graduate Diploma in Architecture. About half of the responding firms (58.5%) indicated that none of their staff was professionally registered as a member or fellow of the Nigerian Institute of Architects (MNIA or FNIA). A fairly lower percentage (41.5%) has 1 or more professionally registered staff.

Table 5.5: Qualification of architects

Qualification of Architects	Number of architects					
	0	1	2-3	4-5	6 and above	Total
OND/HND	40.0%	25.9%	22.7%	5.9%	5.9%	100%
BSc	55.3%	21.2%	20.0%	3.5%	0%	100%
BArch/MSc	12.8%	12.8%	43.0%	14.0%	17.4%	100%
PHD	84.7%	14.1%	1.2%	0(0%)	0%	100%
MBA	94.0%	2.4%	3.6%	0%	0%	100%
Other qualifications	96.4%	3.6%	0%	0%	0%	100%
MNIA/FNIA	58.5%	12.2%	19.5%	3.7%	6.1%	100%

*figures in cells represent the numbers and percentages of firms

Table 5.5 reveals that more firms (60.0%) had architects with Ordinary National Diploma/ Higher National Diploma (OND/ HND) degree than those that had architects with Bachelor of Science (BSc) qualification (44.7%). It is surprising that there were firms that had more than 5 architects with the OND or HND degree, although none of the firms had more than 5 architects with the BSc degree. It also appears that most architects did not have any other qualification apart from their basic degrees in architecture, as 84.7% or more of the firms did not have any architect with other degrees apart from the basic architectural qualifications. It is also surprising that about half of the firms had no architect that was professionally registered. It appeared reasonable that the number of professionally registered architects in a firm would be related to the age of the firm. This is going by the fact that the Architects Registration Decree (ARCON, 1990) stipulates two years of working experience before an architect would apply for professional registration. The relationship between the number of professionally registered architects and the age of the firm was however found to be insignificant ($?^2$ =29.21, df = 20, p = not significant). This suggests that other reasons may be responsible for the high number of firms without professionally registered architects. One of the interviewees suggested the probable reason for few registered architects who were staff of firms was that *"…once they (architects) have been trained to the point of registering, they pack their luggage and they want to go and establish somewhere else.…"*

5.5.5 Designation of Architects

The study examined the designation of the architects in the architectural firms sampled. Table 5.6 shows that 47.1% of the responding firms had no partner; 25.9% of the firms had 2 or 3 partners; 22.4% had 1 partner and 4.6% firms had more than 3 partners. Almost half (40.5%) of the firms sampled had 2 or 3 senior architects, 27.4% of the firms had only 1 senior architect, 11.9% had more than 3 senior architects and 20.2% firms had none. The results also show that 42.4% firms had 2 or 3 junior architects, 30.6% had 1 junior architect, 14.1% had above 3 junior architects and 12.9% had no junior architect. Most (63.5%) of the firms sampled had no trainee architect, 18.8% had 1 and 17.6% had 2 or 3 trainee architect.

Table 5.6: Designation of architects

Designation of architects	Number of architects				
	0	1	2-3	4-5	6 and above
Partners	47.1%	22.4%	25.9%	2.3%	2.3%
Senior architects	20.2%	27.4%	40.5%	7.1%	4.8%
Junior architects	12.9%	30.6%	42.4%	5.9%	8.2%
Trainee architects	63.5%	18.8%	17.6%	0%	0%

*figures in cells represent the percentage of firms

The fact that there were no partners in 47.1% of the firms could probably be explained by the fact that sole Principals (figure 5.2) owned 52.3% of the firms. Similarly, most (63.5%) of the firms did not to have any trainee architects. However, most of the firms had more junior (87.1%) and senior (79.8%) architects.

5.5.6 Gender Profile

The study examined the gender profile of the staff of the architectural firms sampled. The study first examined the percentage of staff of the architectural firms who were women (figure 5.5). This was done by computing the number of female architects, other professionals and administrative staff of the firms and comparing with their male counterparts.

Figure 5.5 show that 20% of the firms had no female staff at all. Women comprised between 11% and 20% of most of the firms (37.14%). The result in figure 5.5 also show that female staff constituted between 21% and 30% of the staff of 20%; and between 1% and 10% of the staff of 18.57% of the firms sampled. Only 2.86% of the firms had women comprising less than 11% of their staff. A lower percentage (1.39%) of the firms had women comprising more than 40% of their staff.

The result in table 5.7 shows that 47.1% of the architectural firms sampled had no female architect, and 63.8% had no other female professional. Fifty per cent of the firms however had female administrative staff. It appears that the architectural firms in Nigeria employed few females regardless of duty or designation.

The results in table 5.7 reveal that only 1.1% of the firms had no male architect. This is in contrast with the 52.9% of the firms with 1 or more female architects and the 47.1% of the firms that had no female architects. The result also reveal that 75% of the responding firms 1 or more male allied professional compared to the 36.2% that had 1 or more female allied professional. More than half (60.8%) of the responding firms employed 1 or more male administrative staff, while just half (50.0%) of the firms employed female administrative staff.

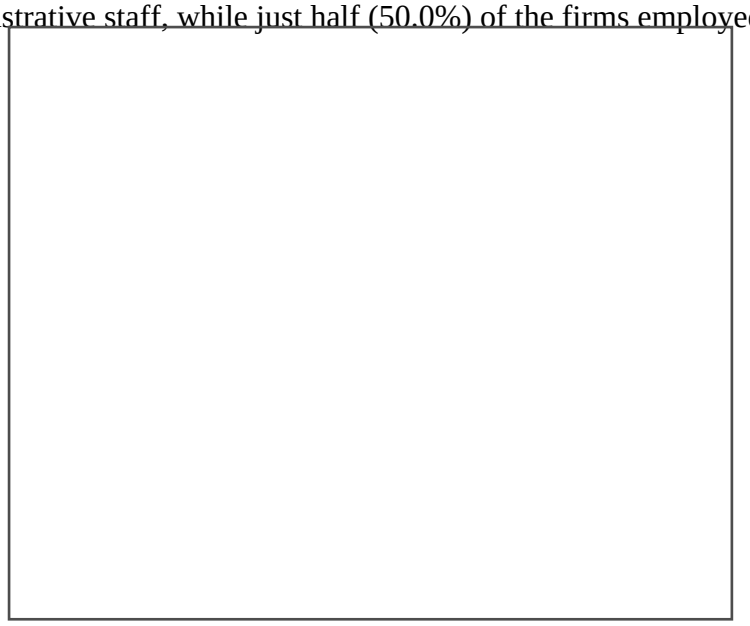


Figure 5.5 Percentage of Staff of Architectural Firms who were Women

Table 5.7: Sex of staff

Staff category	Sex	Number of staff					Total
		0	1	2-3	4-5	6 and above	
Architects	Male	1.1%	9.2%	46.0%	18.4%	25.3%	100%
	Female	47.1%	29.9%	12.6%	8.1%	2.3%	100%
Other professionals	Male	25.0%	16.2%	23.8%	13.8%	21.2%	100%
	Female	63.8%	17.5%	10.0%	5.0%	3.8%	100%
Administrative/ account staff	Male	39.2%	16.5%	22.8%	6.3%	15.2%	100%
	Female	50.0%	20.5%	24.4%	3.8%	1.3%	100%

*figures in cells represent the percentage of firms

It appears that fewer architectural firms (36.2%) employed female allied professionals than those that employed female architects (52.9%) or administrative and account staff (50.0%). Most of the firms that had female architects (29.9%) employed just one female architect.

Anthony, (2003), reporting the American Institute of Architects Firm Survey, also found that women comprised 27% of architecture staff of firms in the United States of America. Fowler and Wilson, (2004), also found that 9% of the staffs of architectural firms in Scotland, 10% to 16% in Spain, France and Germany and 20 percent in Scandinavia, and California were women. This study found that most of the firms sampled in Nigeria (75.71%) had women comprising less than 21% of their staff. This shows a lower female representation in the architectural firms in Nigeria, when compared with their counterparts in the United States of America, but a higher female representation that architectural firms in other countries mentioned. Participants in the interview also agreed that there were fewer women in practice generally, which one of the participants suggested may be due to the low number of females who graduate from architectural schools as could be inferred from the statement that *"….let me talk about my own time in school. The levels had only three females. You can see that when they come out, the male population will easily swallow them up. In addition, when I was the secretary of NIA, the number of female architects was about 150 at the time that the number of all architects in Nigeria was about 2000. You can see that they can easily be lost in the crowd."*

5.6 Client profile

It was of interest to the study to examine the client profile of architectural firms. Table 5.8 reveals that between some and all of the clients of 77.7% of the architectural firms sampled were individual clients in Nigeria, with 9.4% firms indicating that this client group constituted none of their clients. Only 12.9% of the firms indicated that they had few individual clients in Nigeria. Most (74.1%) of the firms indicated that between some and all of their clients are private organizations in Nigeria, while 16.5% of the firms had few clients in this category. Only 9.4% of the firms had no private organization client in Nigeria. The result also reveals that 34.2% of the sampled firms had between some and all of their clients being government clients. Most of the firms (40%) had no government client, while 25.8% of the firms had just few clients in this category. Banks and financial institutions in Nigeria constituted some or majority of the clients of 30.6% of the architectural firms but few of the clients of 38.87% of the firms and none of the clients of 30.6% of the sampled architectural firms. In addition, 36.5% of the firms did not have religious organizations as clients while 42.4% of the firms had just had few of them. Only 21.1% clients had banks and financial institutions constituting some or majority of their clients. Few firms (17.6% and 7.2% respectively) had international private individual clients or organizations constituting some or majority of their clients. More than half of the firms (56.5% and 76.1%) had no international private individual or international organization clients, while 25.6% and 16.7% respectively of the firms had few international private individual or international organization clients.

Table 5.8: Clients of architectural firms

Client type	Proportion of clients		
	No client	Few clients	Between some and all clients
Individual clients in Nigeria	9.4%	12.9%	77.7%
Private organizations in Nigeria	9.4%	16.5%	74.1%

Local/State/Federal government	40.0%	25.8%	34.2%
Banks and financial institutions in Nigeria	30.6%	38.8%	30.6%
Religious organizations in Nigeria	36.5%	42.4%	21.1%
International private individual clients	56.5%	25.9%	17.6%
International organization	76.1%	16.7%	7.2%

*figures in cells represent the percentage of firms

Individual clients in Nigeria appear to be the major clients of the architectural firms sampled, followed by the private organizations in Nigeria. It is interesting to note that international clients (private individuals or organizations) were the least to be found in the clients of the firms sampled. This suggests a low level of globalization of the architectural firms.

5.6.1 Clientele and the Ownership Form of Architectural Firms

It was of interest to this study to find out if the proportions of client groups served by architectural firms were related to the ownership form of the firm. Both the proportions of the client groups in banks and financial institutions in Nigeria, and the proportion of client groups in government were found to be significantly related to the ownership form of the firm.

The chi-square test conducted to test the relationship between the ownership form of the firm and proportions that banks and financial institutions in Nigeria comprise in the firm's clientele shows that the relationship was significant ($?^2 = 22.99$, df = 12, p ? 0.05). Appendix 10 shows that almost all of the architectural firms that were limited liability companies (13 out of 14) and the only public company had just few or no banks and financial institutions client. Most (5 out of 7) of the firms incorporated as unlimited liability companies had some banks and financial institutions clients. It appears that the unlimited liability ownership form is the one that best served the banks and financial institutions clientele group. It is also interesting to note that a higher proportion of the firms owned by sole Principals had no client in the banks and financial institution group (15 out of 42 firms). This is when compared with the 4 out of 17, 1 out of 7 and 3 out of 14 firms for the partnerships, unlimited liability companies and the limited liability companies respectively.

The chi-square test was also carried out to test the relationship between the proportion that the governments constituted in the clientele of the architectural firms and the ownership form of the firm. The relationship was found to be significant ($?^2 = 100.12$, df = 16, p ? 0.05). It appears that more firms with the limited liability company ownership forms had government clients than firms with other ownership forms. A close look at the results in appendix 11 reveals that the highest proportion of firms (30 out of 42 firms, 12 out of 17 firms and 9 out of 14) that had few or no government clients were found among the firms owned by sole Principals, partners and limited liability companies respectively. The only public company had all of its clients being the government. Almost half of the firms with the unlimited liability (3 out of 7) ownership form had some clients from the government groups.

5.6.2 Clientele and the Age of Architectural Firms

This study examined the relationship between clientele types and the age of the

firm. The chi-square test revealed that only the relationship between the governments client type and the age of the firm was significant (?^{2} = 45.10, df = 15, p ? 0.05). Appendix 12 reveals that below 16 years of existence, most of the architectural firms sampled had few clients from the government group or none at all. In fact, all the firms between 1 and 5 years old had no government client; 10 out of 12 firms between the ages of 6 and 10; and 15 out of 21 firms between the ages of 11 and 15 also had few or no government client at all. Between 16 and 20 years however, 11 of the 14 firms had some or most of their clients coming from the government client group. For firms above 20 years however, the trend appears to be reversed, as between 21 and 25 years, six of the nine firms had just few clients from the government circle.

The reason for this trend may be due to the fact that young firms do not have the resources to carry out government projects as the participants in the interviews suggested that they were often required to source for funds to carry out government projects *("…..if a multinational comes, before they even start the job, they are given mobilization. If it is a Nigerian, you have to go and look for money to do the job. Now I have done the work, to give me my money is problem. It is not that we do not want. It is just the way it is done. They always complain that if they give Nigerians money they will run away. Who are the Nigerians they give money?"*). One of the interviewees also suggested that firms that hitherto carried out government projects no longer do so because of the challenges they had faced in the past especially with respect to payment for services rendered. The interviewee related an experience that *"I just finished a government job. They are calling me to come and do some more jobs, but I don't want to because the one I did, all the people that are supposed to approve the money have all signed but the civil servants are just civil servants. Initially my file got missing, they now found the file, they could not find the letter and I do not know how to bribe, because I have done the job. It is my final payment I am waiting for (less retention). The retention is due in (soon) but I have not even collected my payment. I'm not encouraged to take government jobs anymore."* This may be a reason why there were few or no government clients in the clientele of architectural firms above 20 years of existence.

5.7 Economic profile

This study examined the economic profile of the architectural firms sampled. The average cost of the projects done in the last two years, the average cost of the projects targeted and the perception of the success of the firms were investigated. The findings are subsequently discussed

5.7.1 Average size of projects carried out in the last two years

The respondents were asked to indicate the average size of the project the firm carried out in the last two years. Fig 5.6 shows that 27.16% of the firms indicated that the average size of the projects they did was between N11million and N50million; 13.58% firms between N51million and N100million; 23.46% indicated that the average size of their projects was between N101million and N500million; and 14.81%, between N501million and N1billion. Few firms (9.88% and 11.11%) carried out projects less than N10million and above N1billion respectively.

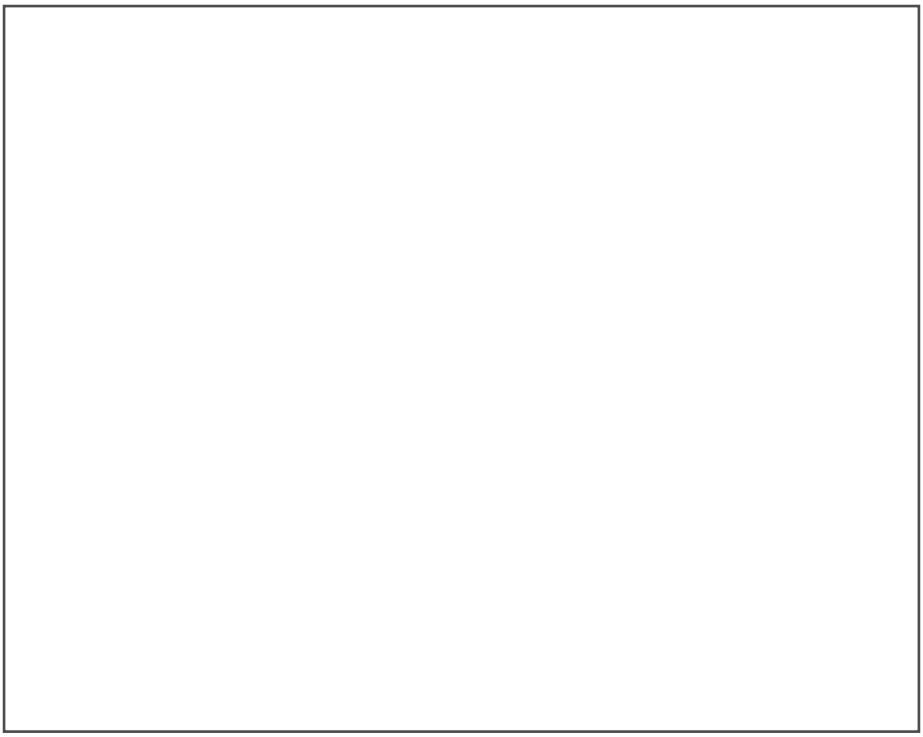


Fig 5.6: Average size of projects done in the last two years

The result shows that about half (50.62%) of the architectural firms sampled carried out projects whose average cost was N100million or less in the last two years, while the other half of the architectural firms carried out projects above N100 million. This suggests that about half the firms sampled carried out small-sized projects, while the other half carried out large-sized projects.

It was of interest to this study to find out if a relationship existed between the types of clientele and the average size of the projects the firms carried out. Only the proportion of individual clientele was found to be significantly associated with the average cost of projects carried out ($?^2 = 47.86$, df = 20, p ? 0.05). The cross tabulation of the two variables in appendix 13 show that firms with lower proportions of individual clients in their clientele had higher average cost of projects than those firms with higher proportion of individual clients. Very few of the firms that had some (10.5%), few (18.2%) or no (14.3%) individual clients at all carried out projects with costs less than N50million. In fact, none of the firms carried out any project less than N10 million in costs. This was in contrast with the firms that had individuals in Nigeria constituting most or all of their clientele. More than half (61.1% and 66.7%) of the firms that had individuals constituting most or all of their clients, carried out projects below N50million. The results also show that most of the firms some, few or no individual clients (89.5%, 81.8% and 85.7% respectively) carried out projects costing more than N51million. None of the firms where all the clients are individuals in Nigeria carried out projects costing more than N500million. It is however surprising that all the firms that had no individual client did not also carry out projects costing more than N500million. Most of the firms with few (81.8%) or some (73.7%) individuals in their clientele carried out projects that cost more than N100million in the last two years.

5.7.2 Sizes of Projects Targeted in the Next One year

The responding clients were asked to indicate the cost of projects they intended to target in

the next one year in order to examine how large they intend to be. Figure 5.7 shows that 54.87% of the firms indicated that their target in the next one year would be projects above N500 million; 24.39% targeted projects of cost between N101million and N500million, 13.41% targeted projects between N51 and N100million, and only 7.32% targeted projects of average cost between N11 and N50 million. No firm targeted projects with average cost less than N10million.

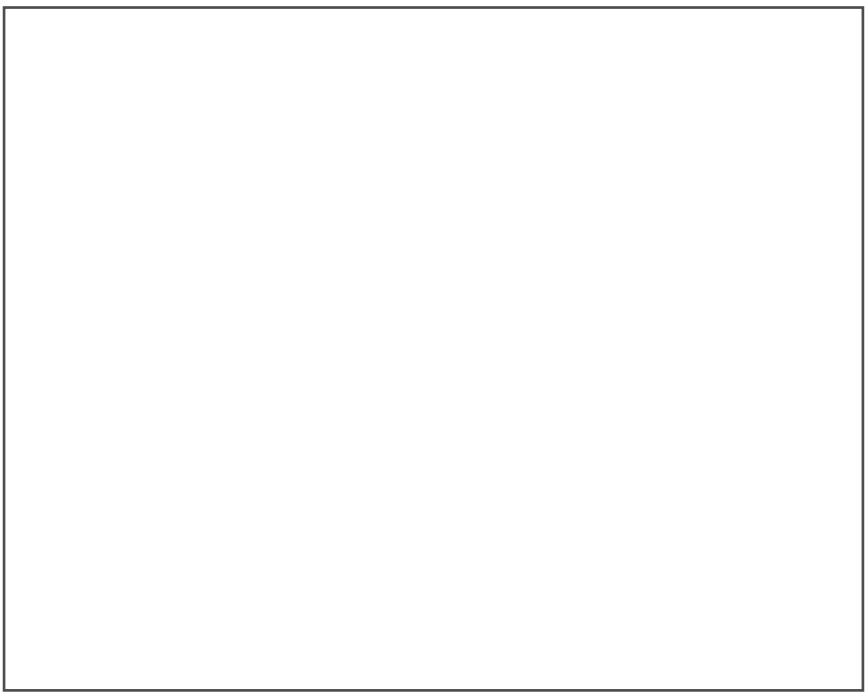


Fig 5.7 Cost of projects targeted in the next one year

5.7.3 Means of Remuneration

The firms were asked to indicate if they used the prescribed scale of fees, negotiated their fees or used other means for remuneration. They were to tick as many as applied. Table 5.9 shows that while about half (50.6%) of the firms used negotiation and bid only to obtain remunerations, 26.4% of the firms used the scale of fees only. Only one of the firms used other means as discounted fees and profit from site supervision. The results also show that 20.8% of the firms used both the scale of fees and negotiation/ bid, while 1.1% of the firms used negotiation as well as other means, which included discounted fees and profit from site supervision.

Table 5.9: Means of Remuneration

Means of remuneration		Number of Firms	Valid %	Cumulative %
One means only	Scale of fees	23	26.4	
	Negotiation/ Bid	44	50.6	77.0
	Other means of remuneration	1	1.1	78.1
More than one means	Scale of fees and negotiation	18	20.8	98.9
	negotiation/ bid and other	1	1.1	100

	means			
Missing		5		
Total		92		

It is surprising to note that only about a quarter of the responding firms indicated that they were remunerated by the recommended scale of fees only, while about half of the firms used only negotiation and bidding as means of remuneration. Overall, more firms (72.4%) were remunerated by negotiation and bid either alone or with other means, than the firms (47.1%) which used the scale of fees alone or along with other means of remuneration. The findings of the interview also corroborated this, as the participants agreed that remuneration of architectural firms based on the professional scale of fees in Nigeria is difficult, so they negotiated their fees. One of the interviewees noted, *"It is difficult to collect fees, especially when it is the scale of fees. Nobody wants to pay the scale of fees anymore, most people want to negotiate. If they negotiate, they are more likely to pay. Clients are not willing to pay you but they are ready to pay money on their construction, buy you materials... Even banks will never give you your correct fees. You have to bid ….."* Participants in the interviews however noted *"…..if you work for government, they might not pay you immediately but they will pay you."*

One of the interviewees was however, of contrary opinion stating that remunerations by government agencies were also negotiated, (*"Even the Federal Ministry of Works wants to negotiate; they treat you as a contractor. The situation is worse every day and it is either you negotiate or they pay you nothing. They sometimes offer you 40% or you take nothing……. you have to negotiate in most cases. Now, when they talk about negotiation, it is just pure corruption.")*

5.7.4: Perception of the Successes of the Architectural Firms

The firms were asked how they perceived the success of their firms in terms of their profits in the last two years. Most, (71.91%) of the architectural firms sampled (Figure 5.8) perceived their success as being good or very good; 24.72% believed their success was fair and the remaining 3.37% believed that their success was not so good.

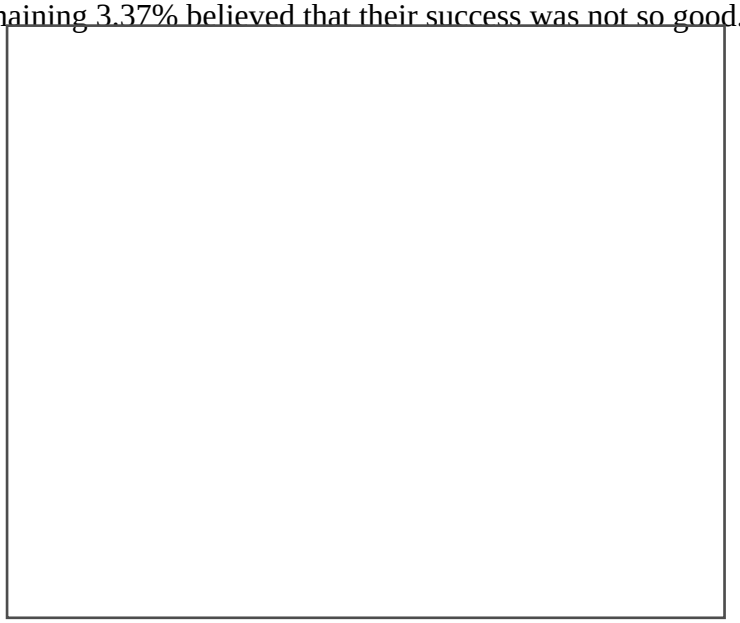


Figure 5.8: Perception of the Firm's Success

Figure 5.8 presents most of the architectural firms as being satisfied with their level of success in terms of profit. The findings of the questionnaire, which portrays the architectural firms as doing well does not seem to agree with the opinions of the participants in the interview about the architectural firms in Nigeria. One of the interviewees lamented that *"Architectural firms are not doing well……We have to do other things to generate money to at least pay the overhead in the office."* Putting the two positions together, it would appear that most architectural firms actually do make profit but have problems managing their finances as suggested by the statement of one of the interviewees that *"Many times, we do not follow any particular rule in managing finances…….That is why the firm gets broke after some time. We are supposed to run it (architectural firm) as normal businesses. The other thing is that architects and other people in consultancies sometimes find it difficult to separate profit from cost of running the project. They are not able to tell what the profit is."*

This study was interested in finding out if the perception of the success of a firms profit was related to the proportion of different client groups that the firms served. The results show that the firms' perception of success in terms of profit was significantly related to the proportions of religious and international organization clientele that the firm had. The relationships are subsequently discussed.

The relationship between the perception of the success of firm's success and the proportion of clients that were religious organizations found to be significant ($?^2 = 26.76$, df = 9, p ? 0.05). Appendix 14 reveals that none of the firms that had few or no religious client at all perceived their successes as not so good. A high proportion (25 out of 31) of the firms that had no religious client perceived that success as either good or very good. With few religious organizations, most firms still perceived their successes as either good or very good. The proportion of firms that perceived their successes as fair however increased to 13 firms out of 35 firms when compared with 6 out of the 31 firms that had no religious organization clients. Very few firms (2 out of 15) with some religious clients perceived their successes very good most perceived their successes as good. In addition, none of the firms with religious organizations constituting most of their clients perceived their successes as very good. It thus appears that the architectural firms that had fewer religious organizations as clients had better successes in profit than those that had more religious clients.

The study also examined the relationship between the perception of the architectural firm's success in profit and the proportion of clients that international organizations constituted. The relationship was found to be significant ($?^2 = 20.79$, df = 9, p ? 0.05). Appendix 15 presents the clustered bar chart of the perception of the success of the architectural firm's profit and the proportion of clients that international organizations constituted. The results in appendix 15 shows that all the firms that had international organization clients constituting some (5 firms) or majority (1 firm) of their clients perceived their success in profit as very good. With few international organization clients, most of the firms (8 out of 14) indicated that their profit was just fair. The two firms that indicated that their perception of success in profit was not so good did not have any international organization clients. In fact, almost a quarter of the firms that had no international organization clients (14 out of 63) perceived their successes in profit as just fair. It appears that the greater the proportion of international organization clients the architectural firm had, the better the perception of success.

5.8 Characteristics of the Principal

The profiles of the Principals of the architectural firms sampled were examined. These include gender, age, experience, qualification and institutions attended by the Principals.

5.8.1 Gender of Principal

The study examined the gender of the Principals of the sampled architectural firms. The findings, presented in figure 5.9 shows that most (89.8%) of the responding Principals were men, and only 10.23% of the Principals were women.

[pic]

Figure 5.9: Gender of Principal

This result shows the predominance of male Principals. This may be connected with the challenges of female Principals, which were highlighted by two of the participants in the interview. One of the participants, (who was a man), suggested that female Principals find it hard to get clients, stating *"…..some clients tend to look down on women thinking that a woman cannot handle a site. Some clients do not think it is okay, so to speak, they do not believe they will get the best out of such."* This view was however contradicted by the female architects, who suggested their challenges had to do with family issues, and not competence. One of the female interviewees cited her own experience thus: *"Let me give you a story, when I was pregnant with my second child, I would take off from Lagos to Abuja with the first flight at about 7:00am. There I will see a building, then take off to Bida. In Bida, I will check out a building, then go by road to Kaduna, and get to Kaduna before 12:45pm. I would finish seeing a building there and catch a 1:45pm flight to Lagos. I was tired and started crying. Then it occurred to me that I did not know what to do next. There was no rule that said I could not stay overnight, apart from my husband. I went back and said 'I will this time!' We cannot pretend that there are no gender issues. What I have found is that I have to work twice as hard to make sure that nobody can say 'oh! She is pregnant. Let us go and hire a man, they do not get pregnant'. I am not too sure anyone has actually discriminated against me yet, maybe someone did and I did not know. I have found out that men are more ambitious. Women are more relationship centered. Most of the men we went for these courses together (points to certificates on the wall) have the certificates on their walls. I (earlier) did not, I was more concerned about my family and I had pictures of my husband and children. I just said to myself 'we all went for these courses together,' so I put them up. Men are more ambitious."*

The study by Symes et al. (1996) in Britain also revealed that only 4.1% of the Principals were women, while Anthony (2003) and Frangos (2003) stated that 20.7% of Principals in the United States of America in 2002 were women. It thus appears that there were more female Principals in Nigeria than in Britain, but fewer female Principals than in United States of America.

5.8.2 Age of Principal

A study of the ages of the Principals was carried out and the findings presented in figure 5.10. Almost half (43.53%) of the Principals were between 41 and 50 years, 27.06% of the Principals were between 51 and 65 years, 22.35% were between 30 and 40 years, 5.88% were above 65 years and only 1.18% of the Principals was below 30 years of age.

Figure 5.10: Age group of Principal

The results show that most (43.53%) of the Principals were between 41 and 50 years. This result is similar to the findings of Symes et al., (1996) in Britain, which found 40.0% of the Principals in Britain between the ages of 40 and 49. In addition, this study found that there were only 1.18% of the Principals of architectural firms in Nigeria who were less than 30 years. This is similar to the findings by Symes et al. (1996) in Britain, which found 0.8% of the Principals were less than 30 years. These results suggest that most Principals are middle-aged men and women. This appears logical because being a principal implies maturity and experience as evident in the result of section 5.8.6.

5.8.3 Number of firms that Principal previously worked in

The Principals were asked how many firms they had previously worked in before starting their own firms. Figure 5.11 shows that 54.12% of the Principals of the firms sampled had previously worked in 2 firms, 18.82% had worked in 3 firms, 17.65% had worked in only 1 firm, 5.88% had worked in more than 3 firms and 3.53% of the Principals had not worked in any firm before starting their own firms.

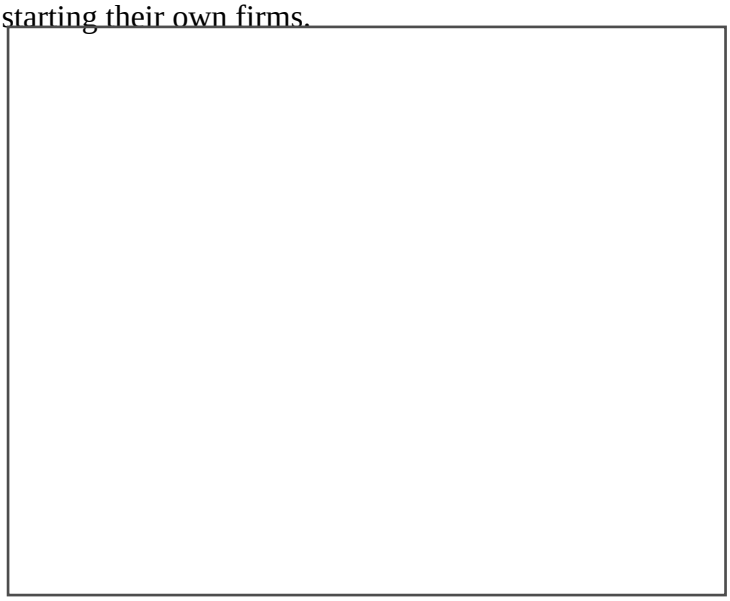


Figure 5.11: Number of firms that principal previously worked

The result reveals that most (71.77%) of the responding Principals had only worked in one or two firms before. Very few of the Principals (3.53%) started their own firms without working

in any other firm first. It appears that working practice experience was an important attribute of a principal. The participants in the interviews also agreed that they had worked in other firms as employees before starting their own firms. One of the interviewees had *"… worked in two places (firms) before I started my firm"*, while another Principal narrated *that "…after my youth service, I stayed back at Ibadan, worked in Abeokuta, then came back to Enugu because I knew that one day I will start my own firm. In 1988, I felt I was ripe enough to start my own firm."*

5.8.4 Highest Qualification of Principal

The study examined the highest qualification of the Principals. The findings, presented in figure 5.12 shows that 43.53% of the Principals possessed the Masters of Science (MSc) degree in Architecture, and 42.35% possessed the Bachelors in Architecture (BArch) degree. Very few, (3.53% each) of the Principals possessed the Higher National Diploma (HND) and the Bachelor of Science degree (BSc) in architecture respectively. In addition, 7.06% possessed other qualifications such as post-professional masters in architecture and structures.

Figure 5.12: Highest qualification of Principal

The result shows that most (85.88%) of the principal architects had the professionally registerable degrees of Bachelor of Architecture (BArch) or the Master of Science (MSc) in Architecture degrees. It however appears that there were very few principal architects with the Higher National Diploma (HND) and Bachelor of Science (BSc) degrees in architecture.

It was of interest to this study to find out if the highest qualification of the principal is related to the ownership form adopted by the Principals for their firms. The result of the chi-square test conducted was that the relationship between the highest qualification of a principal and the ownership form of the firm is significant ($?^2 = 30.07$, df = 16, p ? 0.05). The result in appendix 16 suggests that most (19 out of 35) of the Principals with the Bachelor of Architecture (BArch) degrees, adopted the sole principal form of ownership, followed by the partnership form of ownership (10 firms out of 35). However, next to the sole Principal form of ownership (adopted by 15 out of 34 Principals with the Master of Science, MSc degree), the next popular form of ownership adopted by Principals with the MSc degree was the limited liability company form of ownership. The result also reveals that all the architectural firms sampled that were unlimited liability companies and the only public company were owned by Principals that had the BArch

degree. The Principals with the Higher National Diploma as their highest qualification appeared to explore more ownership forms (adopting the sole Principal, partnership and limited liability company form of ownership) compared to the Principals with the Bachelor of Science degree (which adopted only the sole Principal and the partnership forms of ownership). It thus appears that although the sole Principal form of ownership was the most popular with all Principals regardless of their qualifications, the limited liability company form of ownership was more popular with the Principals with the MSc degrees, while the partnership form of ownership was more popular with the Principals with the BArch degrees.

5.8.5 Additional Qualifications of Principals

When asked how many of those Principals architects had other qualifications in addition to their degrees in architecture, only 37.65% of the Principals answered in the affirmative (figure 5.13). It thus appears that very few architects educate themselves formally after their professional education. The qualifications indicated include degrees in urban and environmental planning (masters and post graduate diplomas), degrees in management science or international relations, degrees in building, construction management or project management, degrees in information technology and post graduate diploma in Education (table 5.10). Table 5.10 shows that 11 of the Principals that had additional degrees in management or international relations, 7 Principals had degrees in urban/ environmental planning, 6 possessed additional degrees in information technology, 5 possessed degrees in building, construction management or project management and 3 Principals possessed additional degrees in education.

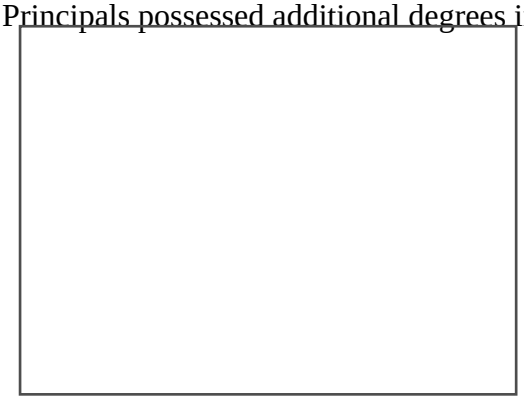


Figure 5.13: Possession of other qualifications

Table 5.10: Additional Qualifications of Principals of Architecture Firms

Additional Qualification of Principals of Architecture Firms	Frequency (No of Principals)
Information Technology	6
Urban Planning/ Environmental Planning (Masters and PGD)	7
Management Science/International Relations	11
Building/ Construction management/ Project management	5
Post Graduate Diploma in education	3

It is surprising to note that more of the Principals possessed degrees in management related courses than those who possessed degrees in building or construction related courses. It appears the management sciences are more relevant to the practice of architecture.

5.8.6 Years of Experience of Principal

The study also examined the years of experience of the Principals and the finding is presented in figure 5.14. The result shows that 31.82% of the Principals had practiced for more than 25 years, 21.21% had practiced for between 21 and 25 years, 18.18% for between 16 and 20 years, 15.15% for between 11 and 15 years, 12.12% for between 6 and 10 years and only 1.52% of the Principals had practiced for less 6 years. Figure 5.15 however shows that only 21.52% of the Principals had been registered with Architects Registration Council of Nigeria (ARCON) for 25 years and above, 26.58% had been registered for between 16 and 24 years, 43.04% of the Principals had been registered for between 5 and 15 years and 8.86% had been registered for less than 5 years.

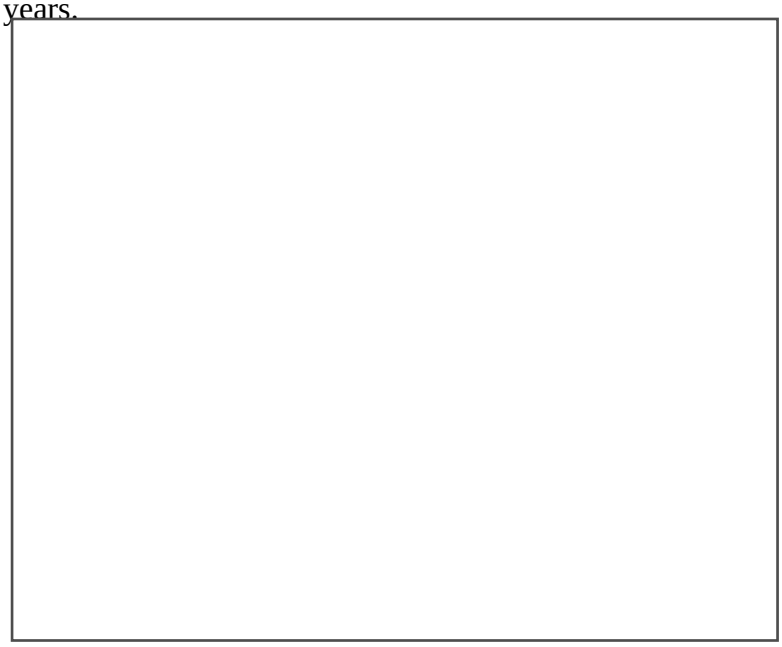


Figure 5.14: Number of Years of experience of Principal

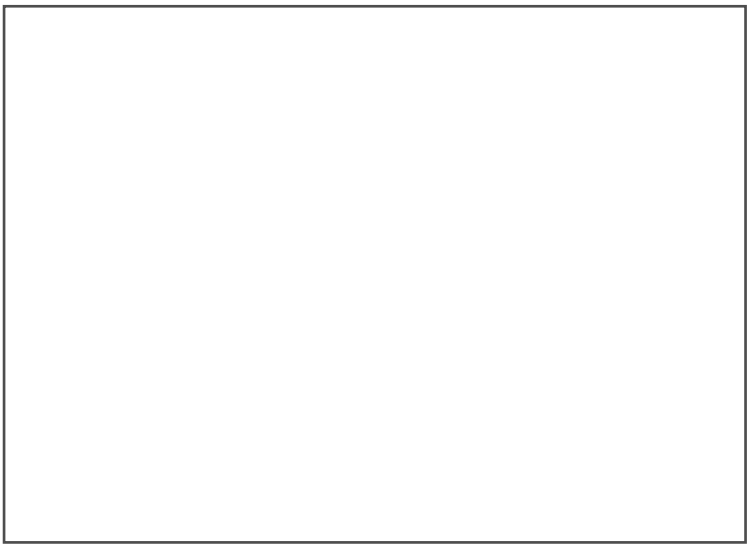


Figure 5.15: Number of years that principal had been registered with Architects Registration Council of Nigeria (ARCON)

The results in figure 5.14 show that most (71.21%) of the responding Principals had practiced for more than 15 years. This suggests that most of the Principals of architectural firms could be said to be very experienced. They however appear to have registered with the Architects Registration Council of Nigeria (ARCON) late, as only 48.1% of the Principals had been registered for more than 15 years.

5.8.7 Number of years of experience of principal before starting firms

The study examined the number of years the Principals had worked before starting their firms. This was computed by subtracting the year of obtaining the highest educational qualification of the principal from the year of establishment of the firm. The result in figure 5.16 shows that Principals of most of the firms (41.94%) had worked for between 1 and 5 years before starting their firms, 32.26% had worked for between 6 and 10 years, 9.68% had worked for more than 10 years, 11.29% were promoted to be partners and 4.84% had no experience at all.

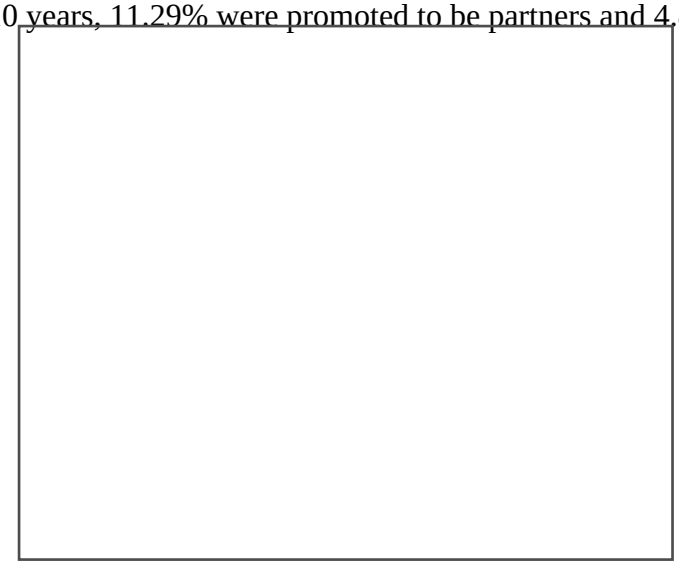


Figure 5.16: Number of years of experience of principal before starting firm

One would note that most (74.20%) of the Principals had worked for 10 years or less before starting their own firm. This also confirms the findings of the interviews as can be inferred from the statement of one of the interviewees that *"….That was 1981 when I finished…. In 1988, I felt I was ripe enough to start my own firm."* The findings of the interviews also suggest that architects who were promoted to be partners would also have worked for the firms for upwards of 10 years. Relating his own experience, one of the interviewees noted that *"I was employed by XXL in 1978 …..… I went to study in England in 1987. XXL was establishing a branch there and they used to give me some jobs to do for them…. I joined the firm as a partner in 1989."*

5.8.8 Institutions Attended by Principals

The Principals were asked to indicate the institutions they attended. Table 5.11, shows that 28.9% of the Principals were graduates of Ahmadu Bello University, 18.1% were graduates of University of Nigeria, Nsukka, 14.5% were graduates of University of Lagos, 4.8% each were graduates of Obafemi Awolowo university and foreign universities respectively, and 3.6% were graduates of Enugu State University of Science and Technology. The result also shows that 2.4% each of the Principals were graduates of Federal Polytechnic Nekede, Ambrose Alli University,

University of Jos, and Federal University of Technology, Akure. 1.2% each of the principal graduated from Abia State University, Ogun State Polytechnic and Rivers State University of Science Technology

Table 5.11: Institution attended by Principal

Institution Attended by Principal	Frequency	Valid percent
Ahmadu Bello University, Zaria	24	28.9
University of Nigeria, Nsukka	15	18.1
University of Lagos	12	14.5
Obafemi Awolowo University, Ile Ife	4	4.8
Foreign universities	4	4.8
Enugu state University of Science and Technology	3	3.6
Federal Polytechnic Nekede, Owerri	2	2.4
Ambrose Alli University	2	2.4
University of Jos, plateau State	2	2.4
Federal University of Technology, Akure	2	2.4
Abia state university	1	1.2
Ogun State Polytechnic	1	1.2
Rivers State University of Science and Technology	1	1.2
Total	92	100.0

The result shows that 28.9% of the responding Principals were graduates of Ahmadu Bello University. This is probably explained by the fact that Ahmadu Bello University was that first school of architecture in Nigeria, being established in 1962. The second school of architecture is next represented in the sample with 18.1% of the firms sampled having Principals that graduated from university of Nigeria, Nsukka. It thus appears that the prevalence of graduates of architectural schools who were Principals depends on how long the institution had existed.

The study was interested in finding out if the institution attended by the principal is related to the city the firm located its head office. The chi-square test result shows that the relationship was found to be significant ($?^2 = 120.23$, df = 65, p ? 0.05). Appendix 17 shows that the graduates of institutions located in and around Lagos, Enugu, Kaduna, and Port Harcourt located their head offices in those cities. Many of the Principals however had their head offices in Lagos, irrespective of the institution attended.

5.9 Factors of Organizational Profile of Architectural Firms

The study examined the major factors of organizational profile of architectural firms to determine which factors best described the profile of architectural firms. A principal component analysis was carried out using the variable principal normalization method, the criteria for convergence set at 0.00001. The factor analysis of the cultural variables shows that eight (8) factors accounted for 62.59% of the variance in the result (appendix 18). The component loadings in appendix 18 reveal the variables that the factors represented. Table 5.12 shows that the first factor which accounted for 20.94% of the variance in the data represented the sizes of the firms in terms of existence of branches (-0.67), the number of branches (-0.67), the average size of projects carried out in the last two years (0.70), and remuneration by scale of fees (-0.53). Other variables that loaded highly on first factor include the total number of staff (0.85), the number of architects (0.80), and the number of administrative staff (0.71). The number of architects with the Bachelor of Architecture or the Master of Science degree (0.81), and the number of architects who were

professionally registered as members (MNIA) of fellows (FNIA) of the Nigerian Institute of Architects (0.55), also loaded highly on the first factor. In addition, loading highly on the first factor were the number of architects who were partners (0.61), senior architects (0.59), junior architects (0.70), and trainee architects (0.61). The rest of the variables that loaded highly on the first factor are the numbers of male architects (0.75), female architects (0.57), male administrative staff (0.65), female administrative staff (0.60) and female non-architect professionals (0.58).

The second factor (accounting for 10.29% of the variance) loaded highly on the number of other professionals (excluding architects) (0.864), the numbers of engineers (0.60), quantity surveyors (0.86), builders (0.86), accountants (0.85) and architects with other qualifications (0.63). Table 5.12 also show that the third factor which accounted for 7.23% of the variance in the data represented the experience of the Principal and the firm in terms of the years of registration of the Principal as an architect (0.62), the age of the firm (-0.56), and the years of experience of the Principal architect (-0.57). Accounting for 5.48% of the variance in the data, the fourth factor represented the numbers of other staff (0.59) and architects with other designations (0.56). Table 5.12 also shows that the fifth factor represented the proportions of international organization clientele (0.51) that the firm had and the city of the firm (0.57). The fifth factor accounted for 5.23% of the variance in the data, while the sixth factor, which represented the proportions of individual clients (0.70) and religious clients (0.52) that the firms had accounted for (4.89%) of the variance in the data. The seventh (4.33%) and the eighth (4.18%) factors represented other qualifications of the principal (-0.58) and the proportions of government clients (0.52) respectively.

Table 5.12: Profile Factor Descriptions

Factor	Variables	Factor Score
1- Size (branch network, cost of projects, number of staff, gender ratio)-20.94%	Existence of branches in Nigeria	(-0.67)
	Number of branches in Nigeria	(-0.67)
	Average size of most of the projects done by firm	(0.70)
	Remuneration by scale of fees	(-0.53)
	Number of architects	(0.80)
	Number of administrative staff	(0.71)
	Number of total staff	(0.85)
	Number of architects with BArch/ MSc	(0.81)
	Number of architects with MNIA/ FNIA	(0.55)
	Number of partners	(0.61)
	Number of senior architects	(0.59)
	Number of junior architect	(0.70)
	Number of trainee architects	(0.61)
	Number of male architects	(0.75)
	Number of female architects	(0.57)
	Number of female professionals (apart from architects)	(0.58)
	Number of male administrative staff (ADM)	(0.65)
	Number of female administrative staff	(0.60)
2- Number of professionals (10.29%)	Number of accountants	(0.85)
	Number of architects with other qualifications	(0.63)

	Number of builders	(0.86)
	Number of quantity surveyors	(0.86)
	Number of engineers	(0.60)
	Number of other professionals	(0.86)
Factor	Variables	Factor Score
3- Experience of firm and Principal (7.23%)	Age group of Principal	(-0.63)
	Age of firm	(-0.56)
	Years of registration of Principal	(0.62)
	Years of experience of Principal	(-0.57)
4- Number of non-professional staff (5.48%)	Number of architects with other designations	(0.56)
	Number of other staff	(0.59)
5- International organization clients and city of firm (5.23%)	Proportion of international organization clients	(0.59)
	City of head office of firm	(0.57)
6- Proportion of religious and individual clients (4.89%)	Proportion of clients that religious organizations represent	(0.52)
	proportion of individual clients	(0.70)
7- Other qualification of principal (4.33%)	other qualification of Principal	(-0.58)
8- Government clients (4.18%)	Proportion of clients that governments constitute	(0.52)

5.10 Types of Architectural Firms Based on the Profiles of the Firms

The researcher was interested in finding out what types of architectural firms existed in Nigeria based on the profiles of the firms. The 59 items of profiles (appendix 18) responded to by the architectural firms were subjected to the two-step cluster analysis to determine natural groupings of the firms' profiles, using the log-likelihood distances between groups. The confidence level was set at 95% and variables of importance to the formation of clusters were determined using the chi-square test. The cluster distribution pattern is presented in figure 5.17. A 5 clusters solution was obtained. The pie chart shows that, of the 92 cases, 17(18.48%) firms were assigned to the first cluster, 30(32.61%) firms to the second cluster, (30)32.61% firms to the third cluster, 4(4.35%) firms to the fourth cluster and 11(11.96%) firms to the fifth cluster.

Based on the discriminant function analysis (appendix 20), 75 percent of the architectural firms were determined to be correctly classified, based on their profiles, through the cluster analysis, suggesting that the five-cluster solution was internally valid. This favourable validity test provides substantial support for the resulting taxonomy of architectural firms based on the profiles of the firms.

Figure 5.17: Cluster distributions of types of architectural firms based on the profiles of the firms

5.10.1 Profile attributes of firms in cluster 1

Figure 5.18 shows that 2 variables are responsible for the formation of the first cluster of firms based on the firms' profile. The first variable was the average size of projects carried out by the firms in the last two years, while the second variable was the sex of the principal. The cluster consisted of 17 firms.

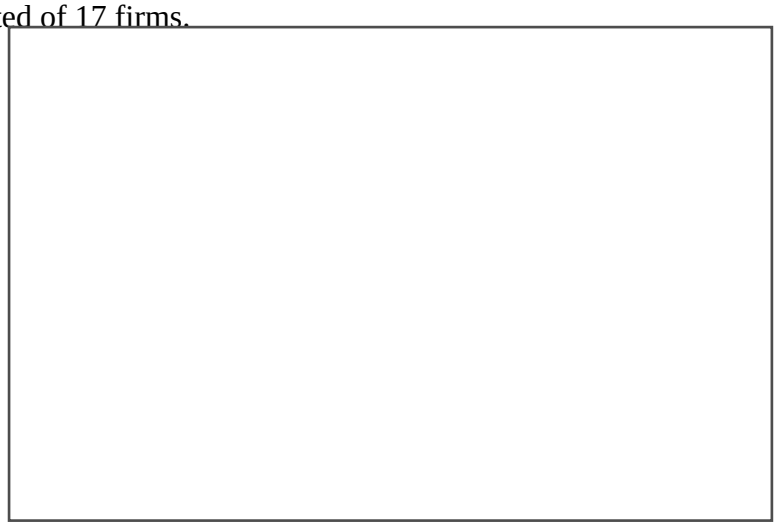


Figure 5.18: Variables important in the formation of cluster 1 of firms based on profiles

The firms in this cluster were to have carried out small sized projects costing less than N100million in the last two years. All the firms in the cluster also had Principals who were men. The firms in this cluster could be said be small scale masculine firms based on their profiles

5.10.2 Profile attributes of firms in cluster 2

The second cluster of firms based on the profiles of the firms consisted of 30 firms. The only variable, which was responsible for the formation of this cluster, was remuneration by the scale of fees (figure 5.19).

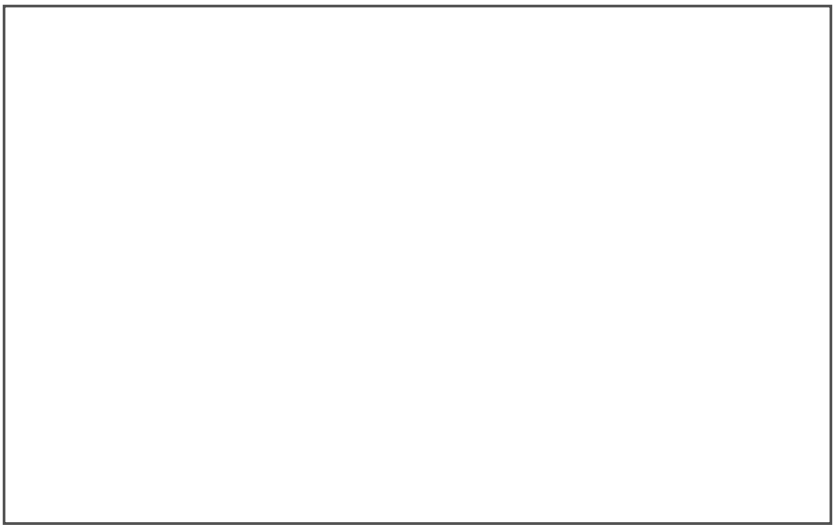


Figure 5.19: Variables important in the formation of cluster 2 of firms based on profiles

All the firms in the second cluster were not remunerated by the scale of fees. These firms can be called the unorthodox firms based on their profiles

5.10.3 Profile attributes of firms in cluster 3

Figure 5.20 show that the total number of staff was the only variable that was responsible for the formation of the third cluster, which consisted of 30 firms. All the firms in the third cluster had more than 10 staff. These firms could be referred to as the large-sized firms based on their profiles

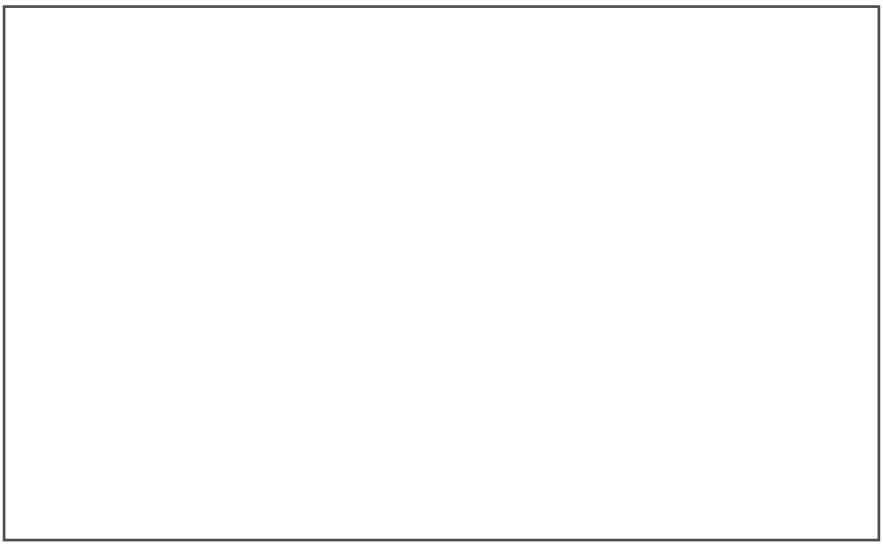


Figure 5.20: Variables important in the formation of cluster 3 of firms based on profiles

5.10.4 Profile attributes of firms in cluster 4

The fourth cluster consisted of just 4 firms and the variables that were responsible in the formation of the cluster included the number of quantity surveyors in the firm, the number of architects in the firm, and the number of architects with the doctor of philosophy, (PhD), ordinary national diploma (OND), higher national diploma (HND), and other qualifications. Other variables responsible for the formation of this cluster were the number of male architects, number of trainee architects, number of junior architects, remuneration by scale of fees and the years of experience of the principal (figure 5.21).

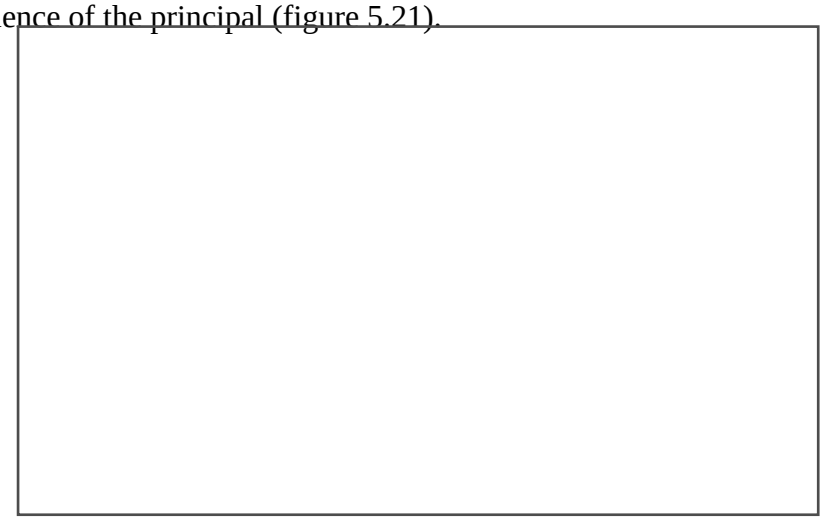


Figure 5.21: Variables important in the formation of cluster 4 of firms based on profiles

The firms in this cluster had between 1 and 5 quantity surveyors. They also had between 1 and 5 architects. While there were no architects with the PhD degree or other qualifications in these firms, the firms had just 1 architect with the OND or HND degree. The firms had between 2 and 3 male architects. None of the architects was a trainee architect, and only 1 was a junior architect. The firms were also not remunerated by scale of fees. These firms could be called the highly professional, gender-balanced firms based on their profiles.

5.10.5 Profile attributes of firms in cluster 5

Figure 5.22 show that the variables, which were responsible for the formation of the fifth cluster, which consisted of 11 firms, included the number of junior architects, and the number of administrative staff. Other variables included the proportions of international private individual clients, religious organization clients and government clients.

Figure 5.22: Variables important in the formation of cluster 5 of firms based on profiles

The firms in this cluster had more than 1 junior architect, few international private individual clients, few religious organization clients and few government clients. The firms also employed between 1 and 10 administrative staff. These firms can be called the inclusive firms based on their profiles

5.11 Chapter Summary

This chapter presented the results of the profiles of the architectural firms sampled. The results show that the firms in Nigeria could be described as old, with most of the firms sampled being more than 10 years old. More than half of the firms were owned by sole Principals. In addition, more than half of the firms sampled in Enugu, Abuja, Port Harcourt and Ibadan were owned by sole Principals. Partnership owned firms were found in all the cities samples were taken from except Kaduna and Abuja. Most of the firms in Kaduna had the limited liability company form of ownership. The study also found that most of the firms surveyed were registered by ARCON. However, while all the firms above 20 years of existence were registered by ARCON, few of the firms below 10 years were not registered. Most of the firms in Nigeria were not large, with less than 25% of the firms having more than 20 members of staff. Most of the firms owned by sole Principals were small, having between 1 and 10 staff.

The study found that about half of the architectural firms sampled were multi-professional. However, although almost half of the firms had between 1 and 5 builders, and engineers, more than half of the firms did not have any quantity surveyor or urban planners. In addition, although more than half of the firms did not have any accountant, most of the firms had other administrative staff. Only the firms with more than 5 members of staff had accountants. Most of the staff architects of the firms had the Master of Science (MSc) or Bachelor of Architecture (BArch) degree, with no additional qualification. Also, while about half of the architects and administrative staff in the firms were females, very few of the other professionals were.

The major clientele groups served by most of the firms were individuals in Nigeria. Most of the unlimited liability company owned firms however had more bank or financial institution client. The average cost of most of the projects carried out by the firms in the last two years was N100million or less. The firms that had many individual clients in Nigeria however mostly had

projects N50 million or less. Most of the firms were remunerated by negotiation or bid, while very few firms were still remunerated by scale of fees. Although, the survey results show that most of the firms perceived their successes as good or very good, the interviews revealed that most firms in Nigeria were not actually doing well.

Most of the Principals of the firms were between 41 and 50 years old, had the BArch or the BSc as their highest qualifications and did not have additional academic qualifications. Most of the Principals had worked for 10 years or less in mostly 2 firms before starting their own firms. Most of the Principals had been in practice for more than 15 years.

Five types of firms (based on their general profiles) were found. The first were the small-scale masculine firms, characterized by the male ownership and execution of projects less than N100million. The second type of architectural firms based on their profiles were the unorthodox firms characterized by non-remuneration by the scale of fees, and the third type of firms based on profile were the large-sized firms characterized by more than 10 members of staff. The highly professional, gender-balanced firms, which were the fourth type of firms based on profile, were characterized by few quantity surveyors, few architects, and few architects with OND or HND degree, few male architects, few junior architects and non-remuneration by scale of fees. The last firm type based on profile, the inclusive firms were characterized by few junior architects, few international private individual clients, few religious organization clients and few government clients. The firms also employed between 1 and 10 administrative staff.

CHAPTER SIX
CULTURAL PROFILE OF ARCHITECTURAL FIRMS

6.0 Introduction

This chapter discusses the cultural profiles of the architectural firms sampled. First, the ranking of the cultural values of architectural firms will be discussed. Second, the major factors that best described the cultural values of the firms are to be discussed. This will be followed by the description of the Principals, the arrangement and personalization of the offices. Finally, the types of cultures of the architectural firms will be discussed. All figures and tables are from the field survey carried out by the researcher between February 2009 and May 2009

6.1 Organizational Culture of Architectural Firms

Jaskyte and William (2004) defined organizational culture as a set of shared values that help organizational members understand organizational functioning and thus guide their thinking and behavior. Organizational Culture Profile was developed by O'Reilly, et al. (1991). The instrument contained a set of fifty-four value statements, twenty-three of which factored substantially alike in numerous studies, forming seven value dimensions: attention to detail, innovation, outcome orientation, aggressiveness, team orientation, stability, and people orientation (O'Reilly et al. 1991; Sheridan 1992; Chatman and Jehn 1994). Six dimensions were used to construct statements, used in this study.

The Principals were asked to rate the cultural value statements using a five-point scale, which ranged from not applicable at all, to very applicable. A ranking of responses to the cultural issues was then carried out. Table 6.1 presents the ranking of the responses of the firms to the cultural issues. Innovation ranked first with a mean score of 4.52. This was followed by the need to maintain tradition, which ranked second with a mean score of 4.41 and result orientation, which ranked third with a mean score of 4.34. Teamwork and staff development with a mean score of 4.33; and new ideas and technology as determinants of strategy of firms, with a mean score of 4.16 ranked next. This was followed by caution in risky ventures and expression of personal style and initiative both with a mean score of 4.09. Non-gender biased hiring of staff ranked eighth with a mean score of 4.01, followed by non-gender biased task allocation with a mean score of 3.95. The least ranked are aggressive pursuit of business opportunities with a mean score of 3.72; and concern for profit with a mean score of 3.02.

Table 6.1: Ranking of individual value scale items by Principals

Cultural value dimensions	Statement	Mean score	Rank
Innovation	In this firm innovation is very important	4.52	1
Stability	Maintaining a tradition and consistency is important in this firm	4.41	2
Outcome orientation	Employees are driven to achieve desired results	4.34	3
Team orientation	Teamwork and staff development is very important in this firm	4.33	4
Innovation	In this firm, new ideas and technology are the most important determinant of our strategy	4.16	5
Stability	Our firm exercises a lot of caution in risky ventures	4.09	6
People orientation	The Staff are encouraged to express their	4.09	7

	personal styles and initiative			
Gender	In this firm, female architects will be just as easily hired as their male counterparts	4.01	8	
Gender	Female architects are given the same job as their male counterparts in this firm	3.95	9	
Aggressiveness	This firm will aggressively pursue every business opportunities	3.72	10	
Outcome orientation	This firm is concerned mostly about profits	3.02	11	

This ranking confirmed the assertion by Emmit (1999) that almost all architectural firms have an agenda of innovation. It is however interesting to note that, despite the fact that innovation ranked first, the encouragement of staff personal styles was not that important in the culture of architecture firms as it ranked seventh. This may be explained by the fact that most Principals, in the first place, started firms to express themselves and as explicitly stated by one of the interviewees, all ideas sometimes originated from the Principal *("...to me, that is where it is because the idea must flow from me")*. It thus appears paradoxical that teamwork and staff development also ranked high in the culture of architectural firms.

It is also interesting to note that next to innovation was the need to maintain tradition, although caution in risky ventures was not as important. One would also note that the architectural firms were less people oriented, as encouragement of staff personal initiative, and gender equity in hiring of staff and task allocation ranked low (seventh, eighth and ninth) in table 6.1. The architectural firms were also not very aggressive or outcome oriented as the least important issues with the architectural firms were aggressiveness and the concern for profit.

The researcher also investigated the values and perceptions of the Principals of the architectural firms as a clue to their cultures. The issues raised include perceptions on gender, staff hiring, remuneration and keeping afloat, and succession plans. The interviewees were of the opinion that female architects were often challenged by family issues suggesting that this may account for the few number of female architects in practice. One of the Principals interviewed commented that he had no challenges with female architects in his firms "*except when they get married……the single ones do better*." Along the same line, one of the Principals categorically stated that "w*e cannot pretend that there are no gender issues. What I have found is that I have to work twice as hard to make sure that nobody can say 'oh! She is pregnant. Let us go and hire a man, they do not get pregnant"'*. This probably explains why gender equity both in hiring and task allocation to staff ranked low in the culture of architectural firms. In fact, one of the female Principals commented that she "*….find(s) it easier to work with men because women do not work at my pace"*. These comments suggest that the architectural firms were not very people oriented. The comments confirmed the findings of the questionnaires, which also ranked people orientation and gender low.

The interviews also show that employees of architectural firms were driven to achieve results. This may explain why it ranked high (third) in the culture of architectural firms. The interviews suggested that staff hiring was mostly influenced by the employee drive for results culture of architectural firms as one of the Principals commented "*Now, I just hire those that I can train, so it makes it easy for me. Early enough you begin to learn our culture, how detailed we are….. I design everything from toilet to lights…."* The interviewees suggested that staff hiring has more to do with the capacity of the applicant for hard work than the qualification: "*The person must be able to work with me, it's not just the qualification; the person must be able to work.*"

The Principals interviewed agreed that most architectural firms in Nigeria were poor economically: (*"Architectural firms are not doing well").* This may be explained by the fact that aggressiveness and concern for profit were least ranked in the culture of the architectural firms surveyed. This apathy for aggressiveness in business and profit or outcome orientation was probably expressed in the complaints of some of the Principals that *"I have more of my money outside; I think that's one of the problems of practice"*. In fact, one of the interviewees suggested that *"I don't choose them (my clients). When they come to me and they want me to do a job for them, I do it for them; I'm not picky if you know what I mean?"* This suggests that architectural firms in Nigeria probably do not strategize, taking whatever comes to them. Along the same line, one of the Principals commented that in trying to keep afloat in difficult times, architectural firms *"do other things-construction, interior design (and)* any other thing **that comes their way**." Also, one on the participants suggested that "f*irms that go into design and build are just trying to keep afloat"* These comments suggest that most architectural firms in Nigeria just try to keep afloat, not aggressively pursuing any business line or targeting any profit line.

The interviewees also suggested that most firms that procure services by design and build do so to get their fees as can be inferred from the statement made by one of the participants in the interview: "*I will like to go into that area, why some architects now go into design and build. They found that contractors are paid faster and easier than consultants are. They now went into design and build."* However, two of the participants in the interviews were of contrary views, stating that they engaged in design and build procurement method on clients' demand or to actualize difficult designs. One of the interviewees noted that *"occasionally, you have projects that especially private job, housing and all that. The clients often want you to supervise and build the house….."* while another principal stated that "*when people are arguing that our design cannot be built, we just built it*".

Although teamwork and staff development ranked fourth in the culture of architectural firms, the results of the interviews suggest that culture of staff development in firms is low. One principal who was predisposed to staff development lamented that *"it's very difficult to train anybody. Because some of these young people are not ready to wait, they are impatient and they need the money faster than you do. Therefore, hardly can you get anyone to train. Once they have been trained to the point of registering, they pack their luggage and they want to go and establish somewhere else."* Another principal shared an experience that made him quit training staff: *"I have tried to train people, I have sent out some people to attend courses. Some people went for this 3D Studio Max so that they can be better for the firm. Immediately they finished, they ran away. It has happened several times, so I do not bother myself."* These comments suggest that the rank of staff development in the cultural scale is probably due to the unpleasant past experiences of the firms.

6.2 Major Cultural Values of Architectural Firms

The study examined the major cultural values of architectural firms to determine which factors best described the cultures of architectural firms. A principal component analysis was carried out using the variable principal normalization method, the criteria for convergence set at 0.00001. The factor analysis of the cultural variables shows that three (3) factors accounted for 58.67% of the variance in the result (appendix 20). The component loadings in appendix 21 reveal the variables that the factors represented. Table 6.2 show that the first factor, which accounted for 31.14% of the variance in the data represented new ideas and technology as determinants of

strategy of firms (0.74), teamwork and staff development (0.70), driving staff to achieve results (0.70), and staff expression of personal styles and initiative (0.68). Other variables that loaded highly on first factor were gender equity in hiring (0.67), innovation (0.65) and gender equity in task allocation. The second factor (accounting for 14.001% of the variance) loaded highly on risk-aversiveness (0.82) and tradition (0.75); while the third factor (accounting for 13.52% of the variance) loaded highly on the concern for profit (0.82) and aggressiveness in the pursuit of business opportunity (0.62)

Table 6.2: Factors of Cultural Values of Architectural Firms

Factor Description	Variables Represented	Factor Scores
Factor 1: Goal achievement and staff management (31.14%)	New ideas and technology as determinants of strategy of firms	(0.74),
	Teamwork and staff development	(0.70)
	Driving staff to achieve results	(0.70)
	Staff expression of personal styles and initiative	(0.68)
	Gender equity in hiring	(0.67)
	Innovation	(0.65)
	Gender equity in task allocation	(0.57)
Factor 2: Stability (14.00%)	Risk-aversiveness	(0.82)
	Tradition	(0.75)
Factor 3: Business orientation (13.52%)	Concern for profit	(0.82)
	Aggressiveness in the pursuit of business opportunity	(0.62)

Three types of cultural values may be identified in the architectural firms sampled. These are the cultural values of goal achievement and staff management, stability and business orientation

6.3 Cultural values of architectural firms and other characteristics of the firms

Thompson et al., (2004) suggested that the culture is a major cause of differences in organizations. This study examined the relationship between the cultural values of the architectural firms sampled and innovation, ownership form of firms, and the means of remuneration adopted by the firms.

6.3.1 Organizational Cultural Values of Architectural Firms and Innovation

The study by Jaskyte and William (2004) found that organizational innovation influenced culture in a group of non-profit organizations. While acknowledging that innovation was an attribute of the organization, Jaskyte and William measured other cultural attributes at the level of the individuals in the firms. This research was however interested in finding out if the rating of innovation by the architectural firms was related to the other cultural attributes of the firm howbeit at the level of the firm. The spearman's rho correlation in table 6.3 shows that innovation was

positively correlated to encouragement of personal styles and initiatives ($r = 0.41$, $p < 0.01$); teamwork and staff development ($r = 0.54$, $p < 0.01$); and driving of employees to achieve results ($r = 0.47$, $p < 0.01$). Innovation was also positively related to gender equity in hiring ($r = 0.34$, $p < 0.01$) and task allocation ($r = 0.41$, $p < 0.01$) as well as caution in risky ventures ($r = 0.29$, $p < 0.01$). Innovation was however not significantly correlated to concern for profit ($r = -0.07$, $p =$ ns); aggressive pursuit of business opportunities ($r = 0.21$, $p =$ ns); and maintaining tradition and consistency ($r = 0.08$, $p < 0.01$).

The results suggests that the architectural firms that were innovative scored high in driving their employees to achieve results, encouragement of team work, development of their staff, and encouragement of staff to express personal styles and initiatives. The firms also scored high in the exercise of caution in risky ventures and the practice of gender equity in both hiring of staff and in task allocation. The drive for innovation however, did not significantly influence the firms' concern for profit, aggressiveness in the pursuit of business opportunities, and the maintenance of tradition and consistency. It thus appears that the innovation in the architectural firms influenced other cultural attributes of the firms except those related to business and stability (table 6.2)

Table 6.3 Correlation between Innovation and Other Cultural Attributes

Cultural Attributes	Spearman's rho	Innovation
The staff are encouraged to express their personal styles and initiatives	Correlation Coefficient	0.41(**)
	Sig. (2-tailed)	0.00
The firm is concerned mainly about profits	Correlation Coefficient	-0.07
	Sig. (2-tailed)	0.51
Teamwork and staff development is very important in this firm	Correlation Coefficient	0.54(**)
	Sig. (2-tailed)	0.00
Employees are driven to achieve result	Correlation Coefficient	0.47(**)
	Sig. (2-tailed)	0.00
In this firm, female architects will be just as easily hired as their male counterparts	Correlation Coefficient	0.34(**)
	Sig. (2-tailed)	0.00
This firm will aggressively pursue every business opportunity	Correlation Coefficient	0.21
	Sig. (2-tailed)	0.05
Female architects are given the same job as their male counterparts	Correlation Coefficient	0.41(**)
	Sig. (2-tailed)	0.00
Our firm exercises a lot of caution in risky ventures	Correlation Coefficient	0.29(**)
	Sig. (2-tailed)	0.00
Maintaining a tradition and consistency is important in this firm	Correlation Coefficient	0.08
	Sig. (2-tailed)	0.49

6.3.2 Cultural Values of Architectural Firms and Ownership Form

It was of interest to the study to find out if the cultural values of the firm were related to the ownership form of the firm. Only the aggressive pursuit of business opportunities

was found to be related to the ownership form of firms. The relationship was found to be significant at 0.05 level ($?^2$ = 39.55, df = 16, p ? 0.05). The bar chart of the two variables shown in appendix 22 shows that most of the firms that had the sole Principal and limited liability forms of ownership aggressively pursued business opportunities while most of the firms that had the unlimited liability and public companies form of ownership did not aggressively pursue business opportunities. In fact, 34 out of the 42 firms owned by sole Principals and 10 out of the 13 firms with the limited liability form of ownership aggressively pursued business opportunities, while all the firms with the unlimited liability and public company forms of ownership did not aggressively pursue business opportunities.

6.3.3 Cultural Values of Architectural Firms and Means of Remuneration

The study also investigated the relationship between the cultural values of the firms and the means of remuneration the firms adopted. Aggressive pursuit of business was found to be related to remuneration by bid or/ and negotiation. Concern for profit was also found to be related to remuneration by bid and negotiation, while caution in risky ventures was related to remuneration by other means such as discounted fees.

The relationship between aggressive pursuit of business opportunities and remuneration by bid or/ and negotiation was found to be significant ($?^2$ = 11.63, df = 4, p ? 0.05). The results in appendix 23 show that most of the firms (43 out of 55) that aggressively pursued business opportunities obtained their remunerations by bid or/ and negotiation, while most of the firms (8 out of 12) that did not aggressively pursue business opportunities were not remunerated by bid or/ and negotiation (appendix 23).

The relationship between concern for profit and remuneration by bid or/and negotiation was significant ($?^2$ = 11.99, df = 4, p ? 0.05). The clustered bar chart of the two variables in appendix 24 shows that most (27 out of 35) of the firms that were concerned mostly about profit were remunerated by bid and negotiation while most (13 out of 24) of the firms that were not concerned about profit did not obtain their remuneration by bid or negotiation. This may be explained by the opinion of the participants in the interviews that clients were more likely to pay when the fee is negotiated. This can be inferred from the statement of one of the participants that "*It is difficult to collect fees, especially when it is the scale of fees. Nobody wants to pay the scale of fees anymore, most people want to negotiate. If they negotiate, they are more likely to pay.*"

6.3.4 Cultural values and the age of the Principal

Child, (1974) suggested that older executives tend to be conservative and may be less able to grasp new ideas and learn new behaviours. The results of this study also show that the relationship between the age of the principal and the culture of new ideas and technology determining the strategy of the firms was significant ($?^2$ = 31.11, df = 16, p ? 0.05). Appendix 25 shows that most of the firms that allowed new ideas and technologies to determine their strategies had Principals who were 50 years old or less. In fact, the only firm that indicated that new ideas and technology was not applicable at all had a principal who was more than 65 years old. It is also interesting to note that all the firms that were undecided or neutral on the importance of new ideas and technology in determining the firm's strategies were more than 40 years old.

6.4 Leadership Styles of the Principal

The responding Principals were asked to describe themselves. Figure 6.1 shows that 33(38.37%) of the Principals described themselves as visionary and innovative leaders; 35(40.7%)

as productivity-oriented achievers, 10 (11.63%) as efficient managers, and only 8(9.3%) of the Principals described themselves as mentors in their firms.

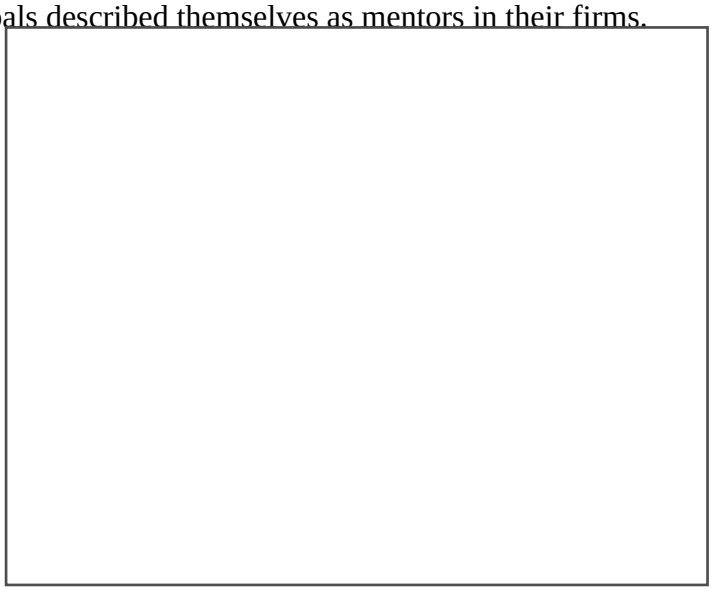


Figure 6.1: Description of Principal

Most of the Principals of the architectural firms sampled described themselves as either productivity-oriented achievers (40.7%) or visionary and innovative leaders (38.37%). It thus appears that most of the principals of the architectural firms sampled had the basic goal of task accomplishment (productivity-oriented **achievers**, efficient **managers)**, making those task-motivated leaders (Hellriegel and Slocum, 1978). This suggests that the self-esteem of these Principals is gained through achievement of task-related goals. Less than half of the Principals could be described as relationship-motivated leaders. These Principals appear to have strong emotional ties with their staff, thus seeking to lead and mentor the staff (mentors, and visionary and innovative leaders) (Hellriegel and Slocum, 1978).

It was surprising that very few (11.63%) of the Principals described themselves as efficient managers, and even fewer Principals (9.3%) believed that they were mentors. This probably puts a question mark on the business management orientation and succession plans of the firms. One of the participants in the interview was of the opinion that most Principals did not see their firms as businesses asserting that *"The fact is……..we do not run the firms as businesses."* This may be the reason why the Principals did not see themselves as managing the firms, and least of all considering themselves as efficient managers.

On mentorship, most the participants in the interview agreed that they no longer mentored their staff, because of previous experiences. One of the interviewees noted that *"… it is very difficult to train anybody. Because some of these young people are not ready to wait, they are impatient and need the money faster than you need. Therefore, hardly can you get anyone to train. Once they have been trained to the point of registering, they pack their luggage and they want to go and establish somewhere else. That is the problem with architecture. That is why you find it very difficult. Minus those who are old, you find it difficult to have architectural firms of two or three your people now. Once they distribute the first payment, everybody goes on his own way."*

One of the Principals who said he had plan for succession had a different type of succession plan. He stated that *"… I have my two (2) sons who are reading architecture: one in 400 level and the other one in 200 level. This is Nigeria, why rely on somebody else, when my two sons (I did not force either of them) just took interest because they were part of me? I see them taking over from*

me and that is, to me, better than training them and having them run away. It has happened several times." The younger Principals however, suggested that they had plans for mentoring *("I concentrate on hiring people who have the ability to go to the next level rather than those who just want to work. I spank you for being drab and not suited to the level of a partner. It is not the present level, but if I see that you do not have the partner potential, you are not showing the attributes of a consultant. Then, I also train on a variety of course.")* However, only one of the Principals interviewed had a structure on ground to mentor staff.

The study examined the relationship between the ownership form a firm adopted and some of the characteristics of the principal. Chi-square test was conducted to test the significance of the relationship. The test revealed that the relationship between the ownership form adopted by the firm and the characteristics of the Principals was significant ($?^2$ = 33.97, df = 16 p ? 0.05). Appendix 26 shows that most of the Principals who were mentors (5 out of 8) had firms with the partnership form of ownership. Most of the Principals who considered themselves as visionary and innovative (17 out of 32); efficient managers (8 out of 10) or productivity-oriented achievers (17 out of 32) owned sole Principal firms. It was interesting to note that none of the Principals who were mentors owned architectural firms that were limited liability companies, just as none of the Principals who were efficient managers owned firms that had the partnership or unlimited liability companies.

6.5 Spatial Arrangement of Most Part of Architectural Office

An aspect of culture of architectural firms considered was the way the spaces of architectural firms were organized. Figure 6.2 shows that 62.65% of the architectural firms sampled had most parts of their offices designed as open plan spaces; 21.69% were designed as partly open and partly cubicle spaces and 15.66% of the firms indicated that most parts of their offices were designed as cubicles or individual offices.

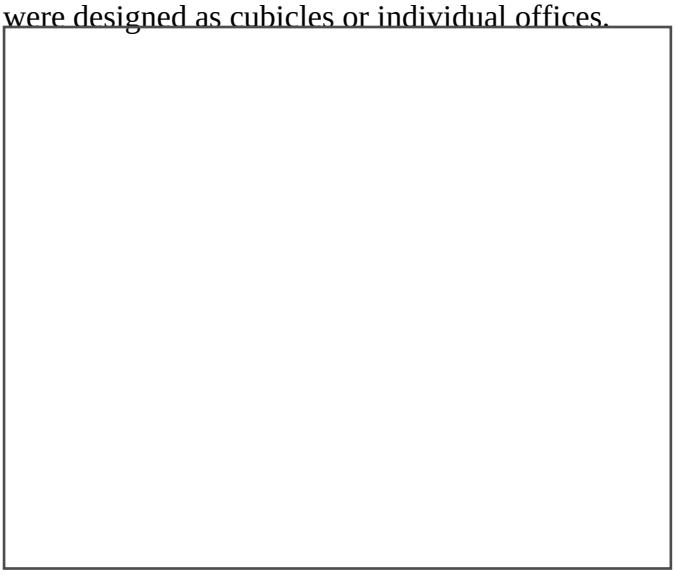


Figure 6.2: Spatial arrangement of architectural offices

The most dominant form of office arrangement was the open plan office type (plate 1). The least used office design type by the architectural firms was the individual offices.

Plate 1: An open plan architectural drawing office

6.6 Personalization of the Reception Area

Wells, Thelen and Ruark (2007) defined personalization as the deliberate decoration or modification of an environment by its occupants to reflect their identities. He further stated that it expresses one's personality, uniqueness, and status within group affiliations. The study thus examined how architectural firms personalized their reception and the items that were used for such personalization. Figure 6.3 presents how personalized the reception areas of the firms were. The result shows that most (46.1%) of the firms just had one item in their reception area, 23.6% had 2 items, 19.1% of the firms had 3 items and 5.62% each had more than 3 items or no item at all in their reception area. Figure 6.4 to Figure 6.9 presents the responses of the firms to whether they had specific items in their reception areas. The result shows that 42.7% of the firms had drawings in their reception areas, 37.78% had models, 26.67% had plants and 32.22% of the firms had artworks and paintings. Other items includes reading materials, which 28.89% of the firms had in their reception areas, and awards plaques and souvenirs displayed in the reception areas of 8.89% of the firms.

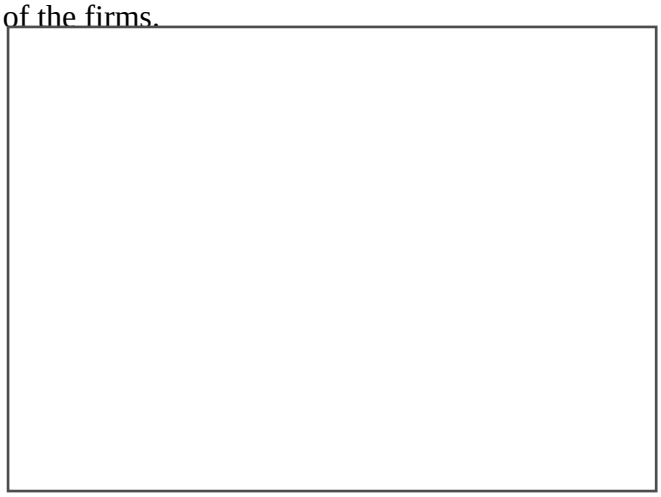


Figure 6.3: Number of items in reception

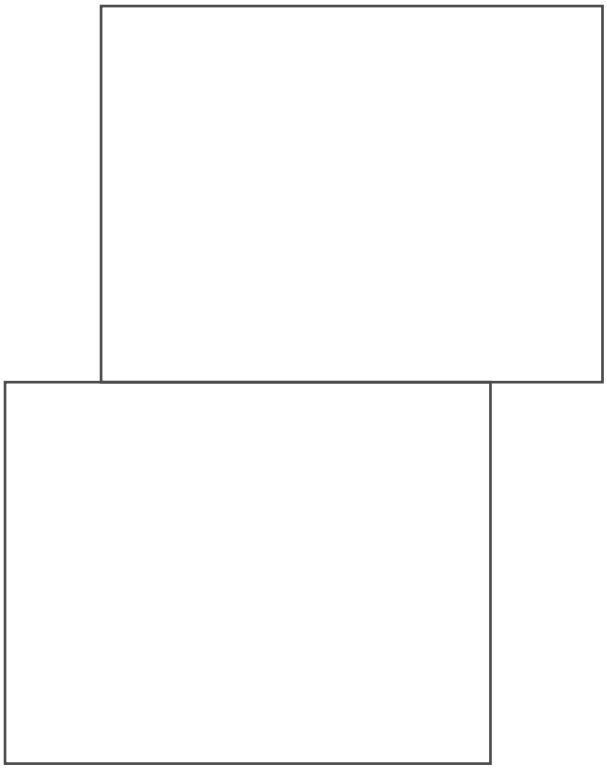


Figure 6.4 Are there drawings reception area?

Figure 6.5: Are there models in the in the reception area?

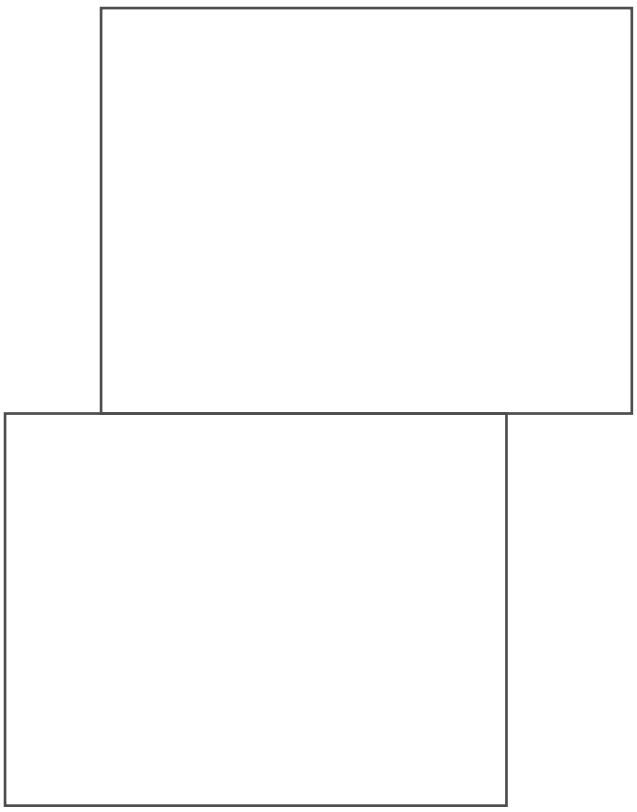


Figure 6.6: Are there artworks or

Figure 6.7: Are there plants in the

paintings in reception area?

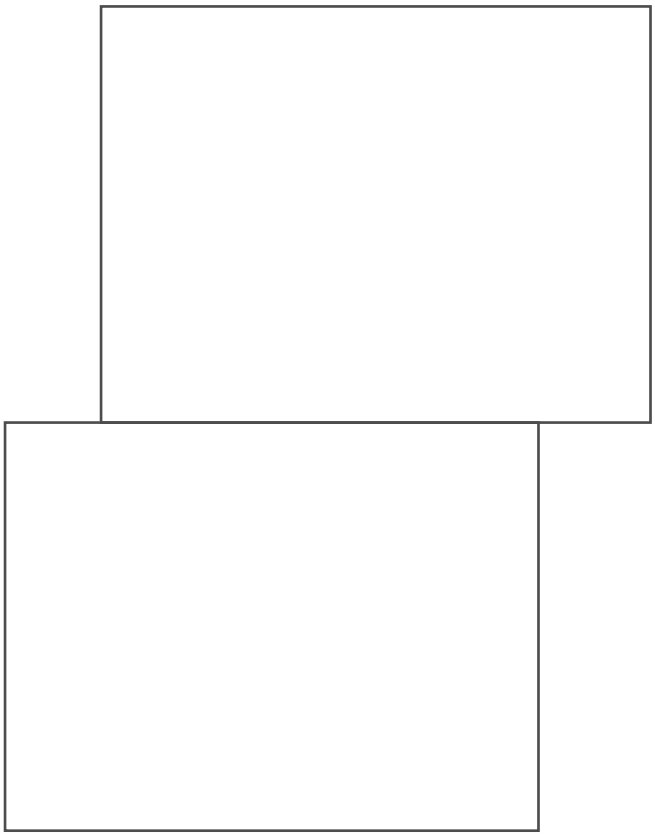


Figure 6.8: Are there awards, plaques or souvenirs the reception area?

the reception area?

Figure 6.9: Are there in reading materials in the reception area?

The result shows that the most (69.67%) of the architectural firms sampled personalized their reception areas with just one or two items. It is however surprising that more than half (57.3% and 62.22% respectively) of the firms sampled did not have drawings or models in their reception areas. It thus appears that although most of the architectural firms (94.38%) had personalized items in their reception areas, more than half of the firms did not use items related to their work such as drawings, model, awards, plaques and souvenirs.

6.7 Factors of Organizational Culture of Architectural Firms

The study examined the major factors of organizational culture of architectural firms to determine the factors that best described the culture of architectural firms. A Principal component analysis was carried out using the variable principal normalization method, the criteria for convergence set at 0.00001. The factor analysis of the cultural variables shows that six (6) factors accounted for 62.38% of the variance in the result (appendix 80). The component loadings in appendix 80 reveal the variables that the factors represented. Table 6.4 shows that the first factor which accounted for 17.74% of the variance in the data represented the cultural values of innovation (0.58), encouragement of personal style and initiatives (0.66), teamwork and staff development (0.71), driving employees to achieve results (0.72), and gender equity in hiring of staff (0.64). Other variables that loaded highly on first factor include the cultural values of new ideas and technology being determinants of firm's strategies (0.75), and gender equity in task

allocation (0.52).

The second factor (accounting for 10.82% of the variance) loaded highly on the cultural values of concern for profit (0.56) and maintenance of tradition and consistency (0.57). Table 6.4 also show that the third factor which accounted for 10.08% of the variance in the data represented the spatial design of the office (0.60), while the fourth factor accounting for 9.06% of the variance in the data, represented caution in risky ventures (0.76). Accounting for 7.55% of the variance in the data, the fifth factor represented the presence of awards, souvenirs and plaques in the reception area, while the sixth factor, which accounted for 7.11% of the variance in the data, represented the presence of plants (0.58) and models (0.58) in the reception area.

The results show that six factors of cultural attributes of the architectural firms can be identified. This suggests that the culture of architectural firms can be described in terms of their goal achievement and staff management values, their conservative business drive and the spatial design of the office. Other attributes that can be used to describe the culture of architectural firms are the value of stability, the display of achievement and work related imagery of the reception area.

Table 6.4: Cultural Factor Descriptions

Factor	Variables	Factor Score
Factor 1: Goal achievement and staff managements (17.74%)	New ideas and technology as determinants of strategy of firms	(0.75)
	Teamwork and staff development	(0.71)
	Driving staff to achieve results	(0.72)
	Staff expression of personal styles and initiative	(0.66)
	Gender equity in hiring	(0.64)
	Innovation	(0.58)
	Gender equity in task allocation	(0.52)
Factor 2: Conservative business drive (10.82%)	Concern for profit	(0.56)
	Tradition	(0.57)
Factor 3- Spatial design of office- (10.08%)	Spatial design of most parts of the office	(0.60)
Factor 4- Stability (9.06%)	Caution in risky ventures	(0.76)
Factor 5- Display of achievements (7.55%)	Personalization of reception area with awards, plaques and souvenirs	(0.57)
Factor 6- Work-related imagery of the reception area (7.11%)	Personalization of reception area with plants	(0.58)
	Personalization of reception area with models	(0.58)

6.8 Types of Architectural Firms Based on the Cultures of the Firms

This study investigated the types of architectural firms that existed in Nigeria based on their cultures. A two-step cluster analysis was carried out on the 18 cultural variables (appendix 27) to determine natural groupings of the firms, using the log-likelihood distances between groups as a measure of similarity or dissimilarity. Variable importance was measured using the chi-square test and the confidence level was set at 95%. The cluster distribution is presented in figure 6.10. A 4-cluster solution was obtained. The results show that 6(6.52%) of the firms were in the first cluster, 20(21.74%) of the firms were in the second cluster, 38(41.3%) in the third cluster, and 28(30.43%) of the firms in the fourth cluster.

The discriminate analysis classification in appendix 28 shows that 74.2% of the firms were determined to be correctly classified through cluster analysis. This suggests that the four cluster solution was internally valid, thus supporting the resulting taxonomy of architectural firms based on their cultures.

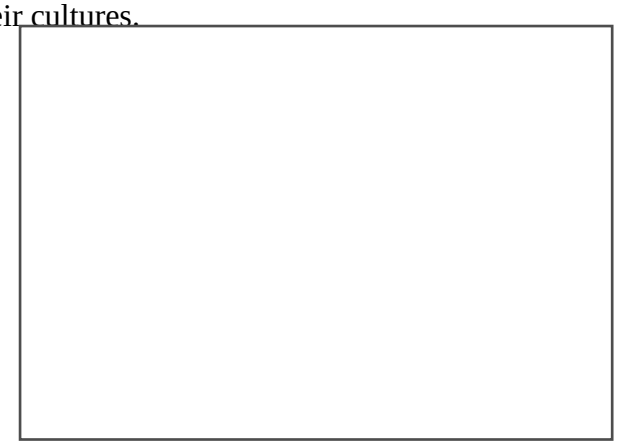


Figure 6.10: Cluster distribution of firms based on culture

6.8.1 Cultural attributes of firms in the first cluster

The cultural attributes that were important in the formation of the first cluster were examined. Figure 6.11 shows that 17 variables were responsible for the formation of the first cluster. The variables included employees being driven to achieve results, aggressiveness in the pursuit of new business opportunities, caution in risky ventures, new ideas and technology being the determinants of the firm's strategy and teamwork and staff development. Other variables responsible for the formation of the first cluster of firms included encouragement of staff personal style and initiatives, innovation, gender equity in the hiring of staff, concern for profit, and gender equity in task allocation. The rest of the variables responsible for the formation of this cluster were availability of plants, awards, plaques, souvenirs, models, artworks, reading materials and drawings in the reception area; and the description of the principal.

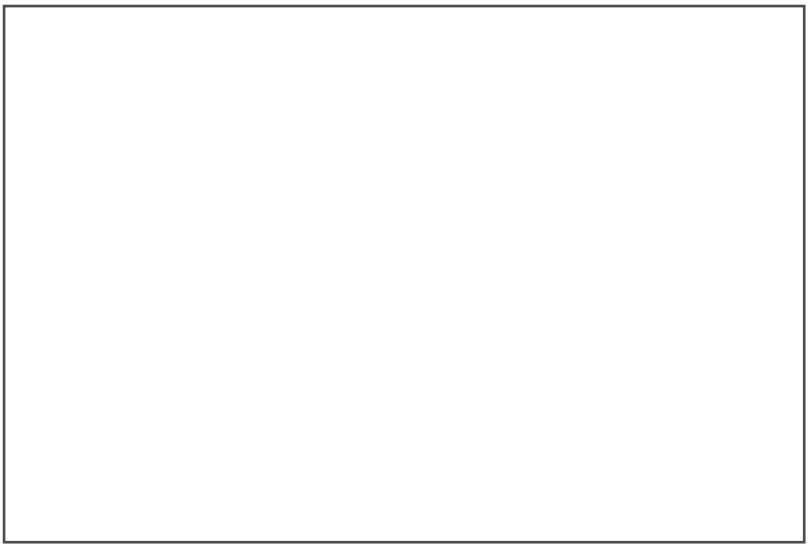


Figure 6.11: Attributes of firms in the first cluster based on culture

The six firms in the first cluster scored low in driving their employees to achieve results, aggressiveness in the pursuit of new business opportunities, and the exercise of caution in risky ventures. The firms also scored low in the encouragement of staff personal style and initiatives, gender equity in the hiring of staff, concern for profit, and gender equity in task allocation. The firms did not personalize their reception areas by use of plants, awards, plaques, souvenirs, models, artworks, reading materials and drawings in the reception area. The firms however scored high in allowing new ideas and technology to determine the firms' strategies, in the encouragement of teamwork and staff development and in innovation. Most of the Principals of these firms were visionary and innovative leaders. These firms could be described as slack or laidback, but innovative, allowing new ideas and technology to determine their strategies and encouraging teamwork. The firms could thus be referred to as ad hoc or improvised firms.

6.8.2 Cultural attributes of firms in the second cluster

Figure 6.12 shows that two variables were responsible for the formation of the second cluster. These included employees being driven to achieve results and maintaining tradition and consistency.

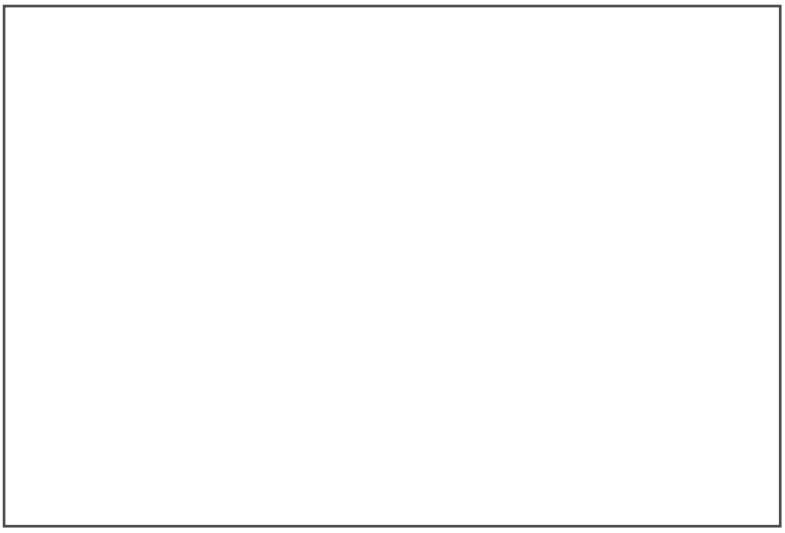


Figure 6.12: Attributes of firms in the second cluster based on culture

The 20 firms which were in the second cluster scored high in driving their employees to achieve results but scored low in the maintenance of tradition and consistency. It appears that these firms were more interested in achieving their goals than maintaining stability. These firms can thus be described as the achievement-driven firms based on their culture

6.8.3 Cultural attributes of firms in the third cluster

Four variables were responsible for the formation of the third cluster of firms (figure 6.13). The variables were gender equity in task allocation, gender equity in hiring of staff, caution in risky ventures and new ideas and technology as determinants of firm's strategy.

Figure 6.13: Attributes of firms in the third cluster based on culture

The third cluster consisted of the largest number of firms (38) and the firms scored high in gender equity in task allocation and hiring of staff. The firms also scored high in the exercise of caution in risky ventures and in allowing new ideas and technology to determine the firms'

strategies. The firms in this cluster appear to be unbiased, in hiring of staff, allocation of tasks and even in choice of strategy. The firms could thus be described as gender-sensitive and careful innovator firms.

6.8.4 Cultural attributes of firms in the fourth cluster

The five variables responsible for the formation of the fourth cluster were caution in risky ventures, importance of teamwork and staff development, importance of new ideas and technology in determining the firm's strategy, gender equity in task allocation and encouragement of staff to express personal styles and initiatives (figure 6.14).

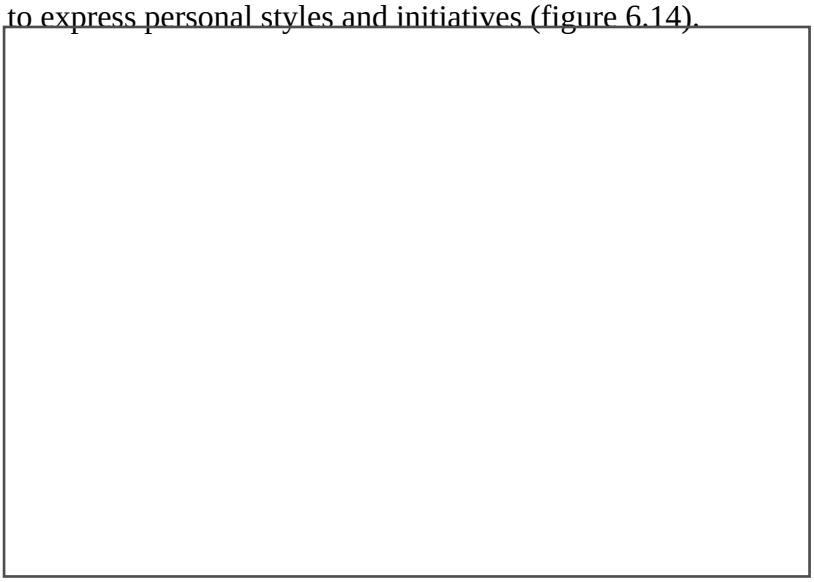


Figure 6.14: Attributes of firms in the fourth cluster based on culture

The 28 firms in the fourth cluster could be described as staff-oriented, creative firms. The firms in the cluster scored high in the exercise of caution in risky ventures, teamwork and staff development, and in allowing new ideas and technology to determine the firms' strategies. These firms also scored high in the practice of gender equity in task allocation and encouraged their staff to express personal styles and initiatives.

Cameron et al., (1999) asserted that cultures of organizations are different and these cultures could be clan, adhocracy, hierarchy and market. The first firm type, based on culture, which were the ad hoc or improvised firms have characteristics similar to the adhocracy culture described by Wells et al. (2007) to be characterized by innovation, creativity, teamwork, risk taking and visionary leaders. The fourth firm type also had characteristics similar to Wells et al. (2007) clan culture characterized by the extended family feel, teamwork and empowerment of staff. None of the firms surveyed however characteristics similar to those that the hierarchical or market cultures had.

6.9 Chapter Summary

The results of the cultural profiles of the architectural firms sampled were presented and discussed in this chapter. The ranking of the cultural values of the architectural firms revealed that innovation ranked first in the culture of the architectural firms. This was followed by the maintenance of tradition and consistency. The cultures of aggressiveness in the pursuit of business opportunities, and concern for profit ranked last in the firms sampled. The aggressive pursuit of business opportunities was however most common in firms with the sole principal and limited

liability company forms of ownership. Most of the firms that aggressively pursued business opportunities or were concerned for profit were also remunerated by negotiation or bid.

Using categorical Principal component analysis, the seven factors of culture suggested by O'Reilly et al., (1991), were further reduced to three factors for the case of architectural firms. The factors were goal achievement and staff management, stability and business orientation.

Most of the Principals of the sampled architectural firms described themselves as productivity-oriented achievers, or visionary and innovative leader. Very few of the Principals of the firms were mentors in their firms. The results revealed that most of the Principals that were productivity-oriented achievers or visionary and innovative leaders had sole Principal firms; while most of the Principals that were mentors owned partnership firms.

The results also revealed that most of the architecture firms sampled adopted the open plan arrangement for most parts of their offices. Most of the firms had items to personalize their reception areas, but very few used items like drawings, models, awards, plaques and souvenirs, which are items related to their works.

Four types of firms were found among the architectural firms based on culture. The first type of architectural firms based on the culture of the firms were the ad hoc or improvised firms which were slack or laidback, but innovative, allowing new ideas and technology to determine their strategies and encouraging teamwork. The second type of firms was the achievement driven firms that disregarded tradition and consistency to achieve particular goals of the firms. The gender-sensitive and careful innovator firms were the third type of firms. This type of firms was unbiased in hiring of staff, allocation of tasks and in the choice of strategies. The last type of firms found were the staff-oriented, creative firms characterized by gender equity in task allocation and encouragement of staff to express personal styles and initiatives. The market and the hierarchical cultures suggested by Cameron et al., (1999) were however not found among the architectural firms sampled.

CHAPTER SEVEN
ORGANIZATIONAL STRATEGIES OF ARCHITECTURAL FIRMS

7.0 Introduction

This chapter discusses the results of the findings of the organizational strategies of the firms. This includes the business, competitive and staffing strategies of the firms. All of these are the major sections of this chapter. All figures and tables are from the field survey carried out by the researcher between February 2009 and May 2009

First, the chapter discusses the business strategies of the firms in terms of the clientele of the architectural firms, the types of projects and the means of building clients will be examined. Next, this chapter discusses the existence of branch networks of architectural firms, collaborations, sub-commissions, and subcontracts as means of building competitive advantage by the architectural firms sampled. In addition, as part of the competitive strategies of the firms, the chapter also discusses the methods of procurement adopted by the firms and the ranking of the strategic principles of the architectural firms. The third section of this chapter discusses the staffing strategies of the firms in terms of the criteria for the selection of staff, the means of retaining competent staff, and the modes of staffing adopted by the firms. Finally, the chapter discusses the types of business, competitive and staffing strategies adopted by the firms.

7.1 Business Strategies of Architecture Firms

The study examined how architectural firms set out to obtain commissions. First, the clientele of the architectural firms was examined, followed by the projects in the firm's portfolio and then means of obtaining clients. These are subsequently discussed.

7.1.1 Client Group Targeted

The study asked the architectural firms to indicate which client group they often targeted. They were to tick as many as applied to their firms. Figure 7.1 shows that more than half (53.1%) of the firms targeted only one client group, while 27.2% of the firms targeted two client groups. Few firms targeted three client groups (16%), and even fewer (2.5% and 1.2%) targeted four client segments or all client segments.

The multiple response results in figure 7.2 shows that overall, 47.6% of the firms targeted private local organizations. The next major targets of the firms were the government clients, targeted by 39.1% of the firms. The private local individual clients followed this, haven been indicated by 33.7% of the firms. Only 25.0% of the firms indicated that they targeted international organizations; even less (10.9% of the firms) indicated that they target international private individual clients.

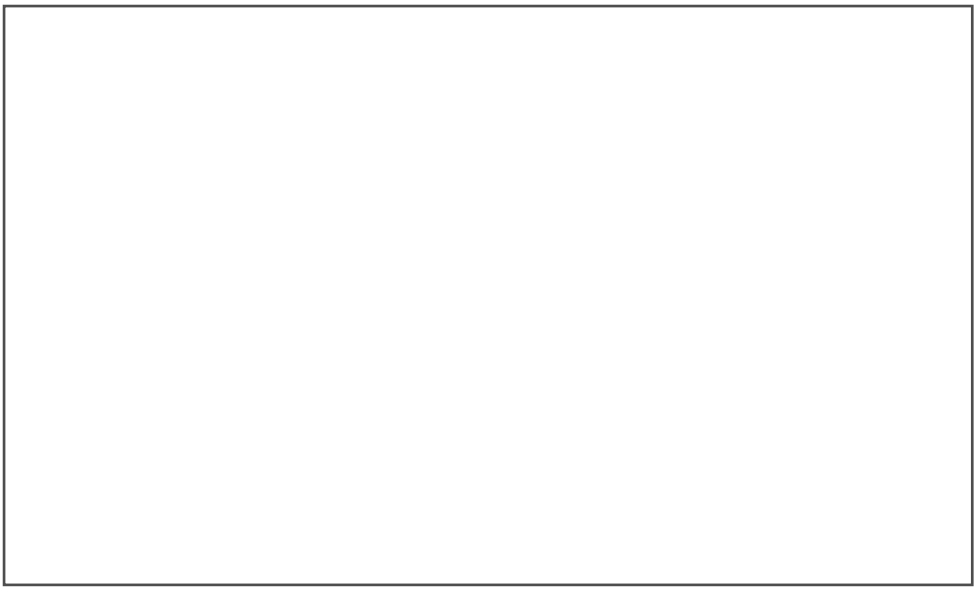


Figure 7.1: Client groups targeted

Figure 7.2: Client groups targeted- Multiple response Results

The results suggest that more architectural firms targeted private local organizations and government clients than did private local individuals and other client groups. This may be due to the reason given by one of the participants in the interview that: *"actually, I have moved from private clients to official clients now. What I mean is, when I do a residential house for you, you may not be building another house again tomorrow but if you are in an official position and there is any job, you will call me. That's the way it has been happening."*

One of the participants in the interview responded to this issue by stating that: *"I don't choose them (my clients). When they come to me and they want me to do a job for them, I do it for*

them; I'm not picky if you know what I mean…." This suggests that some architectural firms may not target any particular client group. The results of the questionnaire data however show that more than half of the firms targeted only one client group, while about a quarter (27.2%) targeted only two client groups. In fact, 96.3% of the firms targeted just three client groups.

7.1.2 Projects in the Firm's Portfolio

The firms were asked to indicate the proportion of particular project types that the firms had in their portfolios. The volumes of the project types in the firms' portfolios are presented in figure 7.3. Residential buildings represented most of the portfolio of 62.2% of the firms, some of the portfolio of 35.4% firms but none of the portfolio of 2.4% of the firms. Almost half (48.9%) of the firms indicated that commercial buildings constituted most of their portfolio, 50% of the firms indicated that they constituted some of their portfolio, while 1.2% of the firm indicated that they had no commercial project. Figure 7.3 also shows that 64.6% of the firms also had educational buildings constituting some of their portfolio; 17.1% of the firms, most of their portfolio; and 18.3% of the firms had no such project. Religious buildings constituted some of the portfolio of 59.8% of the firms, most of the portfolio of 15.9% of the firms, and none of the projects of 24.4% of the firms. The result also shows that hospitality projects constituted some of the portfolio of 64.6% of the firms, most of the portfolio of 11% of firms, and none of the portfolio of 24.4% of the firms. Healthcare projects constituted some of the portfolio of 58.5% of the firms, most of the portfolio of 11% of the firms, and none of the portfolio of 30.5% of the firms. More than half (53.1%) of the firms indicated that civic buildings constituted some of their portfolio, 11% of the firms indicated such projects constituted most of the portfolio, while 33.3% firms indicated that they had no such project. In addition, while 40 (49.4%) firms indicated that they do not have any cultural or entertainment buildings in their portfolios, 45.7% of the firms indicated that they constituted some of their portfolio and 4.9% of the firms indicated that such buildings constituted most of their portfolio. Transportation projects constituted none of the portfolio of 63.4% of the firms, some of the portfolio of 35.4% of the firms, but most of the portfolio of just 1.2% of the firm. Some firms also specified other projects such as industrial buildings and mixed use developments. While 7.8% of the firms indicated that these other projects constituted some of their projects 1.6% of the firms indicated that they constitute most of their portfolio.

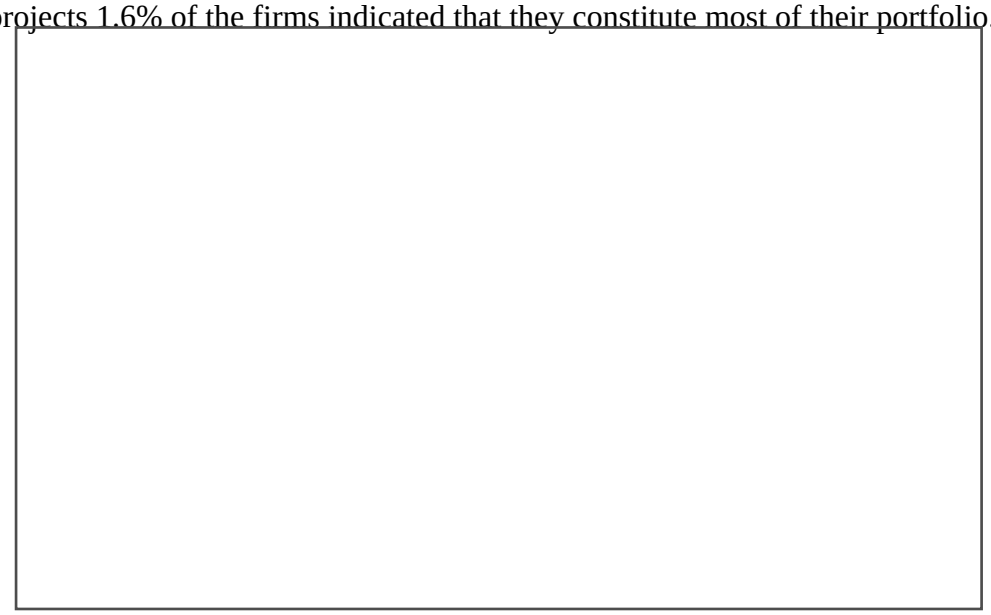


Figure 7.3: Proportion of different project types in firm's portfolio

The result reveals that the architectural firms in Nigeria mostly embarked on residential projects, followed by commercials projects. It also appears that the least projects in the portfolio of most of the architectural firms were cultural or entertainment, transportation, industrial and mixed use projects.

7.1.3 Reasons for the Different Proportions of Projects Types

The researcher was interested in finding out why the firms had the proportion of projects in figure 7.3. The findings presented in figure 7.4 show that most (61.25%) of the firms indicated that they the proportions of projects in figure 7.3 because they were either more readily available (32.5%) or for no specific reason (28.75%). Being positioned for such projects as carried out was the reason given by 23.75% of the firms. Only 7.5% of the firms had the proportions of projects in their portfolios because they handled such specialized projects. Even fewer firms (5.0% and 2.5% respectively) had the proportions of projects because they were more profitable or for reasons they did not know.

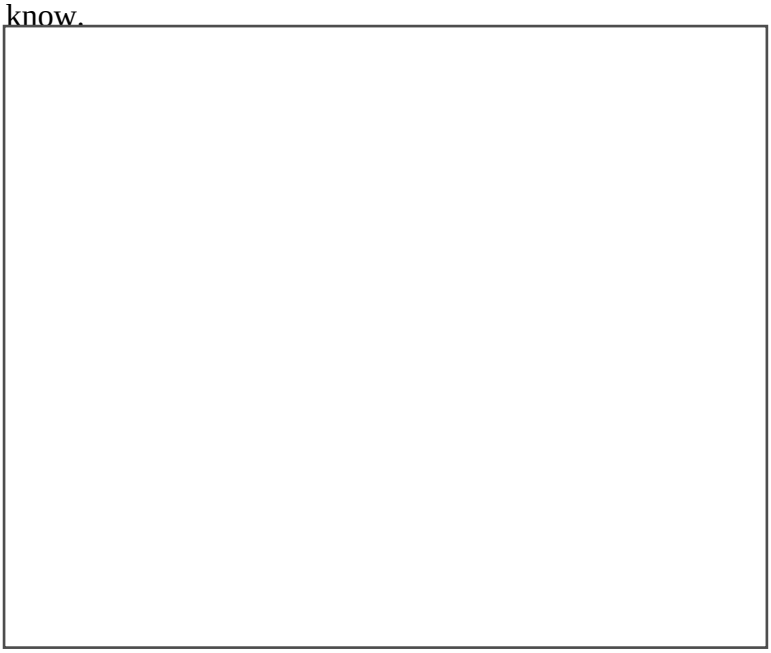


Figure 7.4 Reasons for proportions of project types

The result suggests that most of the architectural firms did not specialize in any project type. This is supported by the findings of the interviews with one of the interviewees noting *"…there is no hard and fast rule about it. I am not sure it is likely you say you are specializing in any type of project. If you see some people concentrating on any type of project, it is because it has come their way. From then on, they just continue doing it, not that they plan to specialize in it."* It was however interesting to note that very few firms (5.0%) targeted project because they were more profitable. It was also interesting to note that there were firms that positioned themselves to source particular types of projects.

7.1.4 Means of Building Clients

The respondents were asked to indicate the proportion of their clients that they got through

various means suggested. Figure 7.5 presents the responses of the firms. The result shows that personal contacts were the first of business avenues that firms adopted to get clients to use their services. More than half (67.3%) of the firms indicated that many of their clients come through this means, 31.6% obtained some of their clients through personal contacts and only 1.1% of the firms obtain no client at all through this means. Old clients or referrals were the next most used means of building clientele by the responding firms with 58.7% of the firms obtaining many of their clients through this means. Less than half of the firms (34.8%) obtained some clients through old clients or referrals while only 6.5% of the firms obtained no client at all through the means. Previous projects were sources of many of the clients of 49.9% of the firms, some clients of 38.1% of the firms, but none of the clients of 12.0% of the firms. The result also shows that 54.3% obtained some of their client through family and friends, 34.8% of the firms obtained many of their clients through this means while 10.9% of the firms did not obtain any client through family and friends. Other professionals also served as a source of some projects for 58.7% of the firms, many of the projects of 28.3% of the firms but did not provide any client for 13.0% of the firms. About half of the firms (55.4%) obtained some of their through public relations strategies, including brochures, 18.5% of the firms obtained many of their clients through this means, while 26.1% of the firms did not obtain any client at client at all through such public relations strategies.

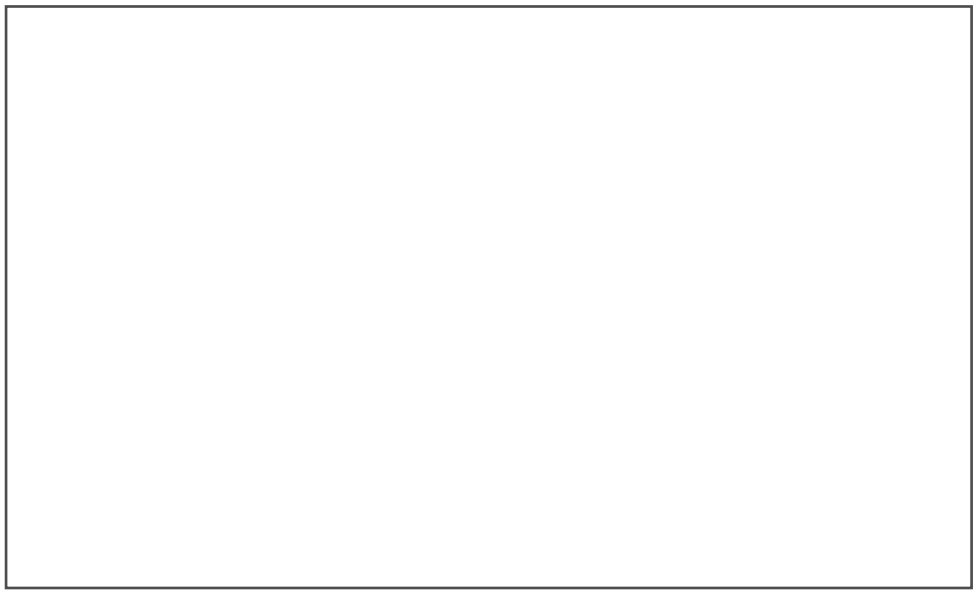


Figure 7.5: Proportion of clients from various sources

It thus appears that the greatest marketing tool available to the architect was his personal contact, as it was the source of some or many of the projects of 98.9% of the firms. It also appears that most of the Principals sold their services personally. The results suggest that the major sources on business for architectural firms are businesses from the scratch through personal contacts, family and friends and public relation strategies. The next major sources for businesses were those through referrals (old clients/ referrals and other professionals) followed by repeat businesses (previous projects). It thus appears that businesses from the scratch were the major sources of businesses for the architectural firms sampled rather than the repeat businesses suggested by Franklin (2000). The participants in the interviews agreed that most architectural firms relied on the personal contacts and referrals to obtain new commissions. One of the interviewees noted that architectural firms got their projects through *"…personal connections first, then your work begin to speak for you. In architecture, you must know somebody."* Citing his

own experience, one of the participants in the interviews narrated thus: "*While I was on IT at ABC, Architect BD asked a junior colleague and me to go take measurement of an existing space somewhere in Lekki. The name of the company where we were sent to was BCDE; this company shared the same building with EFGH Architects. What surprised me was that EFGH was their next-door neighbor and they did not call them to help them in designing that space which was to be used as an office space but had to call us whose office was thousands of miles away. It was definitely not because of the money. I later found out that it was the Managing Director of BCDE and my boss where friends in the university. The funny thing is that (in their own little way), they keep linking us with other clients in their class that need design jobs to be carried out or projects to be executed. Friends definitely play a major role in sourcing for jobs."* This agrees with the assertion of Forsyth, (2003) that the major way that professional services are sold is through personal selling.

One of the interviewees suggested that old practices built their clientele in a way that is different from young firms, stating that *"If it is an old practice, you get jobs from previous projects (referrals). If it is a young practice, you really have to do public relations, like brochures etc."* The relationship between the means of building clientele and the age of the firm was thus examined using the chi-square test but was not found to be significant.

The participants in the interviews also suggested that the means of building clientele would be related to the type of projects carried out by the firm, with one of the interviewees noting, *"…the bulk of residential private projects come from friends, family members and people who know you are an architect…"* These relationships were tested using chi-square tests. Building clientele through family and friends were found to be related to the proportions of residential ($?^2$ = 23.74, df = 12, p ? 0.05), hospitality ($?^2$ = 25.99, df = 8, p ? 0.05), cultural or entertainment ($?^2$ = 17.02, df = 8, p ? 0.05), healthcare ($?^2$ = 28.15, df = 8, p ? 0.05) and religious projects ($?^2$ = 25.41, df = 8, p ? 0.05). The proportions of hospitality ($?^2$ = 21.41, df = 6, p ? 0.05), cultural or entertainment ($?^2$ = 14.77, df = 6, p ? 0.05), educational ($?^2$ = 28.62, df = 10, p ? 0.05), civic ($?^2$ = 15.89, df = 6, p ? 0.05) and religious buildings ($?^2$ = 16.76, df = 6, p ? 0.05) were found to be significantly related to the public relations means of building clientele. Building clientele through personal contacts was only related to the proportions of residential projects ($?^2$ = 24.72, df = 12, p ? 0.05). The chi-square tests also showed that building clients through old clients was related to the proportions of commercial ($?^2$ = 29.02, df = 12, p ? 0.05), hospitality ($?^2$ = 22.05, df = 8, p ? 0.05), educational ($?^2$ = 26.29, df = 8, p ? 0.05), healthcare ($?^2$ = 30.86, df = 8, p ? 0.05) and religious projects. The proportions of commercial ($?^2$ = 32.98, df = 12, p ? 0.05), hospitality ($?^2$ = 31.52, df = 8, p ? 0.05), cultural or entertainment ($?^2$ = 20.61, df = 8, p ? 0.05), and religious buildings ($?^2$ = 24.18, df = 8, p ? 0.05) were related to building clientele through previous projects. The employment of other professionals to build clientele was related to the proportions of residential ($?^2$ = 19.79, df = 9, p ? 0.05), hospitality ($?^2$ = 25.64, df = 6, p ? 0.05), healthcare ($?^2$ = 19.49, df = 6, p ? 0.05) and religious projects ($?^2$ = 22.52, df = 6, p ? 0.05).

The result in appendix 29 shows that firms that had more (between some and all of their projects) residential projects mostly built their clientele through family and friends; personal contacts and other professionals. The firms that had more projects that are commercial built mostly their clientele through old clients or referrals and previous projects. The results also show that more hospitality projects accrued from clientele building through family and friends; public relations, old clients or referral; other professionals and previous projects. Higher proportions of civic building projects were found in firms that mostly built their clientele through public relations. The firms that had more clients that were religious mostly built their clientele through

family and friends, public relations, old clients, other professionals and previous projects. More cultural or entertainment buildings in a firm's portfolio were found in firms that mostly built their clientele through family and friends, public relations and previous projects. Firms that had more projects that were educational mostly built their clientele through public relations and old clients. Lastly, the results show that more healthcare projects were found in firms that mostly built their clientele through family and friends, old clients and other professionals.

It thus appears that most of the firms that used personal contacts as means of building their clientele had more projects that were residential. Similarly, building clientele through old clients or referrals was related to more of all projects types except residential, cultural and civic buildings projects. It would also be noted that, most of the firms (8 out of 11) that had more civic buildings mostly used public relations as means of building their clientele.

7.2 Competitive Strategies of Architectural Firms

Fifield, (1998) suggested that organizations build barriers around the organization to reduce competition. The firms were thus asked to indicate if they had branches, (in and outside Nigeria), collaborated with other firms locally and internationally, had long-term contracts or sub-commissions and the means of procurement that the firm adopts. The architectural firms sampled were also asked to rank the importance of strategy actions which according to Pearson et al. (2003) can be used in distinguishing architectural firms. These are subsequently discussed.

7.2.1 Network of Branches of Architectural Firms

The study examined the existence of a network of branches, which the architectural firms could utilize in capturing more of the market (Fifield, 1998). Figure 7.6 shows that 65.56% firms did not have branches in Nigeria, 33.33% did and 1.11% was not sure. Furthermore, figure 7.7 shows that number of branches that the firms that indicated they had. 40% of the firms that operated branches had just 1 branch, 33.33% had 3 branches, 13.33% had 2 branches, 10% had 4 branches and only 3.33% had 5 branches.

Most of the firms that had branches had them in Lagos (14) and Abuja (9). Few firms (3 each) indicated that they have branches in Kaduna, Port Harcourt, Ibadan, Warri, and Akure. Only 2 firms each had branches in Uyo, Enugu, Yenagoa, and Yola.

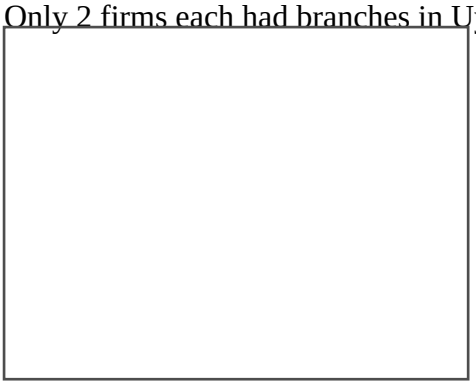


Figure 7.6: Network of branches of architectural firms

Figure 7.7: Number of branches of architectural firms in Nigeria

It appears that most of the architectural firms would rather operate from just office and about half of the firms that had branches had just 1 or 2 branches.

The study was thus interested in finding out if the existence of branches was related to the ownership forms of the firms. A chi-square test was carried out to test the relationship between the existence of branches and the ownership form of the firms. The tests showed that the there was a relationship and the relationship was significant ($?^2$ = 16.74, df = 8, p ? 0.05). Appendix 30 shows that most of the architectural firms with the partnership (10 out of 18) and unlimited liability form of ownership (5 out of 7) had branches in Nigeria. Most of the sole principal firms (38 out of 46) and the firms with the limited liability forms of ownership (5 out of 7) sampled did not have branches in Nigeria. In addition, the only public company did not have any branch in Nigeria. It thus appears that the architectural firms owned by partnerships and unlimited liability companies mostly had branches, while the firms owned by sole Principals and the limited liability companies mostly did not. This suggests that most of the firms with limited resources at their disposal in terms of the single individual ownership and probably financial resources did not have branches, while most of the firms with more than one owner and more (unlimited resources) ventured out to establish branches.

It also seemed reasonable that the firms that targeted governmental clients would establish more branches to establish their presence in different cities to capture government projects in those cities. The chi-square result shows that the relationship between the number of branches and the target of government client was significant ($?^2$ = 12.14, df = 5, p ? 0.05). Appendix 31 reveals that most (35 out of 51) of the firms that did not target government clients had no branch. More firms with between 1 and 3 branches targeted government clients (15 out of 24) than the firms that did not. However, all the firms (4 firms) that had more than 3 branches targeted government clients. It thus appears that most of the firms that targeted government clients had more branches than those firms that did not, suggesting that the firms probably established those branches to capture government clients in relevant cities. This is probably the reason why most of those firms had branches in Lagos and Abuja, which were reputed to be the former and current capitals of Nigeria respectively.

7.2.2 Network of Branches in West Africa and other Parts of the World.

The firms were asked to indicate if they had branches in West Africa and other parts of the world. The findings, presented in figure 7.8 shows that 88.89% of the responding

firms did not have branches in any other country, while only 11.11% had branches in other countries.

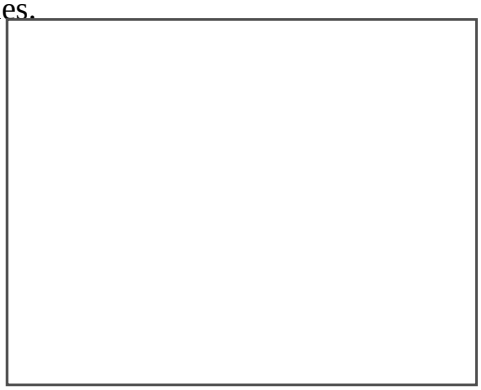


Figure 7.8: Network of branches in West Africa and other parts of the world

It appears that most of the firms sampled constrained their practices to Nigeria. This suggests a low globalization level of the architectural firms. Table 5.8 however shows that 43.5% of these firms had international private individual clients, while 23.9% of the firms had international organizations as clients. It thus appears that the firms may have employed other means of servicing international clients. One of such means may be collaboration with other firms. It is also possible that the international clients commissioned the architects to design local projects, which may not necessitate the firms having branches in other countries.

7.2.3 Collaboration with other firms

The firms were asked if they collaborated with other firms in carrying out their projects locally or internationally; which firms they collaborated with; and the reasons for such collaborations.

Figure 7.9 presents the responses of the firms to whether they collaborated locally or not. The result shows that 78.89% of firms sampled collaborated locally, 17.78% did not and 3.33% were not sure. Only 32.05% of the firms collaborated with other firms internationally (figure 7.10), 65.38% of the firms did not, and 2.56% were not sure. It appears that although most (78.89%) firms collaborated with other firms locally, few (32.05%) of the firms collaborated with other firms internationally.

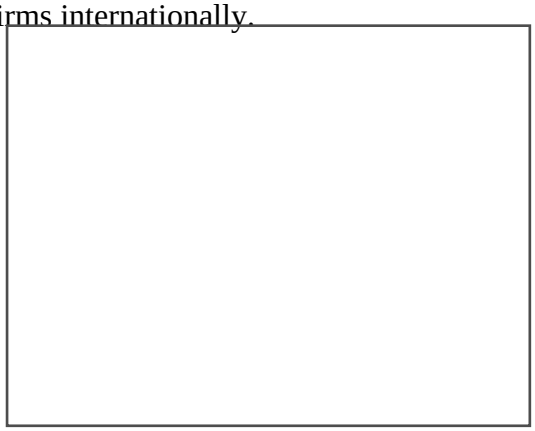


Figure 7.9: Does the firm collaborate locally with other firms?

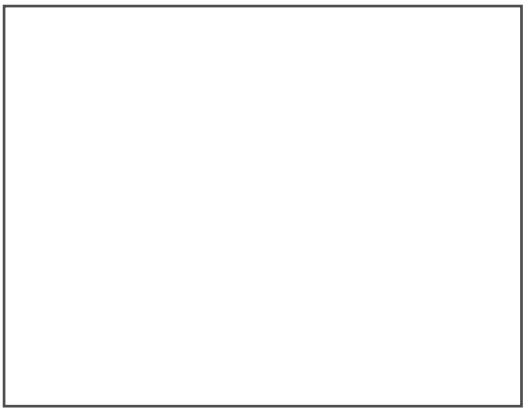


Figure 7.10: Does the firm collaborate with other firms outside Nigeria?

The firms were asked which firms they collaborated with. Figure 7.11 shows that 66.2% of the architectural firms collaborated with other professional firms locally; 19.15% with other architectural firms; while 14.7% collaborated with both architectural and other professional firms. However, only 30% of the firms collaborated with other professional firms internationally (figure 7.12). More than half (55%) of the firms collaborated with architectural firms internationally and only 15% of the firms did so with both architectural and other professional firms. It thus appears that most of the architectural firms collaborated with other professional firms locally, but architectural firms internationally. This was probably one way that international clients were served.

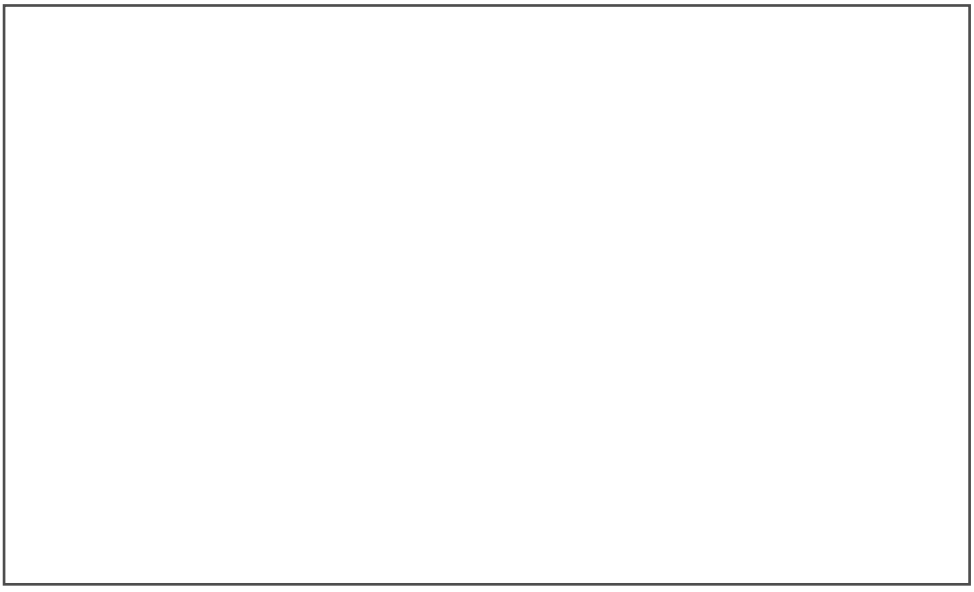


Figure 7.11: Firms collaborated with locally

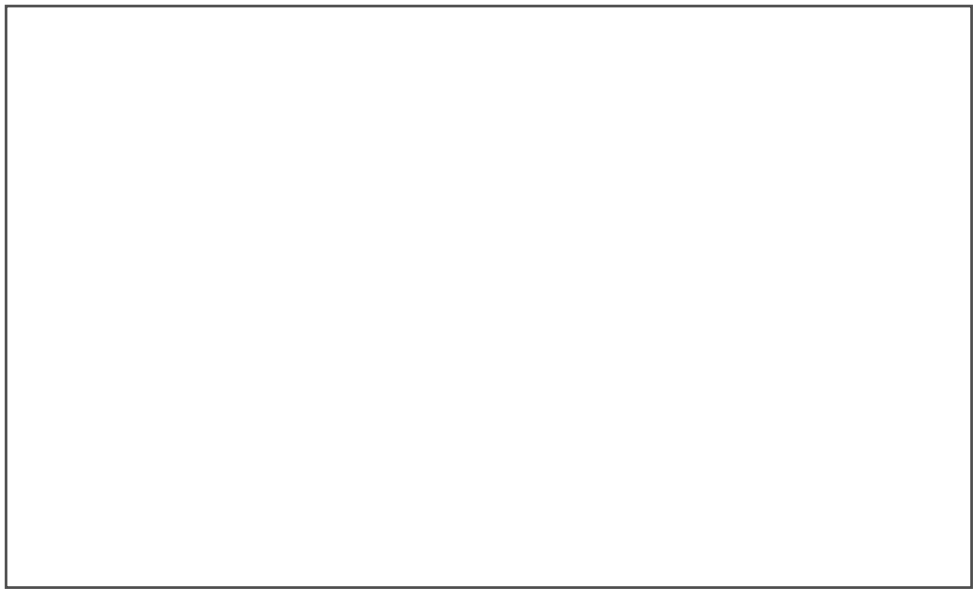


Figure 7.12: Firms collaborated with internationally

The firms were also asked to indicate the type of collaboration they were often involved in. The result, presented in figure 7.13 shows that most (79.1%) of the firms only combined expertise with other firms, while few (20.9%) of the firms combined both expertise and shared facilities. It appears that most of the architectural firms were self- sufficient, not needing to share facilities with other firms.

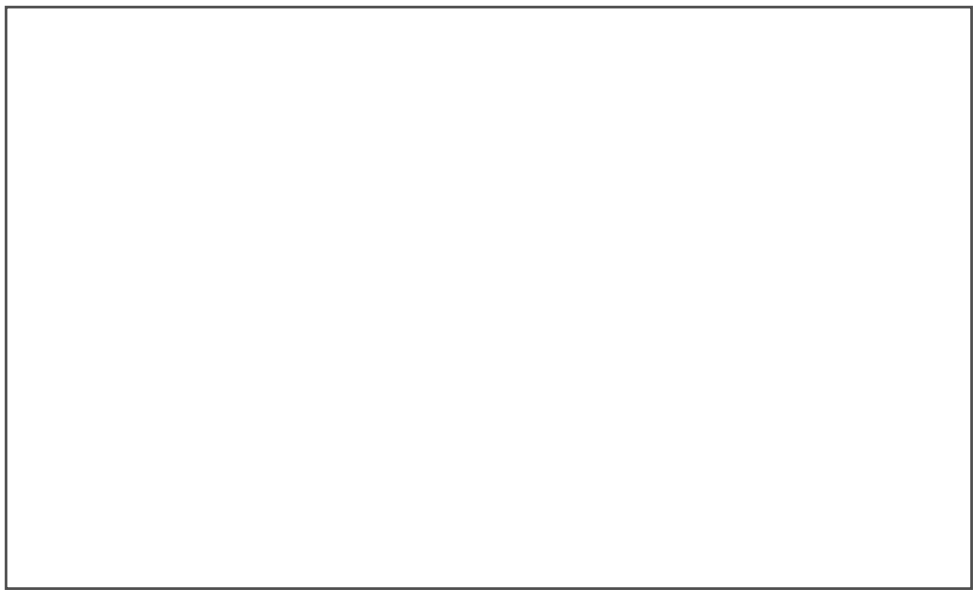


Figure 7.13: Type of collaboration firms were involved in

The study was interested in finding out the reasons for the collaboration of architectural firms. The respondents were asked to tick as many as applied. Table 7.1 shows that most of the firms (60%) had just one reason for collaborating with other firms. this sole reason was the nature of the project for most (42.9%) of the firms. The reason was however the size of the project for 17.1% of the firms, the requirement of the client for 12.9% of the firms, to take advantage of the expertise of the other firm for 8.6% of the firms and to take advantage of the experience of the other firm for 5.7% of the firms.

Table 7.1 also shows that almost half (11.4% out of 24.3%) of the firms that had two reasons for collaborating with other firms did so both because of the size of the project and to take advantage of the expertise of the other firm. The other firms that collaborated for two reasons including the size of the project did so also because of either the requirement of the client (2.9%) or the nature the project (2.9%). Few firms (5.7%) collaborated because of both the requirement of the client and the nature of the project. Even fewer firms (1.4%) collaborated to both take advantage of the expertise and the experience of the other firm. The firms that had three reasons for collaborating (4.3%) gave the size of the project, the requirement of the clients and the nature of the project as their reasons for collaborating, while the firms that had four reasons (1.4%) for collaborating specified all the reasons given except the requirement of the client.

The multiple response results in figure 7.14 shows that the size of the project was the most common reason 34.6% of the firms collaborated. Fewer firms, (32.1%) collaborated because of the nature of the project, while 23.5% of the firms collaborated because it was a requirement of the client. The result also shows that 19.8% of the firms collaborated to take advantage of the expertise of the other firm, and 8.6% collaborated to take advantage of the experience of the other firm.

Table 7.1: Reasons for collaboration

Reasons given for collaboration		Percent (%)	Cumulative Percent (%)
Four reason given for collaboration	The size of and nature of the project; and to take advantage of the experience and expertise of the other firms	1.4	1.4
Three reasons given for collaboration	The size and nature of the project; and the requirement of the client	4.3	5.7
Two reasons given for collaboration		24.3	30.0
	The size of the project and to take advantage of the expertise of the other firm	11.4	
	The size of the project and the requirement of the client	2.9	
	The size and the nature of the project	2.9	
	The requirement of the client and the nature of the project	5.7	
	To take advantage of the experience and expertise of the other firm	1.4	
One reason given for collaboration		70.0	100
	Size of the project	17.1	
	Requirement of the client	12.9	
	To take advantage of the expertise of the other firm	8.6	
	To take advantage of the experience of the other firm	5.7	
	The nature of the project	42.9	

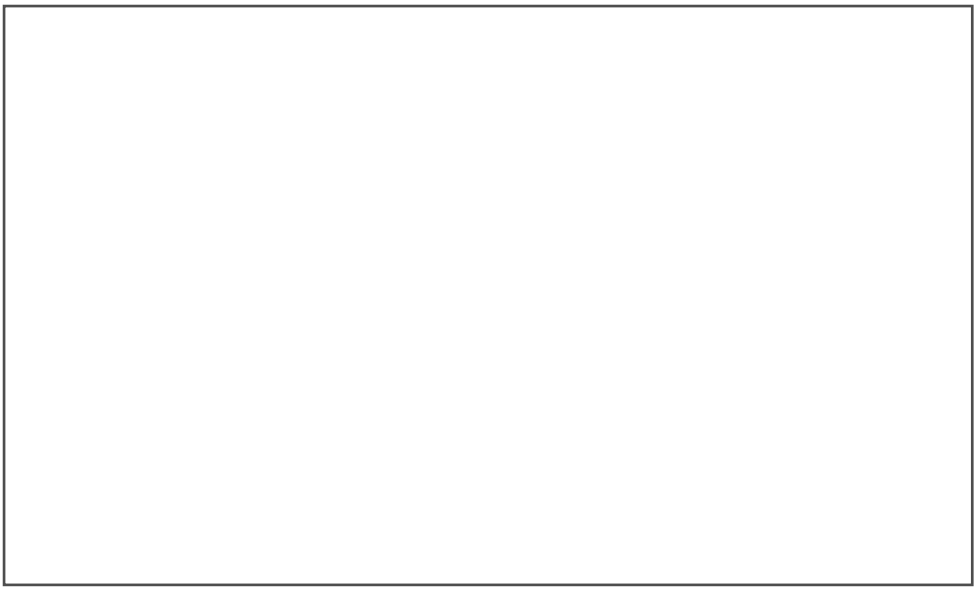


Figure 7.14: Reasons for collaboration- Multiple response results

It appears that most of the firms collaborated for just one reason, which was mostly the nature of the project. The results also suggest that although the nature of the project was the most common reason the most firms that had one reason for collaborating with other firms gave, the most usual reasons why most of the architectural firms collaborated was the size of the project. The next most common reason was the nature of the project, followed by the requirement of the client. The least adduced reason for the collaborations of the architectural firms was taking advantage of the experience of the other firm.

7.2.4 Long-term contract and Sub-commissions

It was of interest to the study to find out how the architectural firms sampled perpetuated themselves in high and low business conditions. The firms were thus asked if they had long-term contracts or subcontracts. Figure 7.15 shows that about half (52.5%) of firms had long-term contracts, 40.0% did not have any long-term contract and 7.5% were not sure. One of the interviewees also agreed that some firms were in long term contracts with certain clients *("…..for example, XYZ architectural firm is in contract with the GY company. For any GY branch, they have to be there. Some other firms are also like that").*

When asked to indicate the proportion of total commissions that sub-commissions constitute, 37.7% of the firms indicated that they did not have any sub-commissions at all (figure 7.16). The results also show that 31.15% of the firms had half of their commissions that were sub-commissions, 26.23% had a quarter of their commissions as sub-commissions, three quarter of the commissions of 3.28% of the firms were sub-commissions and all of the commissions of 1.64% of the firms were sub-commissions.

Figure 7.15: Proportion of firms with long-term contracts

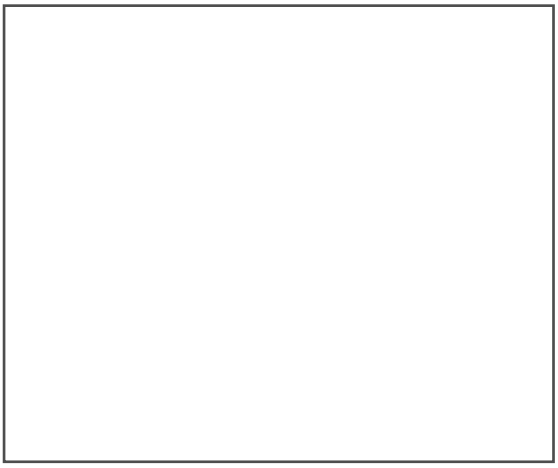


Figure 7.16: Proportion of projects that were sub-commissions

The results show that about half of the architectural firms sampled had long-term contracts. It thus appears that these firms are probably in contract with some of their clients as suggested by one of the interviewees. It seemed reasonable that the existence of long-term contracts would be related to the means of building clients, but the chi-square tests showed that none of the relationships was significant. Also, 25% or more of the projects of most (62.7%) of the firms were sub-contracts. This suggests that most of the firms were probably economically unbalanced, thus they tried to survive by accepting sub-contracts from firms that had the projects directly. It is also possible that the firms were too young or not large enough to carry out entire projects. These assumptions were tested using the chi-square tests. The relationship between the proportion of commissions that were sub-commissions and the perception of success of the firms, as well as the average sizes of the projects carried out in the last two years was insignificant. The proportions of sub-commissions were however, significantly related to the ages of the firms, and the ownership forms of the firms.

The chi-square test showed that the relationship between the proportions of commissions of a firm and the age of the firms was significant ($?^2 = 28.78$, df = 15, p ? 0.05). There were 35 missing cases due to pair-wise deletion of missing cases. It appears that younger firms had more sub-commissions than older firms (appendix 32)

The relationship between the proportion of projects of the firms that were sub-commissions and the ownership form of the firm was also significant ($?^2$ = 68.12, df = 16, p ? 0.05). The results (appendix 33) shows that the proportion of the commissions of most of the firms with the sole principal (19 out of 27), partnership (7 out of 13), and unlimited liability forms (5 out of 6) of ownership that were sub-commissions was a quarter and above. Very few (4 out of 12) of the firms with the limited liability forms of ownership however had sub-commissions.

The study also examined the relationship between the proportion of a firm's commissions that were sub-commissions and the proportion of clients that governments constituted. The chi-square test showed that the relationship was significant ($?^2$ = 69.87, df =16, p ? 0.05). The result in appendix 34 shows that with no government client, most firms (15 out of 18) had sub-commissions. However, it appears that with some government clients about half of the firms had sub-commission, while less than half of the firms that had majority of their clients being governments had sub-commissions. It is surprising however that the only firm with only government clients indicated that all of its commissions were sub-commissions.

7.2.5 Architectural Firms and Building Procurement Methods

The firms were asked to indicate the procurement methods they were mostly involved in, they were to tick as many as applied. The result showed that the most common procurement method that firms were involved in was the design and build procurement method which (70.2%) of the firms used (figure 7.17). The next most common is was the project management method of procurement, indicated by 34.5% of the firms. Only 28.6% of the firms participated in traditional procurement method of designing and supervising projects. The results also show that 16.7% of the firms participated in the design and manage procurement method, and 8.3% the private-finance-initiative procurement method.

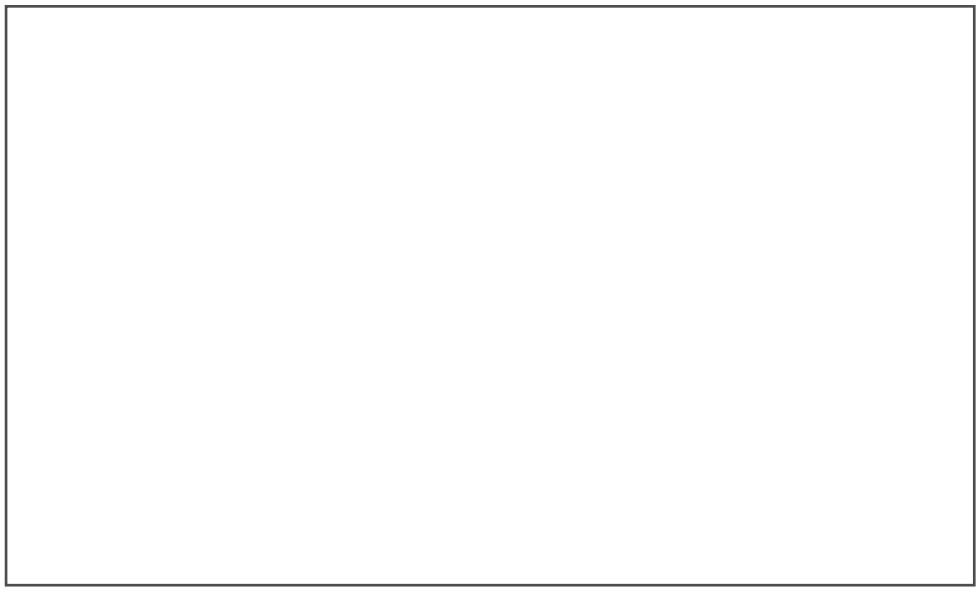


Figure 7.17: Procurement methods used by firms

The result reveals that most of the firms participated in the design and build procurement method. The participants in the interviews corroborate this point. The interviewees gave various

reasons for this trend. One of the participants suggested that "*…knowing that people do not respect intellectual property (they can pay for sand and cement but they cannot pay for 'sheets of paper'), some architects tuck the cost of design into the cost of the building, instead of charging for the design. Therefore, if the architect charges you N1m, he is really going to charge you N10m at the end of the day. He is going to make the remaining from the construction of the building. They (the architects) will collect the money on different items from contracting to subcontract."* Another interviewee however gave a different reason for participating in design and build, noting that *"….occasionally, you have projects that especially private job, (housing and all that) where the clients often want us to supervise and build the house. So we do it"* Yet another interviewee suggested that some firms participated in design and build to actualize difficult designs *("It has happened like than on a few occasions that we design and build. When people were arguing that they project could not be built, we just build it.…")*

It is surprising that more firms engaged in project management, than the traditional method of designing and supervising the building. More surprising is the fact that there were a number of firms that indicated that they participated in design and manage; and private finance initiative procurement methods, which are relatively new. These suggest that architectural firms in Nigeria explored more avenues of procuring services other than the traditional method.

The researcher perceived that the procurement method used by architectural firms might be related to the proportion of different types of projects undertaken by the firms. The chi-square tests carried out revealed that involvement of firms in participation of the firms in the traditional as well as the design and build procurement methods were only related to the proportion that residential projects represent in the firm's portfolio. In addition, participation of the firms in project management procurement method was related to the proportion of entertainment or cultural projects that a firm had in its portfolio. These are all subsequently discussed.

The relationship between participation on projects that used the design and build procurement method and the proportion of projects that residential projects represent was significant ($?^2$ = 7.9, df = 3, p ? 0.05). The result, as shown in appendix 35 shows most of the firms that participated in the design and build procurement method had many residential projects, while few of the firms that did not participate in design and build had as many residential projects.

The chi-square test also shows that the relationship between participation in the traditional method of procurement (architect designing and supervising buildings) and the proportion of projects of the firm that residential projects represent was significant ($?^2$ = 13.59, df = 3, p ? 0.05). The result in appendix 36 shows most of the firms that did not engage in the traditional method of procurement had more residential projects than those that engaged in the traditional method of procurement.

The test of the relationship between participation in project management procurement method and the proportion of the architectural firm's projects that were cultural or entertainment projects revealed that the relationship between the two variables was significant ($?^2$ = 6.06, df = 2, p ? 0.05). The result in appendix 37 shows that most of the firms that did not engaged in project management carried out cultural and entertainment projects, while almost half of the firms that participated in project management did not have cultural or entertainment projects in their portfolios. This suggests cultural or entertainment projects are not necessarily carried out using the project management procurement method.

The study also examined participation of firms in procurement methods in relation to the age of the firm. The chi-square test revealed that the design and build and the design and manage procurement methods were related to the age of the firms and the results are subsequently discussed.

The chi-square test result shows that the relationship between participation on projects that used the design and build procurement method and the age of the firm was significant (?^{2} = 19.06, df = 5, p ? 0.05). The result (appendix 38) show that the most (33 out of 52) of the firms that participated in design and build were 15 years and below in existence, while most (15 out of 24) of the firms that did not participated in design and build were above 15 years in existence. This reason for this could probably be due to what one of the participants in the interviews suggested that some Principals might be frustrated with the problems of managing artisans as could be inferred from the statement of one of the interviewees that *"I no longer go into design and build because I cannot keep chasing workmen. one has to chase electrician, chase plumber, and chase the painter when they do not come. They will say that they will finish in one week, but they will disappear. They will then switch off their phones, what do you tell your client?"*

The California study, conducted by CBAE (1997) found that as the size of the firm increased, the services delivery method changed from design-bid-build, to construction/project management. The chi-square test was carried out to test the relationship between the size of the firms and participation in design and build as well as project and construction management procurement methods. The tests revealed that the relationships between the size of the architectural firms in Nigeria (either in terms of the average size of projects carried out by the firms of the total number of staff), and participation in design and build; project management and construction management were not significant.

7.2.6 Ranking of strategic principles of Architectural Firms

The architectural firms strategies were asked to rank listed strategic principles adapted from Pearson et al. (2003). The result in table 7.2 shows that satisfying the needs of clients ranked first with a mean score of 4.89. Ranked next was efficiency in architectural services, with a mean score of 4.69 followed by generating new design ideas and being creative, which ranked third with a mean score of 4.63. Service to society ranked fourth with a mean score of 4.39, followed by making money, which ranked fifth with a mean score of 4.23 and keeping the firm busy always, which ranked sixth with a mean score of 4.19. Being known by key players in the building industry also ranked seventh with a mean score of 4.18, having a broad range of clientele ranked eighth, with a mean score of 4.18, and with a mean score of 4.11, being known in important clientele circle ranked ninth. Ranking last was being known for expertise in particular building types, with a mean score of 3.84.

Table 7.2: Ranking of strategic principles of architectural firms

Strategic Actions	Mean score	Rank
Satisfying the needs of clients	4.89	1
To be known for efficient architectural services	4.69	2
Generating new design ideas and being creative	4.63	3
Service to society/ enhancing the environment by design	4.39	4
Making money	4.22	5
Keeping the firm busy always	4.19	6
To be known by key players in the building industry	4.18	7

Having a broad range of clientele	4.18	8
To be known in important clientele circles	4.11	9
To be known for expertise in particular building types	3.84	10

All the architectural firms sampled seemed to agree that satisfying the need of the clients was the most important strategic principle. This was also corroborated by the results of the interviews as most of the participants suggested that customer relations were very vital to the practice of the profession. Extolling the virtues of customer relations, one of the interviewees asserted that *"we are very strong in customer service. I actually like my clients, so I cannot hide it. The ones I do not like, I do not bother to work with. Once you like your clients, it is not a problem getting involved. I noticed that I have never lost a client. I have never had a client working with us and working with someone else."* Another participant in the interviews noted that the relationship the firm had with its clients determines whether they do business with the firm again or not stating, *"it is your relationship (not the architecture) that will bring clients back. If they find you amiable, gentle, with no disappointment and a good product….."*

It appears that despite the fact that innovation ranked first on the culture of architectural firms, it appeared lower as a strategic principle of the architectural firms in gaining competitive edge. It is however noteworthy that making money ranked higher than keeping the firm busy, being known by key players in the industry, having a broad number of clientele or being known in important clientele circles. It thus appears that the architectural firms sampled would rather be known for making money than just being busy or being known. Ranking last is being known for expertise in particular building types. This probably buttressed the findings of the interviews earlier cited that the architectural firms sampled did not seek to differentiate themselves by focusing on any particular building type (section 7.1.3).

7.2.7 Major strategic Principles of Architectural Firms

The study examined the major strategic principles of architectural firms to determine which factors best described the strategic principles of architectural firms. A principal component analysis was carried out using the variable principal normalization method, the criteria for convergence set at 0.00001. The factor analysis of the cultural variables shows that three (3) factors accounted for 74.83% of the variance in the result (appendix 39). The component loadings in appendix 39 reveal the variables that the factors represented. Table 7.3 shows that the first factor, which accounted for 36.50% of the variance in the data, represented being known by key players in the building industry (0.94), being known for expertise in particular building types (0.76), and being known for efficient architectural services (0.93). Other variables that loaded highly on first factor were being known in important client circles (0.72) and service to society or enhancing the environment by design (0.80). The second factor (accounting for 23.47% of the variance) loaded highly having a broad range of clientele (0.92) and keeping the firm busy always (0.90), while the third factor (accounting for 14.86% of the variance) loaded highly on satisfying the needs of the client (0.85) and generating new ideas and being creative.

The results show that the strategic principles of architectural firms could be described using three factors. These were desire to be known, activity consciousness and variety of clientele and client driven innovation.

Table 7.3: Factors of Strategic Principles of Architectural Firms

Factor Description	Variables Represented	Factor Scores
Factor 1- Desire to be known (36.50%)	To be known in important clientele circles	0.72
	To be known for expertise in particular building types	0.76
	To be known for efficient architectural services	0.93
	To be known by key players in the building industry	0.94
	Service to society/ enhancing the environment by design	0.80
Factor 2- Activity Consciousness and variety of clientele (23.47%)	Keeping the firm busy always	0.90
	Having a broad range of clientele	0.92
Factor 3- Client Driven Innovation (14.86%)	Satisfying the needs of clients	0.85
	Generating new design ideas and being creative	0.82

7.3 Staffing strategies of firms

The study examined the criteria that the sampled architectural firms used in staff their firms with architects and the means of retaining competent staff.

7.3.1 Criteria for Selection of Staff (architects)

Respondents were asked to rank the importance of certain criteria in the selection of staff. Design competence was ranked first as in table 7.4, with a mean score of 4.55. Ranked second was AUTOCAD/ Information Technology literacy with a mean score of 4.33 followed by knowledge of construction, with a mean score of 4.13 and educational qualification which ranked fourth with a mean score of 4.10. Ranking fifth was interpersonal and managerial skill with a mean score of 3.72 with personality ranking next with means scores of 3.70. The least ranked by the sampled firms was gender, with a mean score of 2.32.

Table 7.4: Ranking of criteria for selection of staff (architects)

Criteria for Selection of Staff	Mean score	Ranking
Design competence	4.55	1
AUTOCAD/ IT literacy	4.33	2
Knowledge of construction	4.13	3
Educational qualification	4.10	4

Interpersonal/ Managerial skills	3.72	5
Personality	3.70	6
Sex (gender)	2.32	7

It is surprising to note that design competence, AUTOCAD and Information Technology literacy and knowledge of construction were ranked higher than educational qualification in the selection of the staff of architectural firms. It appears that technical competency was more important to the firms than the formal degree earned by their staff. Interpersonal skill/ managerial skill and personality did not however appear as important as they could be seen towards the end of the table. The gender of the staff was the least important to the firms. Interview participants suggested that various other criteria that were used depend on the goal of the firm. While one of the participants in the interviews suggested capacity for hard work *("The person must be able to work with me; it's not just the qualifications: the person must be able to work"*), another participant ranked teachability as a very important criterion in the selection of the staff for her firm, asserting that *"…architecture is very difficult to teach. You cannot really teach design, you can teach climatology and all that……... That means they have to learn on the job. So I have moved from hiring people who think they have a terminal degree because they usually come knowing nothing. They think they know, but they do not, so that makes then very difficult to teach. Now, I just hire those that I can train, so it makes it easy for me. Early enough you begin to learn our culture, how detailed we are."* To another of the interviewees however, presentation skill was an important criterion in the selection of staff because *"… I have this flair for presentation."*

Symes et al. (1996) suggested that the criteria for hiring new staff vary with the size of the firm. This assumption was tested using the chi-square test. The test revealed that the relationship between the importance of gender in the selection of staff and the size of the firms in terms of the total number of staff significant ($?^2$ = 38.02, df = 24, p ? 0.05). Appendix 40 shows that more than half of the firms where gender was not an important criterion in the selection of the staff (32 out of 59 firms) had between 1 and 10 staff. Most of the firms where gender was fairly important; important or very important (15 out of 21 firms); had more than 10 staff in their employment.

Gutman (1988) also suggested that firms with more commercial orientation were more likely to have gifted designers on their staff list. The chi-square test however shows that the relationship between that culture of profit orientation and the importance of design competence in the selection of staff was not significant.

7.3.2 Means of Retaining Competent Staff

The firms were asked how they retained staff. They were to select as many as applied. Figure 7.18 shows that the most common means of retaining competent staff, which was used by more than half (58.8%) of the architectural firms sampled was improved salary, followed by rewards and recognition used by 47.5% of the firms. Few firms used performance bonus or staff development (36.3% and 21.3%). The least common however were leadership development (8.8% of the firms); retention bonus (6.3% of the firms) and other means like the 13th month salary and exposure of concerned staff to practice (used by only 2.5% of the firms).

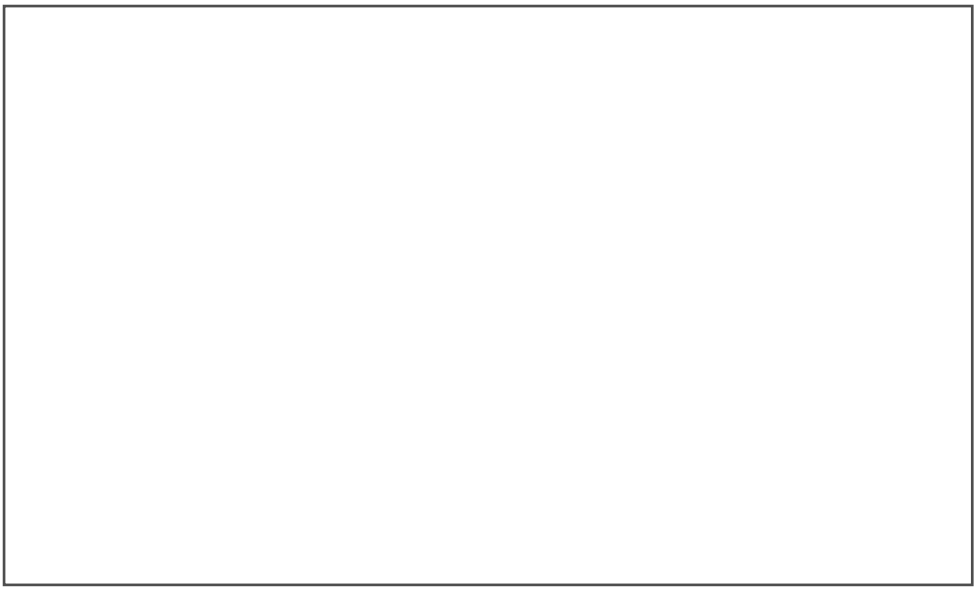


Figure 7.18: Means of retaining staff

It appears that the most common strategy was to compensate competent staff rather than give them a stake in the firm through leadership development or retention bonus. The researcher was interested in finding out if the means an architectural firm adopted in retaining competent staff was related to the ownership form of the firm. The chi-square tests carried out indicated that only the retention of competent staff through improved salary and the retention of competent staff through rewards and recognitions were related to the ownership form of the firm

The chi-square test revealed that the relationship between the retention of staff through improved salary and the ownership form of the firm was significant (?2 = 11.39, df = 4, p ? 0.05). Appendix 41 shows that most of the architectural firms with the sole principal (27 out of 40), partnership (11 out of (17) and the unlimited liability company (5 out of 7) ownership forms adopted improved salary as a way of retaining competent staff. Most of the firms with the unlimited liability company (11 out of 14) ownership form did not adopt improved salary.

The relationship between the retention of staff through awards and recognition and the ownership form of the firm was also significant (?2 = 13.83, df = 4, p ? 0.05). Appendix 42 shows that firms that are most of the firms with the limited liability company (11 out of 14), partnership (10 out of 17), and unlimited liability company (4 out of 7) ownership forms retained competent staff by the use of rewards and recognition, while most (29 out of 40) of the sole Principal firms did not.

It also appeared reasonable that the means of retaining competent staff would be related to the age of the firms. Chi-square test revealed that the relationship between retention of staff through leadership development and the age of the firm was significant ($?^2$ = 16.20, df = 5, p ? 0.05). The bar chart in appendix 43 show that almost all the firms below 20 years (53 out of 54) did not get involved in leadership development as means retaining competent staff. It however appears that as the firms grew above 20 years, the proportion of the firms that adopted leadership development as a means of retaining competent staff increased. In fact, almost half of the firms above 25 years (4 out of 10) engaged in leadership development as means of retaining competent staff.

The study also examined the relationships between the means of retaining competent staff and the cultural values of the firms. The results show that retention of staff though rewards and

recognitions were related to the cultural values of innovation; teamwork and staff development; new ideas and technology being the determinants of the firm's strategy and staff being driven to achieve results. Retention of staff through improved salary was related to the culture of staff being driven to achieve result while retention of staff through leadership development was related to the culture of staff being driven to achieve results and new ideas and technology as the determinants of the firm's strategy.

The chi-square tests carried out to test the relationships between the retention of staff through rewards and recognitions and the culture of innovation ($?^2$ = 11.16, df = 3, p ? 0.05), and the cultural value of teamwork and staff development ($?^2$ = 13.73, df = 3, p ? 0.05) were significantly related. The cultural values of employees being driven to achieve result ($?^2$ = 12.44, df = 3, p ? 0.05), and the cultural value of new ideas and technology as the most important determinants of the firm's strategy ($?^2$ = 14.10, df = 4, p ? 0.05) were also significantly related to retention of staff through rewards and recognitions. The results in appendices 44 to 47 show that most of the firms that retained competent staff by rewards and recognitions also rated innovation; teamwork and staff development; the driving of employees to achieve result; and new ideas and technology as determinants of the strategies of the firms high.

The chi-square test of the relationship between the retention of competent staff through improved salary and the cultural value of employees being driven to achieve result also shows that the relationship was significant ($?^2$ = 9.10, df = 3, p ? 0.05). The result in appendix 48 shows that most of the firms (44 out of 70) that adopted improved salaries in retaining competent staff rated the culture of driving employees to achieve results high.

The study examined the relationship between the means of retaining competent staff the description of the principal. The chi-square tests carried out shows that only the retention of competent staff through rewards and recognitions was significantly related to the description of the Principal ($?^2$ = 8.26, df = 3, p ? 0.05). The result in appendix 49 shows that most of the firms (4 out of 6) that were owned by mentors, and more than half (16 out of 31) of the firms owned by visionary and innovative leaders adopted rewards and recognitions as means of retaining competent staff. All of the firms (8) that had Principals who described themselves as efficient managers and most of the firms (18 out of 34) who were productivity-oriented achievers did not adopt rewards and recognitions.

Gutman, (1988) suggested that large firms provide opportunities for upward mobility of architects. The relationship between the size of the firms (in terms of the total number of architects) and the retention of competent staff by leadership development was thus tested using the chi-square test. The relationship was however found to be insignificant.

7.3.3 Staffing Mode of Architectural Firms

The ways the architectural firms sampled staffed their firms were examined. The result, presented in figure 7.19 shows that most (63.1%) of the firms held a small core of committed staff and employed additional staff as required. Few firms (17.86%) employed temporary staff for each project, and a close percentage (15.48%) of the firms employed all required staff. Very few (3.57%) firms indicated that they adopted other modes such as holding a large core of committed staff, or determining mode by the general office workload.

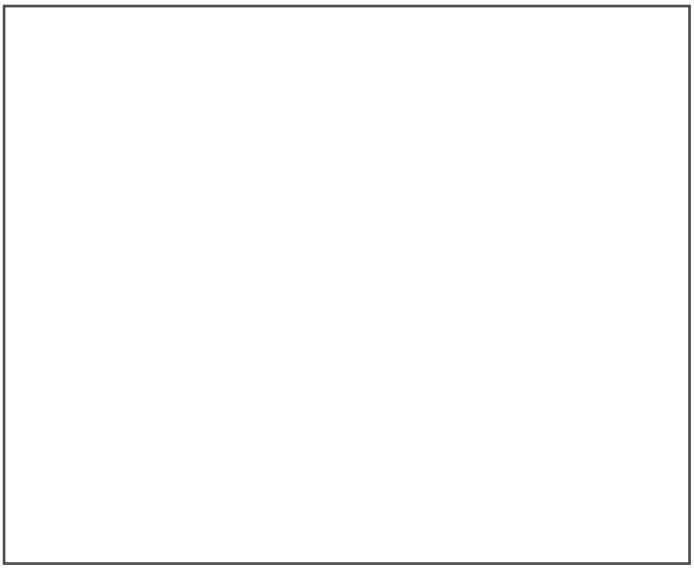


Figure 7.19: Staffing mode of architectural firm

The result shows that most of the architectural firms held a small core of committed staff, employing additional staff as required; or employed temporary staff for each project. It seemed reasonable that the mode of staffing adopted by architectural firms would be related to the age of the firm, but the chi-square tests revealed that the relationship was not significant. The relationship between the staffing mode and the highest qualification the principal was however significant ($?^2 = 27.35$, df = 12, p ? 0.05). Appendix 50 shows that that most of the Principals with the Higher National Diploma (HND) and other degrees such as Master of Architecture (MArch) and the Master in Architectural Structures as the highest degree employed temporary staff for each project. Most of the Principals with the BSc (2 out of 3), MSc (21 out of 30) and the BArch (25 out of 35) degrees, on the other hand, held a small core of committed staff and employing additional staff for projects as required. Principals with the MSc and the BArch degrees owned the few firms that employed all the staff required.

7.4 Types of architectural firms based on the strategies of the firms

The study examined the different types of architectural firms based on the strategies used in architectural firms. The types based on the business strategies, competitive strategies and staffing strategies were examined. They are discussed below.

7.4.1 Types Firms Based on Business Strategies of the Architectural firms

The study examined the types of architectural firms based on the business strategies that firms had. The 24 items of business strategies investigated (appendix 51) were subjected to the two-step cluster analysis to determine natural groupings of the firms, using the log-likelihood distances between groups. The confidence level was set at 95% and variables of importance to the formation of clusters were determined using the chi-square test. The cluster distribution pattern is presented in figure 7.20. A 4 clusters solution was obtained. The pie chart shows that, of the 92 cases, 33(35.87%) firms were assigned to the first cluster, 30(32.61%) firms to the second cluster, 19 (20.65%) firms to the third cluster, and 10 (10.87%) firms to the fourth.

The discriminant analysis classification in appendix 53 shows that 81.5% of the firms were

determined to be correctly classified through cluster analysis. This suggests that the four cluster solution was internally valid, thus supporting the resulting taxonomy of architectural firms based on their business strategy.

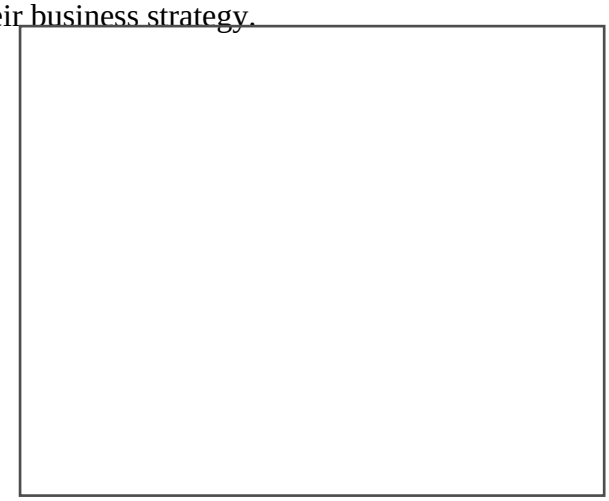


Figure 7.20: Cluster distribution of architectural firms based on business strategies

The 33 firms in the first cluster grouped based on the proportion of hospitality projects and the proportion of other projects such as multiuse buildings (figure 7.21). The firms in this cluster had few hospitality projects but no multiuse project. Since the Katsanis and Katsanis, (2001) classification identified strategies based on reasons for mix of project, a line graph was constructed to show the most adduced reasons for project types by clusters (figure 7.25). The most adduced reason for the mix of projects of these firms was that the projects were more readily available. Considering the fact that hospitality projects were high profile projects, the firms must have just taken advantage of the prevailing conditions to build their portfolios. These firms could be described as the harvester firms based on the business strategies of the firms.

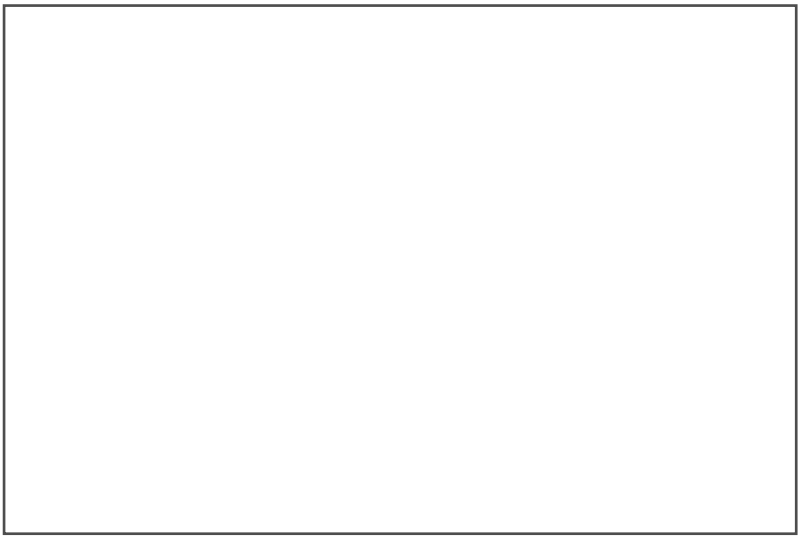


Figure 7.21: Attributes of firms in the first cluster based on business strategies

The variables responsible for the formation of the second cluster were presented in figure 7.22. These attributes were the proportion of educational projects and the proportions of hospitality projects. The 30 firms in the second cluster had few or many educational and

hospitality projects. Figure 7.25 also shows that most of the firms in this cluster were positioned to source the projects they had in their portfolios. These firms could thus be described as the selective firms based on the business strategies of the firms.

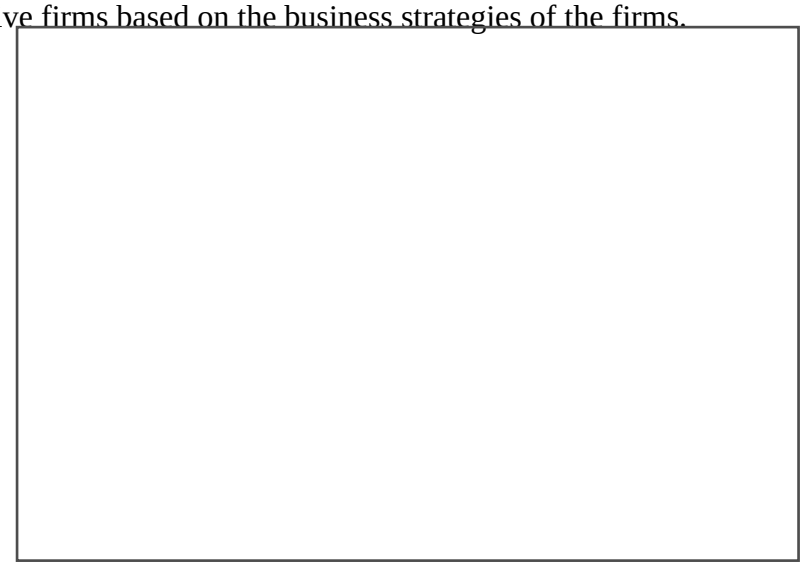


Figure 7.22: Attributes of firms in the second cluster based on business strategies

Four variables were responsible for the formation of the third cluster (figure 7.23). The attributes were the proportions of hospitality projects and healthcare projects; the proportion of projects through family and friends and the proportion of civic buildings. The 19 firms in this cluster had no hospitality, healthcare or civic buildings. The firms however obtained some or many projects through family and friends. Most of the firms in this cluster indicated that they had no specific reason for the mix of projects in their portfolios (figure 7.25). It appears that these firms probably did not strategize in any way to obtain projects. It is also interesting to note that the firm obtained some to many of their projects through family and friend. It appears that these firms were merely trying to survive and probably had no expertise for high profile projects, resulting in the absence of hospitality, healthcare and civic buildings projects. These firms could be said to sustenance driven firms.

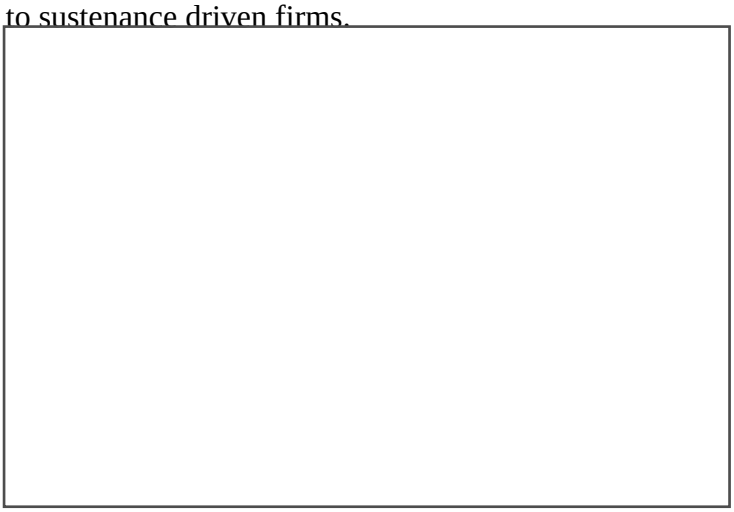


Figure 7.23: Attributes of firms in the third cluster based on business strategies

The seven attributes that were responsible for the formation of the fourth cluster included the proportions of religious buildings, educational buildings, transportation projects, commercial buildings, civic buildings and multiuse buildings (figure 7.24). The proportions of

projects obtained through old clients also caused the clustering of the firms. The 10 firms in the fourth cluster had few religious, educational, commercial, civic, multiuse and transportation projects. They had sourced some or many of their projects through old clients. Figure 7.25 also shows that most of the firms in the fourth cluster either were positioned for, or handled specialized projects. It appears that the firms in this cluster handled high profile and technically complex projects by being positioned for them. Based on their business strategies, the firms in this cluster could be described as prestigious firms.

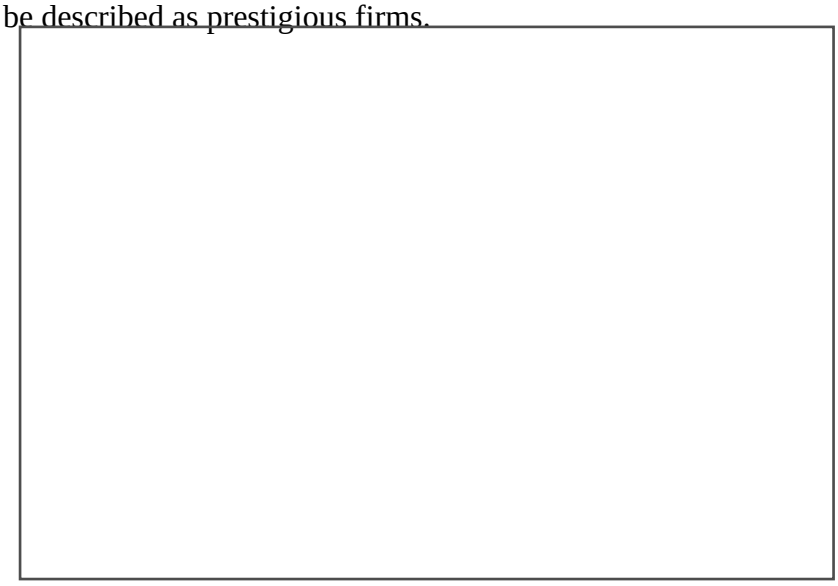


Figure 7.24: Attributes of firms in the fourth cluster based on business strategies

Katsanis and Katsanis (2001) identified four types of business strategies used in firms in the construction industry. These were prestige, selective or specialization, sustenance and quick harvester. All the types of firms found in this study, based on the business strategies of the firms had characteristics similar to the corresponding types proposed by Katsanis and Katsanis (2001).

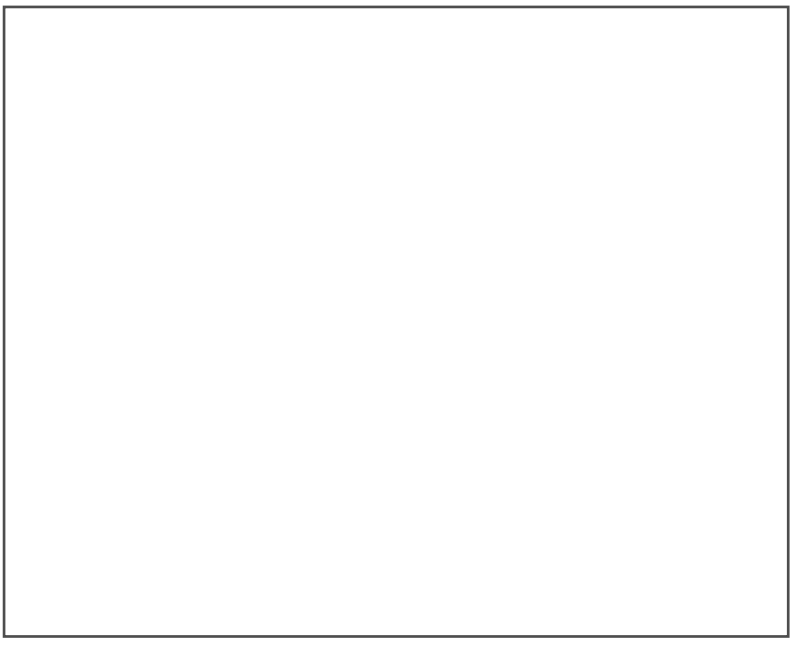


Figure 7.25: Firms by cluster numbers and the reasons for mix of projects in the firms' portfolios.

7.4.2 Types of Architectural Firms Based on the Competitive Strategies of the Firms

The types of architectural firms based on the competitive strategies adopted by the firms were examined. This study carried out a two-step cluster analysis of the 32 variables used in investigating competitive strategy (appendix 53) using the log-likelihood distances between groups. The confidence level was set at 95% and variables of importance to the formation of clusters were determined using the chi-square test. The cluster distribution pattern is presented in figure 7.26. A 6 clusters solution was obtained. The pie chart shows that, of the 92 cases, 38(41.3%) firms were assigned to the first cluster, 16(17.39%) firms to the second cluster, 15 (16.3%) firms to the third cluster, 9(9.78%) firms to the fourth cluster, 4(4.35%) to the fifth cluster and 10 firms (10.87%) to the sixth cluster.

Discriminant analysis was carried out to validate the results of cluster analysis. The discriminant analysis classification (appendix 54) showed that 82.6% of the cluster analysis taxonomy was correctly classified. This provides validity to the cluster analysis results.

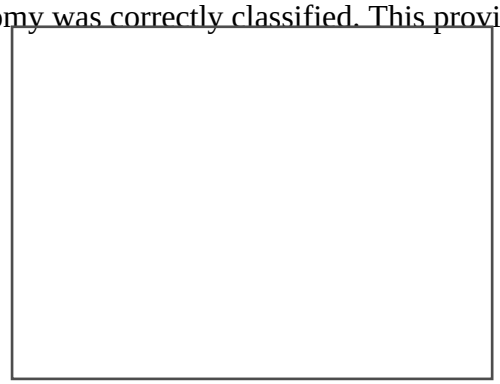


Figure 7.26: Cluster distribution of Architectural firms based on Competitive Strategies.

The only variable that was responsible for the formation of the first was the number of branches in Nigeria (figure 7.27). All the 38 firms in the first clusters had no branch in Nigeria. These firms may be described as the locally focused firms based on the competitive strategies of the firms.

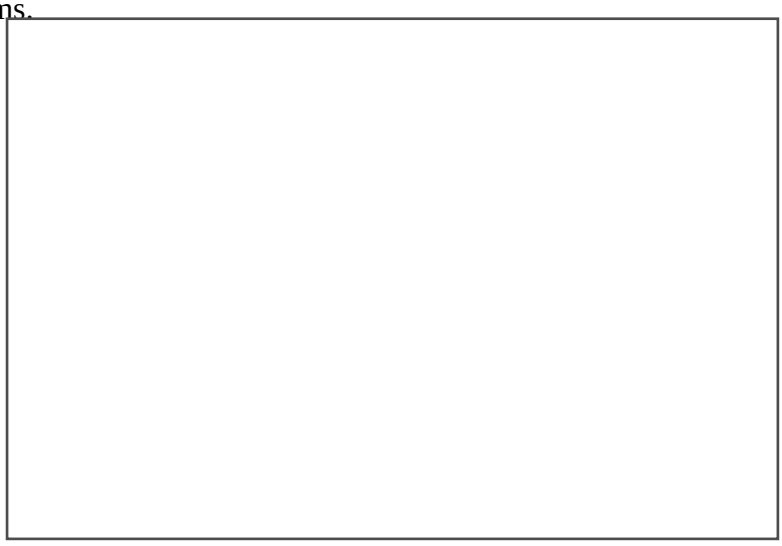


Figure 7.27: Attributes of firms in the first cluster.

Two variables were responsible for the formation of the second cluster (figure 7.28). These variables were the firms collaborated with internationally, and participation in the traditional method of project procurement. The 16 firms in the second cluster collaborated with architectural and other professional firms internationally. They also participated in the traditional procurement method of architect designing and supervising buildings only. These firms can be described as conventional global affiliates

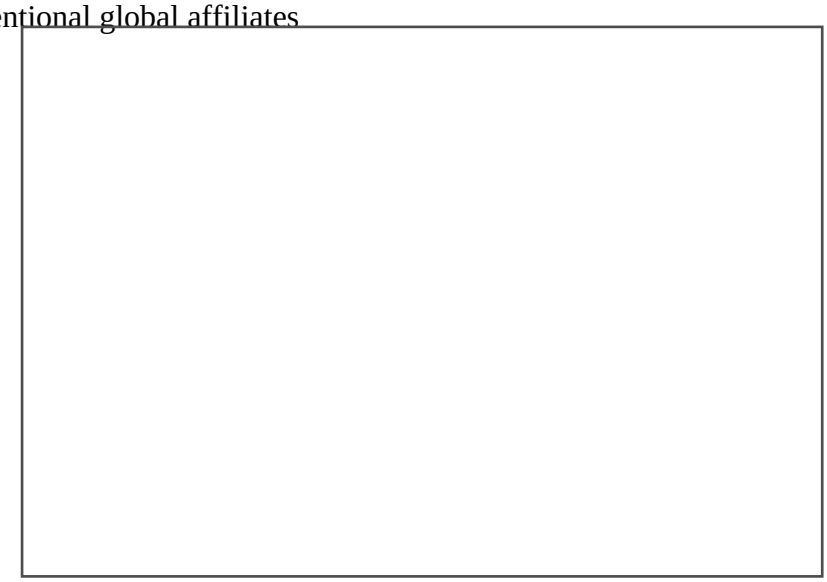


Figure 7.28: Attributes of firms in the second cluster.

Figure 7.29 show that the firms in the third cluster grouped together based on their number of branches in Nigeria. The 15 firms in this cluster had between 1 and 5 branches in Nigeria. It appears that firms in this cluster spread their branches to other parts of the country to capture the markets. These firms can be said to be mushroom firms based on the competitive strategies of the firms.

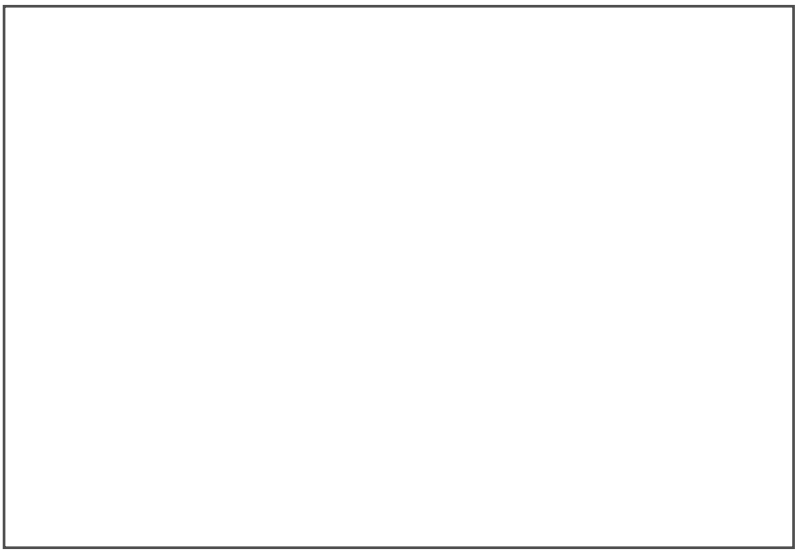


Figure 7.29: Attributes of firms in the third cluster.

Figure 7.30 shows that twelve variables were responsible for the formation of the fourth cluster of firms based on their competitive strategies. The variables include participation in design and build, design and manage, and other procurement methods. The variables also include

collaboration because of the requirements of the clients, collaborations because of the nature of the projects and collaborations to take advantage of the experience of the other firm. Other variables include existence of long-term contracts, strategic principles of being known for efficient architectural services, being known by key players in the building industry, having a broad range of clientele, generating new ideas and being creative, and being known in important clientele circles. Although the 9 firms in the fourth cluster participated in design and build procurement methods, they did not participate in design and manage or other procurement methods. When the firms collaborated with other firms locally, it was not because of the requirements of the clients, the nature of the project, or to take advantage of the experience of the other firm. The firms did not have any long-term contracts. They however sought to have a broad range of clientele and to be known in important clientele circles and by key players in the building industry for efficient architectural services. The firms also sought to be creative, generating new ideas. It appears that the firms in this cluster would rather have a broad range of clientele and distinguish themselves by creativity and efficiency. These firms could be referred to as competency driven firms.

Figure 7.30: Attributes of firms in the fourth cluster.

The firms in the fifth cluster grouped based on four variables (figure 7.31). The variables were the firms collaborated with locally, and collaborations locally because of the requirements of the clients, the size of the projects and taking advantage of the experience of the other firm. The 4 firms in this cluster did not collaborate with any firm locally because of the requirements of the clients, the size of the project or to take advantage of the experience of the other firm. The firms did seem to seek for collaborations as they appear to the experience to meet the requirements of the clients for any size of project. These firms could thus be described as experience driven firms based on their competitive strategies.

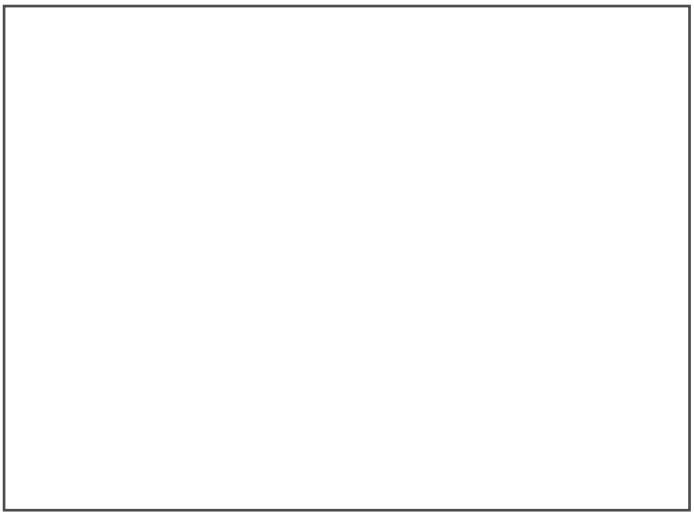


Figure 7.31: Attributes of firms in the fifth cluster.

The variables that were responsible for the formation of the sixth cluster were firms collaborated with locally and collaborations because of the size and the nature of the project, and to take advantage of the expertise of the other firm (figure 7.32). The 10 firms in the sixth cluster did not collaborate locally because of the size or nature of the project or to take advantage of the expertise of the other firm. It appears that the firms in this cluster had the expertise to hand projects irrespective of their nature or size. These firms could be said to be expertise driven firms based on their competitive strategies.

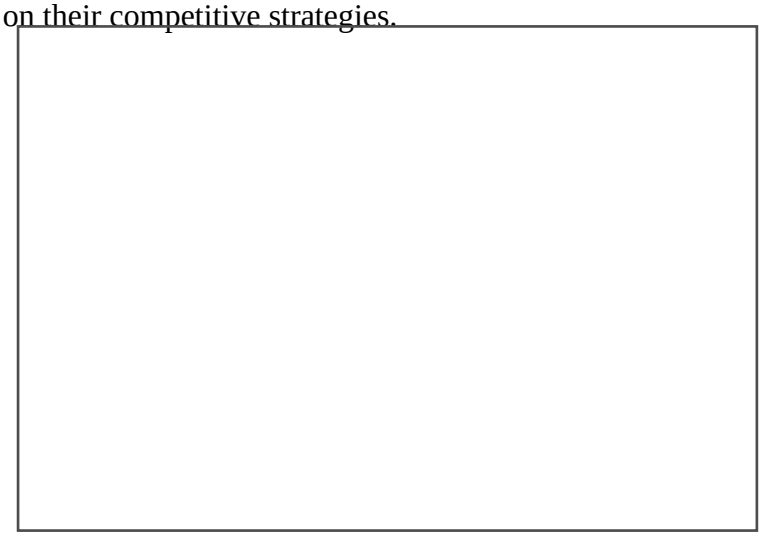


Figure 7.32: Attributes of firms in the sixth cluster.

7.4.3 Types of Architectural Firms based on the Staffing Strategies

This study also carried out a two-step cluster analysis of the 16 variables used in investigating staffing strategies of architectural firms (appendix 55), using the log-likelihood distances between groups. The confidence level was set at 95% and variables of importance to the formation of clusters were determined using the chi-square test. A 3 clusters solution was obtained (figure 7.33). The pie chart shows that, of the 92 cases, 49(53.26%) firms were assigned to the first cluster, 33(35.87%) firms to the second cluster, and 10(10.87%) firms to the third cluster.

Discriminant analysis also provides validity to the solution of the cluster analysis as 75% of the firms were correctly classified using the discriminant function (appendix 56). This suggests

that the 3-cluster solution was internally valid.

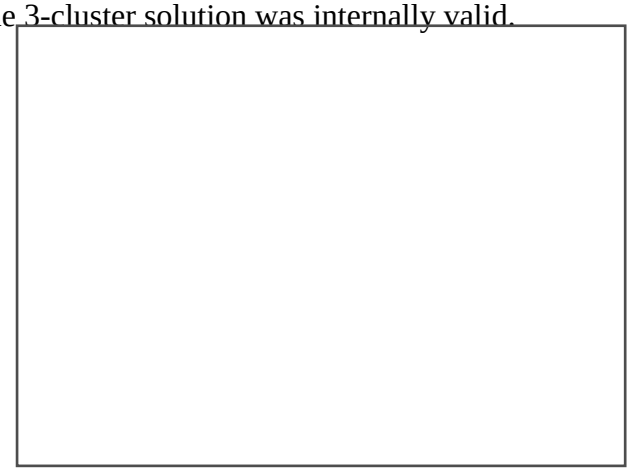


Figure 7.33: Cluster distributions of firms based on staffing strategies

The two variables that were responsible for the formation of the first cluster were the importance of educational qualification in the selection of staff and the way of organizing staff to carry out each project (figure 7.34). Educational qualification was an important criterion in the selection of the staff of the firms in the first cluster. The 49 firms in the cluster also held a small core of committed staff, employing additional staff for projects as required. These firms can be described as official firms based on their staffing strategies.

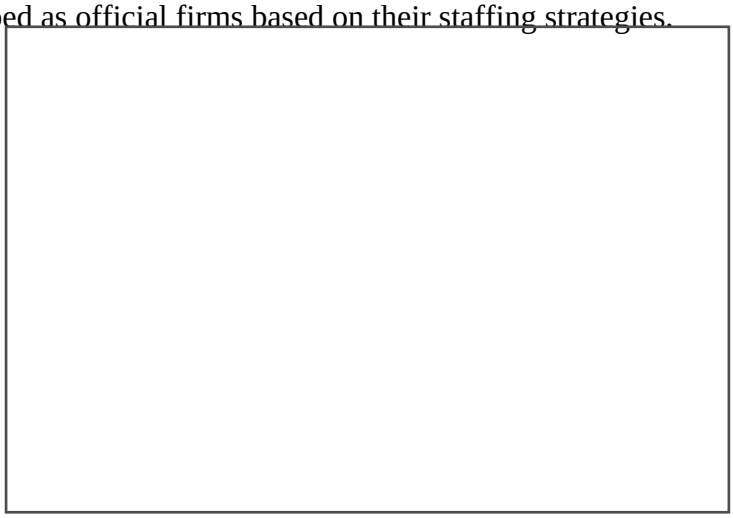


Figure 7.34: Attributes of firms in the first cluster based on staffing strategies

The firms in the second cluster grouped based on four variables of staffing strategy of the architectural firms (figure 7.35). The variables were the importance of educational qualification, AUTOCAD or information technology literacy, and knowledge of construction in the selection of staff; as well as the way staffing for each project is carried out in the office. The 33 firms in the second cluster considered educational qualification, AUTOCAD or informational technology literacy, and knowledge of construction important in their selection of staff. The firms also employed different ways of organizing staff to execute projects. Some employed temporary staff for each project, while others employed all the required staff. Still others held a small core of committed staff, employing additional staff for the projects as required. It appears that the firms in the second cluster considered other relevant skills in selecting their staff in addition to the basic

formal training. Firms in this cluster can described as proficiency-based firms based on their staffing strategies.

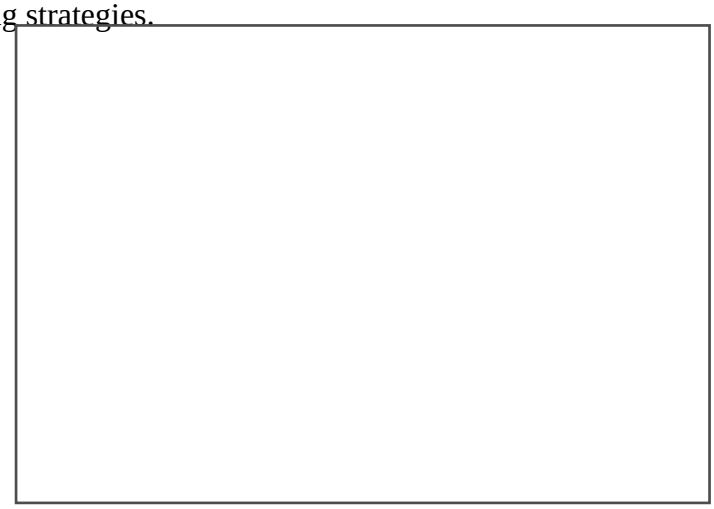


Figure 7.35: Attributes of firms in the second cluster based on staffing strategies

Figure 7.36 shows that 15 variables were responsible for the formation of the third cluster based on the staffing strategies of the firms. The variables include retention of staff by improved salary, retention bonus, performance bonus, rewards and recognitions, staff development and leadership development. Other variables include the way staff are organized to execute projects and the importance of design competence, knowledge of construction, personality, sex, interpersonal or managerial skill, AUTOCAD of information technology literacy and educational qualification in the selection of staff. The 10 firms in the third cluster only retained competent staff by improved salary. None of the firms adopted means such as retention or performance bonuses, rewards and recognition, staff development, or leadership development. All the firms held a small core of committed staff and employed additional staff for projects as required. Gender was not important in the selection of the staff of the firms in the third cluster, but other factors such as design competence, knowledge of construction, personality, interpersonal or managerial skill, AUTOCAD or information technology literacy and educational qualifications were. It appears that the firms in the third cluster sought to employ architects who had exhaustive skills ranging from architectural skills, relevant add on skills and managerial skills. They however would only retain competent staff by improved salaries. This suggests that the firms look for already formed architects to employ. The firms in the third cluster could thus be referred to as utilitarian firms based on their staffing strategies.

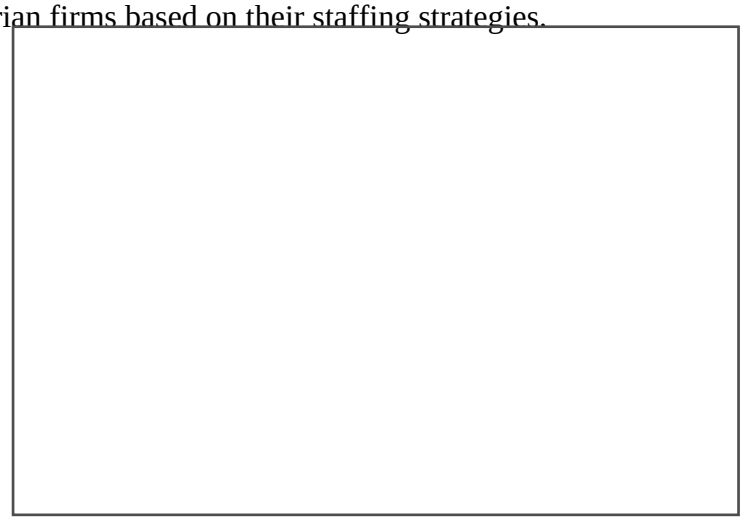


Figure 7.36: Attributes of firms in the third cluster based on staffing strategies

7.5 Chapter Summary

This chapter discussed the findings of the business, competitive and staffing strategies of the sampled architectural firms. The results showed that most of the clients of the architectural firms were private individuals in Nigeria. The firms also appeared to have more private local organization clients than they did government clients. Most of the projects of the firms were residential projects, and the reason mostly given for this observation was that they were more readily available. Most of the firms built their clientele through personal contacts. Very few firms built clientele through public relation strategies.

Most of the firms sampled had no branch in Nigeria and most of the ones that had branches had just 1 or 2. The results showed that most of the firms owned by sole Principals had no branch, while most of the firms with the partnership or limited liability forms of ownership had branches in Nigeria. In West Africa and other parts of the world, most of the sampled firms had no branch. The collaborations of the firms were mostly local. Very few firms collaborated with other firms internationally. The local collaborations were mostly with other professional firms, while the little international collaboration was mostly with architectural firms. Most of the firms in the sample collaborated to take advantage of the expertise of the other firm mostly because of the size of the projects. The results also showed that most of the firms had long-term contract, and sub-commissions. In fact, 25% or more of the projects of most of the firms were sub-commissions.

The design and build procurement method was used by most of the firms, followed by project management. Fewer firms used the traditional method of architect only designing and supervising projects. A relationship was found between participation in design and design and build procurement method and the proportion of the firm's projects that were residential. Firms that participated in the design and build procurement method had more residential projects, suggesting that most residential buildings were probably obtained by design and build procurement method. The firms that had existed for 15 years and below mostly participated in the design and build procurement method, while most of the firms that had existed for more than 15 years did not. Ranking highest as a strategic principle of the firms sampled was the need to satisfy the needs of the clients. The least ranked principle of the firms was being known for expertise in particular building type.

Most of the firms sampled held a small core of committed staff and employed additional staff for projects as required. The highest ranked criteria the firms used in selecting their staff was competence in design, followed by AUTOCAD and information technology literacy. The least important criterion to the firms was gender. The interview findings however contradicted this deduction from the questionnaires, as most of the principals cited gender, especially when marital status is considered, as a criterion. Most of the firms retained competent staff by improved salary. Very few firms adopted leadership development, retention bonus, or exposure to practice as means of retaining competent staff. Most of the firms that retained competent staff by rewards and recognitions were owned by sole Principals, had cultures of innovation, teamwork and staff development and allowed new ideas and technologies to determine their strategies. The results also showed that most of the firms that had existed for more than 20 years retained competent staff by leadership development, while most of the firms that had existed for 20 years or less did not retain competent staff by this means.

The four types of firms based on business strategies suggested by Katsanis and Katsanis,

(2001), were also found among the architectural firms sampled. These types of firms include the harvester firms, which took advantage of prevailing conditions to execute high profile projects, the sustenance-driven firms, characterized by no coherent actions, absence of high profile projects and mostly depended on family and friends to build clientele. Other types of firms based on the business strategies of the firms were the selective firms which were characterized by conscious positioning to source particular project types (hospitality and educational) and the prestigious firms characterized by conscious specialization in and positioning for high profile projects such as religious, educational, commercial, civic, multiuse and transportation projects.

Six types of firms based on the competitive strategies of the firms were found. These included the locally focused firms characterized by no branch in Nigeria; the conventional global affiliates, characterized by international collaborations, and participation in the traditional method of project procurement; and the mushroom firms characterized by creation of branches of the firm. Other types of firms based on the competitive strategies of the firms include the competency driven firms, the experience driven strategy and the expertise driven firms. The competency driven firms sought to be known in important clientele circles for efficient architectural services. They also sought to be known for generating new design ideas and being creative. The firms collaborated locally for reasons other than the requirement of the clients, the nature of the project, or for inadequacy of experience. The experience driven firms did not seek for collaborations as they appear to the experience to meet the requirements of the clients for any size of project. The expertise driven firms were characterized by collaborations locally for reasons other than inadequate expertise, size or nature of the project

Three types of firms based on the staffing strategies were also found. The first type of firm was the official firms, characterized by the use of educational qualification as an important criterion in the selection of the staff of the firms and the holding of a small core of committed staff, employing additional staff for projects as required. The second type of firm based on the staffing strategy of the firms was the proficiency based firms, which used educational qualification, AUTOCAD or informational technology literacy, and knowledge of construction as important criteria in the selection of staff. The proficiency based firms also employed different ways of organizing staff to execute projects. The third type of firms- the utilitarian firms- sought to employ architects who had exhaustive skills ranging from architectural skills, relevant add on skills and managerial skills. None of the firms adopted means such as retention or performance bonuses, rewards and recognition, staff development, or leadership development. They only retained competent staff by improved salary.

CHAPTER EIGHT
THE OFFICE STRUCTURE, AND TASK AND INFORMATION TECHNOLOGY CHARACTERISTICS OF ARCHITECTURAL FIRMS

8.0 Introduction

This chapter first discusses the three factors of office structure that were investigated in the sampled architectural firms. The factors, according to Miller and Droge (1986), were centralization, formalization and specialization. Next, the chapter discusses the findings of the study on the task and information technology characteristic of the architectural firms in terms of the services offered by the architectural firms sampled, the way staff were organized to execute projects. The availability and application of information technology facilities are then discussed. Last, the chapter discusses the types of office, task, and information technology characteristics found among the firms. All figures and tables are from the field survey carried out by the researcher between February 2009 and May 2009

8.1 Specialization of duties

The firms were asked to indicate the tasks that were carried out exclusively by at least staff to assess the level of specialization of the duties of the architectural firms. The findings, presented in figure 8.1 shows that 9.52% of the firms had no specialized task, 41.67% had 1 or 2 tasks specialized, 21.43% had between 3 and 4 tasks specialized, 19.05% firms had between 5 and 6 firms specialized and 8.33% firms indicated that they had more than 6 tasks specialized.

The result in figure 8.2 shows the tasks that were handled exclusively by one staff in the architectural firms. The table shows that at least one person in 59.2% of the firms exclusively handled working drawing. This is followed by design, indicated by 51.3% of the respondents as being handled exclusively by one staff; and accounts, handled exclusively by at least one staff in 43.4% of the firms. The percentages of respondents that indicated that they had at least one person exclusively in charge of sourcing for jobs or clients relations was relatively lower (32.9% and 31.6% respectively). 25% of the firms had at least one staff exclusively in charge of site meetings, while 18.4% of the firms had one staff exclusively in charge of modeling. Exclusively one staff in 17.1% of the firms handled personnel management and maintenance. The result also show that training was handled exclusively by one staff in 15.8% of the firms, while, welfare was the sole responsibility of one staff in 13.2% of the firms. Only 7.9% of the firms indicated that transportation was handled exclusively at least one staff.

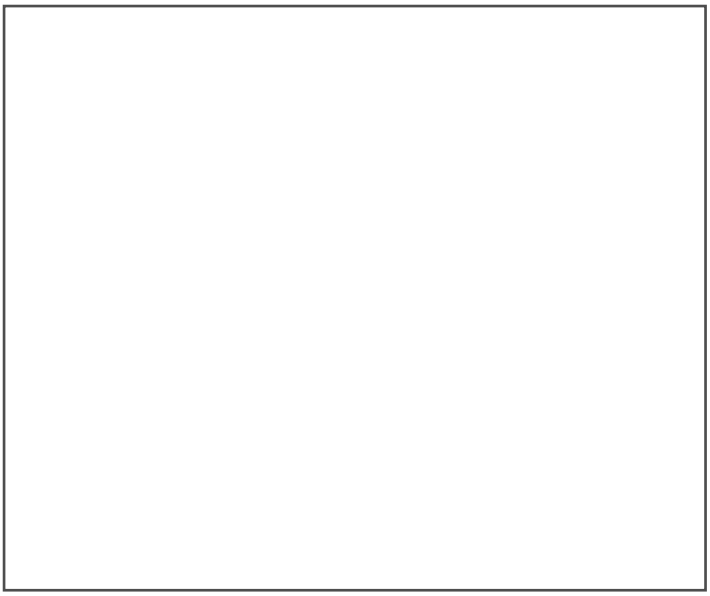


Figure 8.1: Degree of Specialization

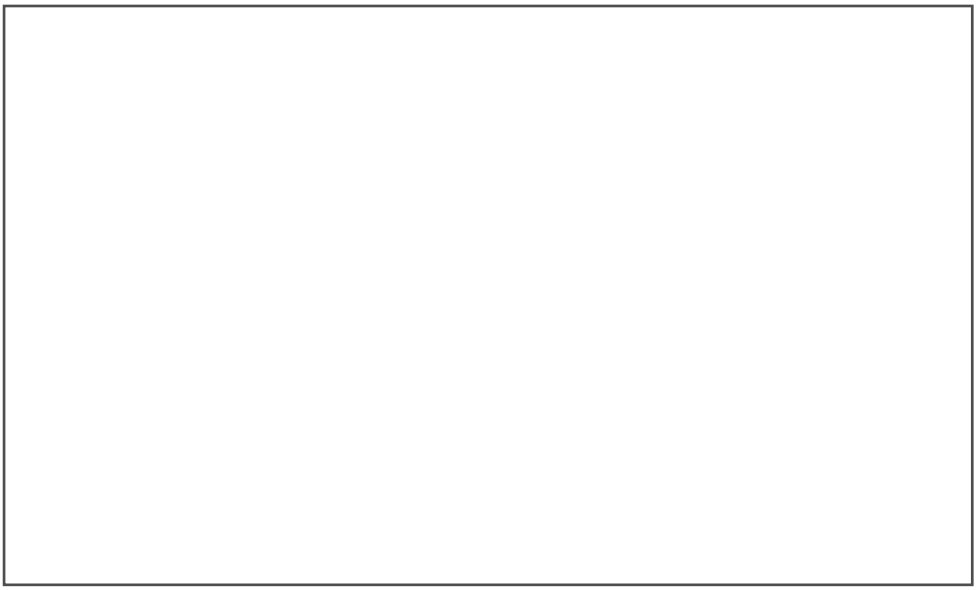


Figure 8.2: Tasks Specialized

The result suggests that there was high degree specialization of duties in most of the architectural firms, with more than 90% of the firms assigning at least one task to specific person(s) and over half of the firms assigning either the task of working drawing or the task of design exclusively to one person. Working drawing and design were the most specialized duties. This suggests that the firms probably specialized the basic duties of the firms to increase the productive power and dexterity of labour, as well as save time (Smith, 1904, Rao and Narayana 2000).

Donaldson, (2003) suggested that staff are hired into functional departments, with specific tasks, thus specializing their duties. The firms were thus asked to indicate if they had departments.

The result shows that 52.94% of the firms that responded did not have departments (figure 8.3). Only 45.88% of the firms indicated that they had departments, and 1.18% was not sure.

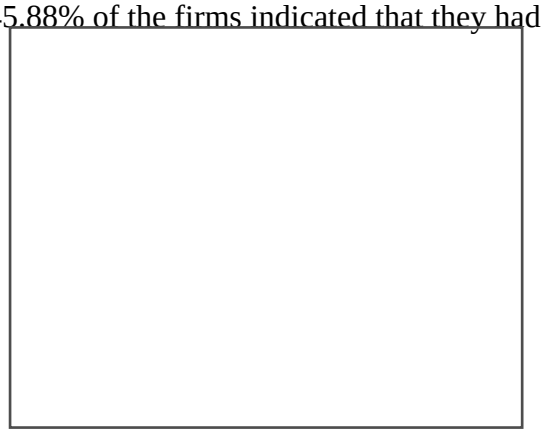


Figure 8.3: Existence of departments

Rao and Narayana, (2000) suggested that departmentalization permits an organization to take advantage of specialization. This also suggests that the high degree of specialization of duties observed in the architectural firms sampled was probably an offshoot of the fact that almost half of the firms had departments. The result suggests a fair level of horizontal differentiation (Donaldson, 2003) as the degree of specialization of activities was also fair.

The study examined the relationship between the existence of departments of architectural firms and the ownership form of the firm. The chi-square test showed that the relationship was significant ($?^2 = 18.73$, df = 8, p ? 0.05). The result in appendix 57 shows most of firms which were partnerships (12 out of 16) and those that were unlimited liability companies (6 out of 7) had departments while very few of those firms that had the sole Principal (11 out of 42), or the limited liability companies (6 out of 14) forms of ownership had branches. It is surprising that fewer firms with the limited liability company form of ownership operated departments than the firms with the unlimited liability company form of ownership, although they were both incorporated.

The relationship between the existences of departments in architectural firms and the existence of branches was also examined. The chi-square test showed that the relationship was significant, ($?^2 = 19.84$, df = 2, p ? 0.05). Appendix 58 shows that most (22 out of 28) of the architectural firms that had branches in Nigeria operated departments, while most (39 out of 55) of the firms that did not have branches did not have departments.

It seemed reasonable that the existence of departments in an architectural firm would be related to the total number of staff in the firm. The chi-square test confirms that the relationship exists and is significant ($?^2 = 40.03$, df = 12, p ? 0.05). Appendix 59 shows that as the number of staff in a firm increased, more firms appeared to have departments. Thus, most of the firms with fewer the number of staff did not have departments. Appendix 59 reveals that very few of the firms with between 1 and 20 staff (17 out of 60) had departments, while all the firms with more than 20 staff had departments.

8.2 Formalization of activities

The study examined how formal the activities in the firm are. The rating of the formalization for all the activities was added for each firm and re-coded. The total scores ranged from 7 to 21. Totals of between 7 and 11 were re-coded as informal, 12 to 16 as fairly formal and totals between 17 and 21 were re-coded as very formal. Figure 8.4 shows that the rating of

formalization for most (55.0%) of the firms was very formal, fairly formal for 37.5% of the firms and informal for 7.5% of the firms.

Table 8.1 shows that communication with clients ranked first of the list of formal activities, with a mean score of 2.78. Ranking second was communication with clients outside the office with a mean score of 2.54, followed financial matters and budgeting, which ranked third with a mean score of 2.43. Management decisions ranked fourth with a mean score of 2.39, and staff working conditions and job descriptions ranked next on the list of formal office activities with a mean score of 2.25 was. In addition, meetings in the office ranked sixth with a mean score of 2.18, with communication with staff in the office ranking last with a mean score of 1.79.

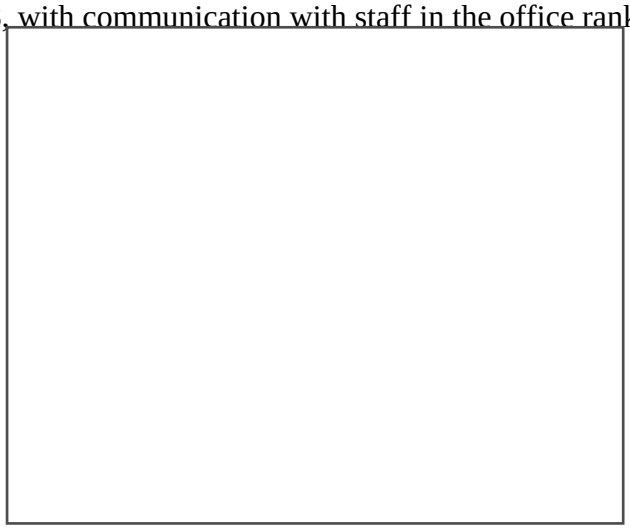


Figure 8.4: Degree of Formalization

Table 8.1: Formalization of activities

Activities	Mean score	Rank
Communication with clients	2.78	1
Communication with other professionals outside the office	2.54	2
Financial matters and budgeting	2.43	3
Management decisions	2.39	4
Staff working conditions and job descriptions	2.25	5
Meetings in the office	2.18	6
Communication with staff within the office	1.79	7

The result shows that the activities of architectural firms can be described as very formal. The result also shows that the most formal of the activities of architectural firms were communication with clients and communication with other professionals outside the office. The least formal were staff working conditions and job descriptions, meetings in the office and communication with staff in the office.

8.3 Centralization of decision-making

The firms were asked to indicate who took decisions on certain issues in the firms. The options were arranged in order of seniority in the firms. This was used to compute the level of centralization of decisions in the firms. The scorings ranged from 8 to 48 and were re-coded into low degree of centralization, moderate degree of centralization and high degree of centralization.

The scorings between 33 and 48 were re-coded as low degree of centralization, 17 to 32 as moderate degree of centralization and scores between 8 and 16 were re-coded as high degree of centralization. Figure 8.5 shows that most (68.06%) of the firms had high centralization of decisions with all decisions being taken by the principal architect or senior architect. Only 31.94% of the firms had moderate centralization with any architect, administrative manager or accountant taking some of the decisions.

Figure 8.5: Degree of Centralization of decision-making

Table 8.2 presents the ranking of the responses of the firms to the question of who takes decision on certain issues. The table shows that the most centralized decisions were decisions on hiring and promotion of architects (ranked first with a mean score of 1.19), and collaborations with other firms (ranked second with a mean score of 1.32). Decisions on how to get client ranked third with a mean score of 1.48, followed by the decisions on fees to be charged on projects with a mean score of 1.52. Ranking next with on the list of centralized decisions mean scores of 1.82 and 1.87 were the decisions on management of projects and those on design ideas to use for projects. Ranked last were decisions on salaries of staff and managing non-design staff with mean scores of 2.22 and 2.71 respectively

Table 8.2: Centralization of decisions

Decision issues	Mean	Rank
Who takes decisions on hiring and promotion of architects?	1.19	1
Who takes decisions on collaborations with other firms?	1.32	2
Who takes decisions on how to get new jobs and clients?	1.48	3
Who takes decisions on fees to be charged for projects?	1.52	4
Who takes decisions on managing projects?	1.82	5
Who takes decisions on design ideas to use for projects?	1.87	6
Who takes decisions on salaries of staff?	2.22	7
Who takes decisions on managing the non-design staff?	2.71	8

The results show that decisions making in the sampled architectural firms can be described as mostly highly centralized. The most centralized decisions were those on hiring and promotion of architects, collaborations with other firms, how to get jobs and clients, and fees to be charged for projects. The least centralized of the decisions in the architectural firms was managing non-design staff. Although the questionnaire results shows that decisions on design ideas to use for projects ranked low on the list of centralized decisions, one of the participants in the interviews

categorically stated that all design idea used in his firm came from him, *("…every job that goes from here has to be from me. I will be very happy to see someone who thinks he can bring an idea. I will still develop it if it is good. Do you get it? ...It has not happened so far …..."*). It appears that some other characteristics of the firms probably influenced the centralization of decisions of the firms.

It seemed reasonable that the age of the firm may be related to the degree of centralization of decisions on design ideas to use for projects. The chi-square test showed that the relationship between the age of the firm and the decision maker on design ideas to use for projects was significant ($?^2$ = 18.44, df = 10, p ? 0.05). Appendix 60 shows that decisions on design ideas to use for projects were taken by the senior architect or any architect in most of the firms less than 11 years of existence, but by the Principal architect in most of the firms which had existed for 11 years or more.

It was of interest to the study to find out if the degree of centralization was related to the age or ownership form of the firms. The chi-square tests showed that the relationships were not significant. It also seemed reasonable that the firms with more senior cadre staff would operate lower centralization of decisions. The relationship between the number of senior architects in the firms and the degree of centralization was investigated using the chi-square. The results showed that the relationship was also not significant.

The relationship between the degree of centralization of decision making and the existence of branches of the firms was also examined. The chi-square test showed that the relationship between the two variables was significant ($?^2$ = 8.62, df = 1, p ? 0.05). The bar chart in appendix 61 shows that most of the firms without branches in Nigeria had high degree of centralization of decisions, while most of the firms with branches in Nigeria had moderate degree of centralization of decisions.

Rao and Narayana (2000) suggested that the organizations that decentralized decision-making might be more successful that those that did not. They however noted that there were no guarantees. The study thus examined the relationship between the degrees of centralization of decisions in the firms and the perception of the success of the firms. The chi-square test showed that the relationship was significant ($?^2$ = 13.31, df = 3, p ? 0.05). The results in appendix 62 however show that, with the architectural firms sampled, most of the firms that perceived their successes as good or very good also had high degree of centralization of decisions, while most of the firms that perceived their successes as not so good or fair had moderate degree of centralization of decisions.

8.4 Delegation of Authority

The authority of the principal may sometimes be delegated if the principal is absent. The firms were asked to specify who took over in the absence of the principal. The findings, presented in figure 8.6, show that 57.58% of the respondents delegated authority to the senior architect in the firm, 22.73% delegated to either the partner or the associate partner took over, while 7.58% of the firms indicated that any architect took over in the absence on the principal architect. Figure 8.6 also shows that 7.58% firms indicated that the administrative manager took over in the absence of the, 1.52% each indicated that either the assistant general manager or the executive director took over, and 1.52% indicated that another principal partner took the responsibility in the absence of the principal .

It appears that most of the Principals would rather delegate to the senior architect in the firm. The low percentage of the firms that delegated to a principal architect or partner is probably

explained by the low percentage of partnership owned architectural firms (figure 5.2). It is however surprising to note that the persons delegated to in some of the firms had designations such as executive director, assistant general manager and administrative manager.

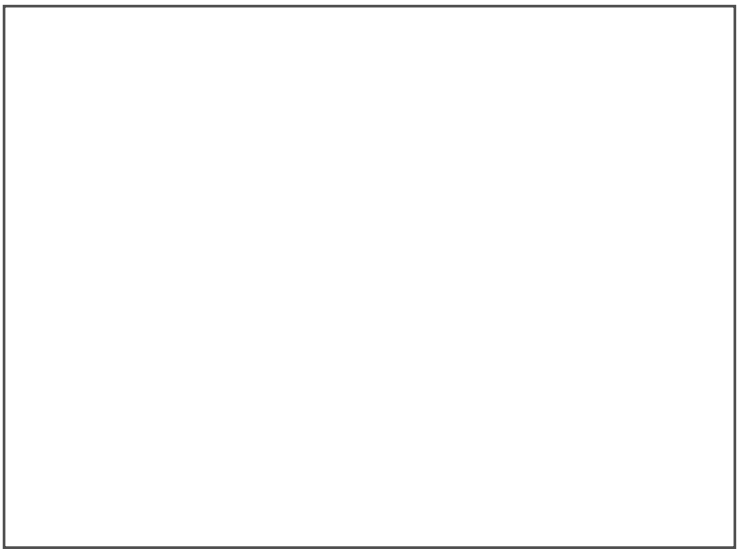


Figure 8.6: Delegation of authority in the principal's absence

8.5 Forms of Organizational Structure of the Architectural Firms

The study investigated the forms of organizational structure of the architectural firms based on their organizational hierarchy. The firms were asked to indicate the official titles used in their firms. Five alternative structures were identified. In the first form of organizational structure, the Principal who was the managing director had all other staff reporting directly to him/her (Figure 8.7). In this form, similar occupations were grouped together, with each staff reporting directly to the Principal . This structure is similar to the organizational structure that Rao and Narayana (2000:185) referred to as the simplified functional structure. The second form of organizational structure found among the firms was similar to the first (figure 8.8), but with the addition of the partner(s) or senior architect(s) taking some of the reponsibilities of running the firm. The the first two forms of organizational structure, staff carried out tasks as assigned to them on every project.

Figure 8.7: Simple Organizational Structure (Variant 1)

Figure 8.8: Simple Organizational Structure (Variant 2)

The third form of organizational structure found among the firms had other professionals (quantity surveyors, and engineers) also reporting directly to the Principal architect in addition to the architects, and administrative staff (figure 8.9). This could be described as the expanded simplified organizational structure. All staff in firms that adopted this structure also carried out assigned tasks on every project.

Figure 8.9: Expanded Simple Organizational Structure

Figure 8.10 shows that fourth form of organizational structure found among the architectural firms sampled. The firms with this structure had project architects in charge of every project that the firm handled. Other professionals and technicians in the firms reported to the project architect, who in turn reported to the Principal. The firms also had administrative manager whom all administrative staff reported to. Each project was handled by a project architect, with other staff being on temporary assignment for each project.

Figure 8.10: Project/ Office Manager Organizational Structure

Firms that adopted the fifth form of organizational structure (figure 8.11) had different departments which had specific responsibilities. Each department was headed by a director who was either an associate or a senior architect. Other members of staff reported directly to the directors of their units. The directors in turn report to the Principal or the partners in the firms. Members of a particular department carried out specialized tasks for every project. The staff that worked with the director of design carried out tasks related to design, while staff that worked with the director of construction carried out tasks related to construction. Also, the director of marketing and his assigned staff source for projects for the firms

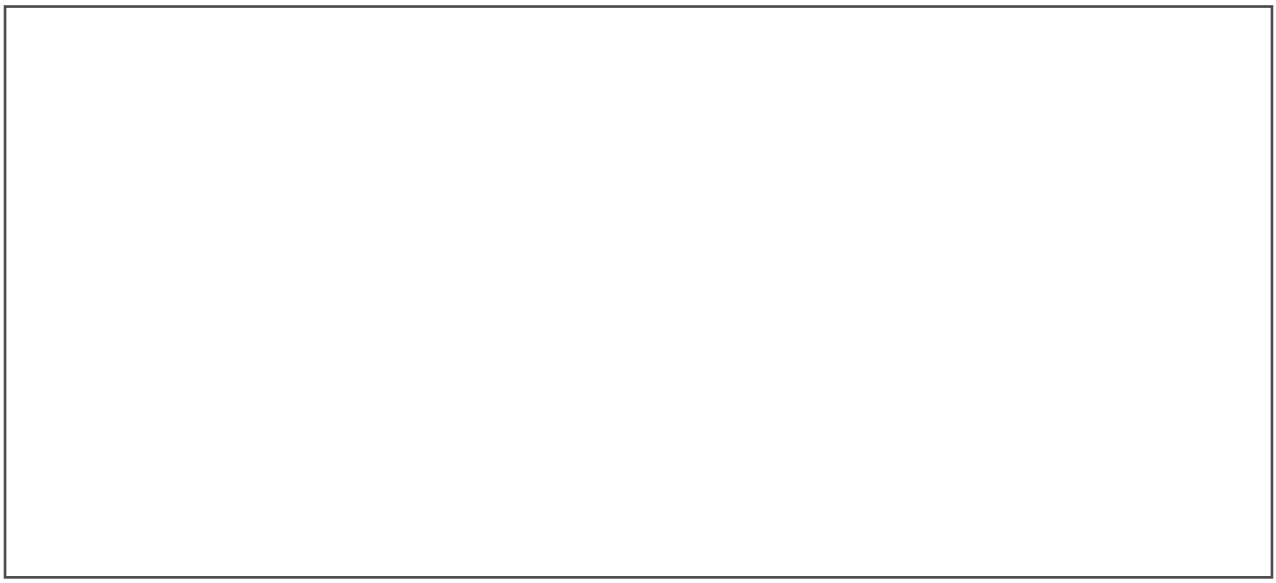


Figure 8.11: Departmental Organizational Structure

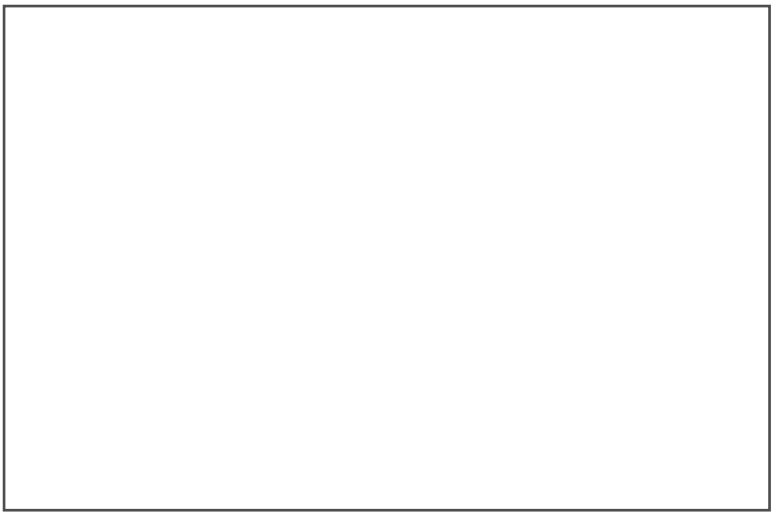


Figure 8.12: Forms of Organizational Structure of Architectural firms

Figure 8.12 shows that the simple organizational structure variants were the most used by the architectural firms, with 61.54% (30.77 + 3.77) of the firms adopting the simple organizational structure. This suggests that the level of vertical integration was low with most of the firms having just one or two levels of specialization of activities. It is also interesting to note that almost a quarter (21.15%) of the firms sampled adopted the project architect and office manager structure. The expanded simple organizational structure was adopted by 15.38% of the firms. The least adopted was the departmental structure adopted by 1.92% of the sampled firms.

The results also suggest that most of the firms (76.92%) used the directive coordination, with the various activities of the firms linked by placing them under a central authority. Only 23.07% of the firms used facilitated intergration, setting up offices (project architect, office managers, directors) to coordinate the different activities of the firms.

Rao and Narayana (2000) suggested that the simple functional structure is used by small organizations. This suggestion prompted that test of the relationship between the size of the firm and the form of organizational structure adopted by the architectural firms sampled, using the chi-square test. The test revealed that the relationship between the size of the architectural firm and the form of organizational structure adopted was not significant.

8.6 Task and information technology characteristics of architectural firms

The study examined the task and information technology characteristics of the architectural firms. The services offered by the firms, the way projects are carried out by the firms and the services done for the firms by others outside the firms. These are subsequently discussed.

8.6.1 Services offered by the architectural firms

The firms were asked to indicate how often they offered particular services to the firms. Table 8.3 presents the ranking of the frequencies of offer of different services by the firms. Architectural design and supervision ranked first on the list of services offered by the architectural firms sampled with a mean score of 2.86 while project or construction management ranked second with a mean score of 2.31. Ranking third was construction services, with a mean score of 2.23. Table 8.3 also shows that next ranked on the list of services offered by the architectural firms

sampled based on the frequencies of offer were landscape design, renovation or restoration, feasibility studies and interior or furniture design. These ranked fourth, fifth, sixth and seventh with mean scores of 2.13, 2.12, 2.03 and 1.89 respectively. Modeling and valuation services ranked next with mean scores of 1.85 and 1.80 respectively The least ranked were structural design (1.65), urban design (1.61), litigation and arbitration (1.29) and sales of building materials (1.14).

Table 8.3: Ranking of the frequencies of services offered

Services	Mean	Rank
Architectural design and supervision	2.86	1
Project/ construction management	2.31	2
Construction	2.23	3
Landscape design	2.13	4
Renovation/Restoration	2.12	5
Feasibility studies	2.02	6
Interior/ furniture design	1.89	7
Modeling	1.85	8
Valuation	1.80	9
Structural design	1.65	10
Urban design	1.61	11
Litigation and arbitration	1.29	12
Sales of building materials	1.14	13

The result shows that the services most often provided by the sampled architectural firms were architectural design and supervision, suggesting that the traditional duties of the firms still ranked high on the list of services provided by the firms. Next to this was project and construction management, then construction services. Valuation was more often provided than structural design and urban design. The services least offered are litigation or arbitration and sales of building materials.

8.6.2 Organization of staff for execution of projects

The firms were asked how they organized their staff to execute projects. Figure 8.13 shows that 40.48% of the firms organized staff as the situation demanded. The bar chart also shows that 34.52% of the firms used one team to begin and end a project, 13.1% had all hands in the firms were always engaged for every project and 11.9% of the firms used different teams at different stages of the project.

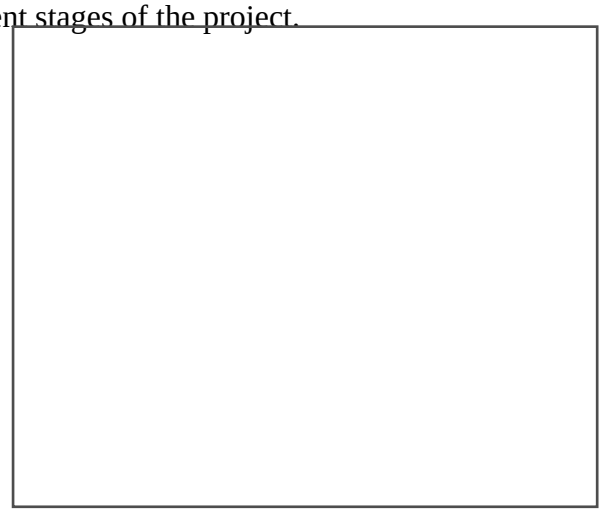


Figure 8.13: Organization of staff for execution of projects

The researcher thought it reasonable that the way the members of staff were organized to execute projects would be related to the number of staff in the firm. The chi-square test showed that a significant relationship existed between the way that the members of staff of the architectural firms were organized to execute projects and the number of staff in the firm (?2 = 33.88, df = 18, p? 0.05). The bar chart showing the relationship between the two variables is presented in appendix 63. It appears that the use of a team to begin and complete a project was only mostly used by firms with more than 20 staff, while other modes of organizing staff to execute projects were used by firms with 20 staff of less, with the organization of staff as the situation demanded being the most common. The bar chart in appendix 63 shows that the use of teams to begin and complete a project was mostly used with firms that had more than 20 staff, while the use of different teams at different stages of the project was most common with the firms with 20 staff or less. Appendix 63 also shows that the use of all hands on every project was mostly used by firms with 10 staff or less, while the organization of staff to execute projects as the situation demanded, were mostly used by firms with 20 staff or less.

8.6.3 Subletting of services

The respondents to the questionnaires were asked to indicate the services that they often sublet to others outside the firm. The firms were to tick as many as applied. The total number of services each firm sublet was computed. Figure 8.14 show that the firms most commonly sublet just 1 service (55.42% of the firms). The next most common number of services sublet by the firms was 2 services (26.51% of the firms). Only 14.46% of the firms did not sublet any service at all, while 3.61% sublet more than 2 services. The summary of the responses given in figure 8.15 shows that the service the firms most commonly sublet was modeling (84% of the firms), while the next most common service the firms sublet was supervision of projects (18.8% of the firms). Other services sublet by the firms include presentation services, which 15.9% of the firms indicated that they sublet, working drawings, sublet by 11.6% of the firms and sketch design, sublet by 5.8% of the firms.

It appears that most (85.54%) of the firms sublet one aspect or the other of their services, although this was not significantly related to the age, or ownership form of the firms, neither was it related to the methods of project procurements that the firms adopted. It is surprising that most (84.1%) of the architectural firms sampled sublet modeling services, although only 26.3% of the firms indicated that they did not carry out modeling services (table 8.4). It appears that although most of the firms offered modeling services, others outside the firms actually carried out the tasks. This suggests that the staff of most of the architectural firms did not actually carry out the task of modeling. It is possible that the firms were either too busy to carry out modeling services or they did not have the expertise in-house. It is also surprising to note that there were firms that sublet the presentation aspect of their works. This suggests that that certain attributes may have been needed for presentations, which were not found in the personnel of the firm. Most surprising was the fact that some firms sublet sketch design and working drawings, which were expected to be basic to the practice of architecture. It was thought the subletting sketch design and supervision would be related to the method of project procurement adopted by the firms. The chi-square tests however revealed that none of the relationships was significant.

Figure 8.14: Number of services firms sublet

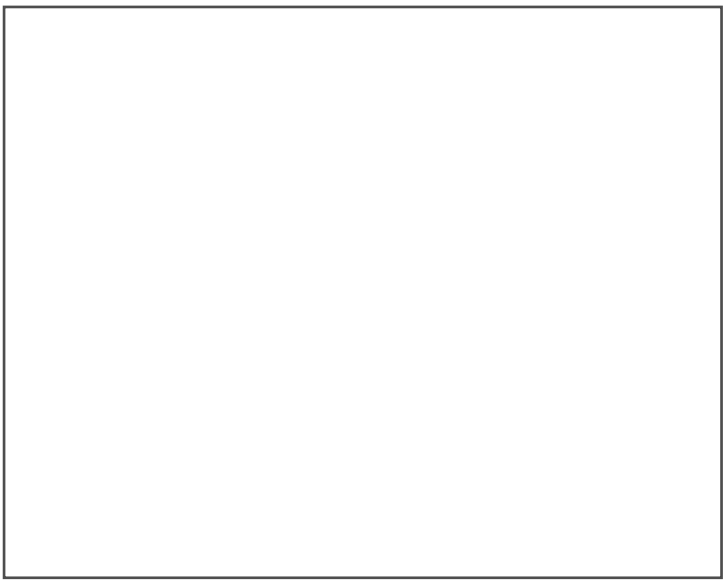


Figure 8.15: Services carried out outside the Firms

8.7 Information Technology Characteristics of the firms

The study examined the information technology (IT) characteristics of the architectural firms sampled. The availability of information technology facilities, application of internet facilities, existence of website and electronic mail addresses of firms.

8.7.1 Availability of information technology facilities in firms

The firms were asked to indicate how available IT facilities such as the computers, the internet, and intranet were in their firms. The scorings for each firm for all the facilities were added to arrive at the level of availability of the IT facilities for each firm. The total scores ranged from 3 to 12. Scores from 3 to 6 were coded as almost non-existent, 7 to 9 were coded as fair availability, while scores of between 10 and 12 were coded as high availability. Figure 8.16 shows that information technology facilities were highly available in 43.84% of the firms, fairly available 30.14% of the firms and almost non-existent in 26.03% of the firms. Table 8.4 shows

that computers ranked first on the list of available information technology facilities in the firms with a mean score of 3.5. Next ranked was the intranet with a mean score of 2.69. The least available in the firms was the internet, which ranked last with a mean score of 2.51.

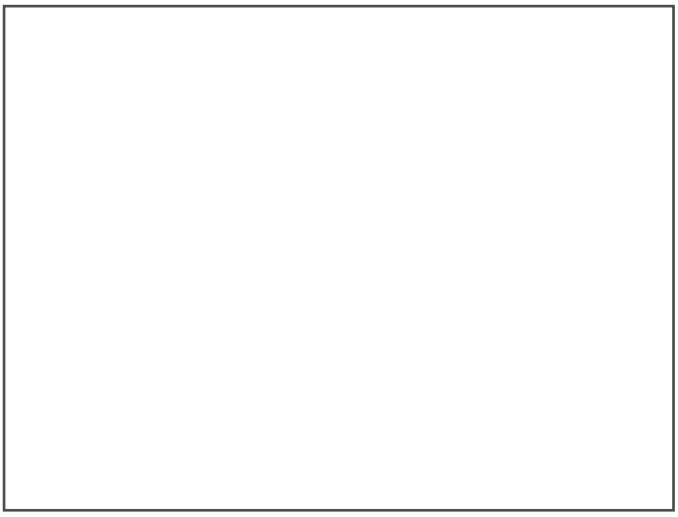


Figure 8.16: Level of availability of information technology facilities

Table 8.4: Ranking of availability of information technology facilities

Facility	Mean	Rank
Computers	3.50	1
Intranet	2.69	2
The internet	2.51	3

The sampled architectural firms could be said to have score high in the availability of information technology facilities, as almost half (43.84%) of the firms indicated that the facilities were highly available. It appears that the most available information technology facility in the architectural firms was the computer, while the least available facility was the internet. Amole (2006) suggested that advances in technology had led to firms forming alliances. The relationship between the availability of information technology facilities and collaboration with other firms locally and internationally was tested using the chi-square test and was found to be insignificant.

8.7.2 Application of internet facilities in architectural firms

The architectural firms were asked to indicate how often they use the internet to carry out certain tasks in their firms. The responses of each of the firms for all the tasks were added to give the level of use of the internet for each firm. The totals ranged from 7 to 21. The values between 7 and 11 were coded as low use of internet facilities, values between 12 and 16 were coded as moderate use and values between 17 and 21 were coded as high use of internet facilities. Figure 8.17 presents the level of use of the internet for tasks in the firms. The bar chart in figure 8.17 shows that 47.14% of the firms moderately used the internet for tasks in the office; 35.71% highly employed the use of the internet; while the use of the internet in 17.14% of the firms was low. Table 8.5 shows that the firms mostly used the internet for sourcing for information as it ranked

first with a mean score of 2.52. The next ranked office activity that the firms used the internet for were correspondences with other professionals (2.30) and correspondences with clients (2.20). The use of the internet graphic presentation ranked fourth with a mean score of 2.11, while the use of the internet for designing or drafting ranked fifth with a mean score of 1.93. The least ranked office activities that the internet was used for were project management (1.90) and correspondences with staff in the office (1.75).

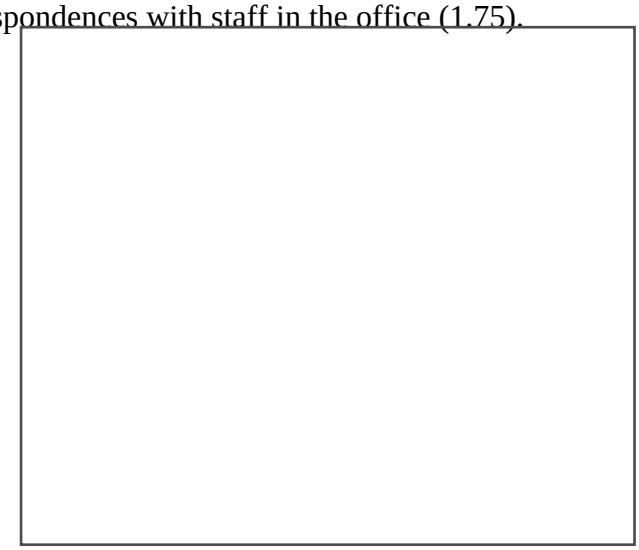


Figure 8.17: Degree of use of internet facilities

Table 8.5: Ranking of the application of Internet facilities

Task	Mean	Ranking
Sourcing information for design	2.52	1
Correspondence with other professionals	2.30	2
Correspondence with clients	2.20	3
Graphic presentation	2.11	4
Designing/ drafting	1.93	5
Project management	1.90	6
Correspondence with staff in the office	1.75	7

The results show that most of the architectural firms moderately used the internet to carry out office tasks. The architectural firms mostly used the internet for sourcing for information, correspondences with other professionals and clients. The firms least used the internet for communications in the office.

Amole, (2006) suggested that technology has resulted in a shift from centralized management approach to self-organizing collaborative approach. She opined that with technology, staff are less dependent on managers for instruction and direction. This assumption was tested about the use of internet facilities for tasks in the office. The chi-square test of the relationships between the various applications of the internet in the architectural firms and the degree of centralization of decisions was carried out. Only designing and drafting through the internet was significantly related to the degree of centralization (?2 = 9.96, df = 4, p ? 0.05). The bar chart of the two variables in appendix 64 suggests that the use of the internet for designing and drafting was increased with firms where decision making was highly centralized as most of the firms (14

out of 28) with highly centralized decision making used the internet for designing and drafting. It thus appears that firms with increased centralization increasingly used the internet to carry out design and drafting. The assertion of Amole, (2006) seemed to be contradicted by the results as the results suggest that the use of the internet in designing and drafting was associated with increased centralization of decisions in most of the firms sampled.

It has also been suggested that the shift from providing products and services via a single organization to providing them via a network or alliance have been made possible by advances in technology (Amole, 2006). This relationship between the degree of use of the internet and the practice of collaboration by the firms locally and internationally was tested using the chi-square tests. The tests revealed that the relationship between the degree of use of the internet and collaboration was not significant. The chi-square also revealed that the relationship between the availability of information technology facilities and collaboration was not also significant.

8.7.3 Websites and electronic mail addresses

The sampled architectural firms were asked if they had websites. Figure 8.18 shows that more than half (63.53%) of the firms did not have websites, only few (32.94%) of the firms had websites, while 3.53% of the firms were not sure they had websites. Figure 8.19 also shows that most of the sampled firms (93.9%) had electronic mail addresses; while very few (6.1%) did not have any electronic mail address.

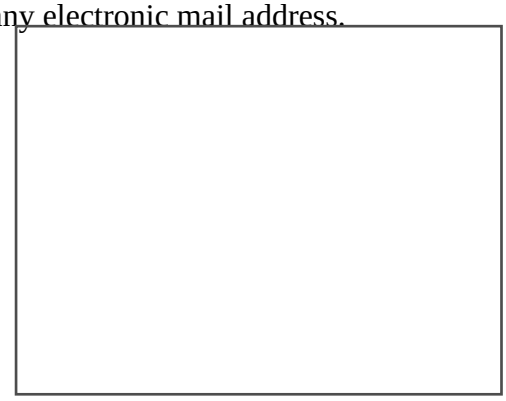


Figure 8.18: Existence of website of the architectural firm

Figure 8.19: Electronic mail addresses of architectural firms

The result shows that more architectural firms had electronic mail addresses than those that had websites. It appears that the architectural firms adopted more of the mailing facilities that the internet provided. Kambil, (1997) asserted that the internet provides a weapon to the organization to gain competitive advantage. He further stated that with the internet, organizations have a brand new channel to exchange information and conduct business. It appears however, that they used the internet as more of a channel to exchange information, than a weapon.

8.7.4 Information Technology, Size, Ownership Forms and Structures of Architectural Firms

Seyal et al. (2000) noted that the specific practices and implementations of information technology are influenced by organizational parameters such as size, structure, and profitability. These assumptions were tested using the chi-square tests. The tests show that the perceptions of the performance of the firms were significantly related to the level of availability of information technology facilities ($?^2$ = 27.78, df = 6, p ? 0.05) and the level of use of internet facilities ($?^2$ = 22.65, df = 4, p ? 0.05). Appendix 65 shows that most of the firms where information facilities were highly available (30 out of 32) and that used the internet highly (18 out of 19) had very good successes. This is compared with the 5 out of 18 firms where information technology availability was low and the 10 out of 21 firms where use of internet facilities was low, that had good successes.

The results also show that while the availability of information technology facilities was significantly related to the existence of departments ($?^2$ = 16.57, df = 4, p ? 0.05); it was not significantly related to the number of staff. Agreeing with the Seyal, (2000), Amole (2006) suggested that use of technology was associated with same level of output with fewer workers. The relationship between the use of the internet for office activities and the total number was thus tested using the chi-square test. The test showed that only the level of use of the internet was significantly related the number of staff ($?^2$ = 27.25, df = 12, p ? 0.05). Appendix 65 shows that most of the firms where internet use was low (13 out of 21) had between few staff, while firms that moderately or highly used internet facilities had larger number of staff. Also, most of the firms where information technology facilities was highly available (23 out of 31) had departments, while very few of the firms with low availability of information technology facilities (4 out of 18) had departments. This was thought to be due to the economic status of the firms, but the chi-square test revealed that the variables (perception of success in relation to existence of departments and number of staff) were not significantly related. It is thus possible that the firms used the internet to manage large number of staff, contrary to the suggestion by Amole, (2006) the use of technology would be associated with fewer staff numbers in architectural firms.

The study found that the use of the internet to carry out office activities was not significantly related to any aspect of the structure of the firms. However, the level of availability of information technology facilities was related to the specialization of the duties of clients relations ($?^2$ = 9.07, df = 2, p ? 0.05); sourcing for jobs ($?^2$ = 6.79, df = 2, p ? 0.05); and accounts ($?^2$ = 10.39, df = 2, p ? 0.05). The level of availability of information technology facilities was also related to the level of communication with staff in the office ($?^2$ = 12.97, df = 4, p ? 0.05). Appendix 65 shows that half or more of the firms with where information technology facilities were highly available had at least one staff exclusively responsible for the tasks of client of public relations (16 out of 30); sourcing for jobs (10 out of 20) and accounting (17 out of 30). Few firms with low availability of information technology facilities have at least one staff in charge of those

office tasks. Appendix 65 also shows that communication with staff in the office was informal in most (12 out of 19) of the firms where the availability of information technology facilities was low but formal in most (24 out of 32) of the firms where availability of information technology facilities was high.

It thus appears that good success in terms of profit of the architectural firms was associated with high availability of information technology facilities and high use of internet facilities for office activities. In addition, while high availability of information technology facilities was related to the existence of department; high use of internet facilities was associated with the high number of staff with the architectural offices. The results also show that most of the firms with high availability of information technology facilities had at least one staff in exclusively in charge of the duties of clients or public relations, sourcing for projects and accounting. Communication with staff in the office was also formal in most of the firms with such high availability of information technology facilities.

8.8 Types of Architectural Firms Based on the Office Structure; and Task and Information Technology Characteristics of the Firms

The study examined the types of architectural firms based on their task and information technology characteristics; task and information technology characteristics. The findings are subsequently discussed.

8.8.1 Types of Architectural Firms Based on Office Structure

The study examined the types of architectural firms based on the office structures that the firms sampled had. The two-step cluster analysis of the 31 variables used in investigating the office structure of the firms (appendix 66) was carried out using the log-likelihood distances between groups. The confidence level was set at 95% and variables of importance to the formation of clusters were determined using the chi-square test. The cluster distribution pattern is presented in figure 8.20. A 4 clusters solution was obtained. The pie chart shows that, of the 92 cases, 46(50.00%) firms were assigned to the first cluster, 28(30.43%) firms to the second cluster, 8(8.7%) firms to the third cluster, and 10(10.87%) of the firms belonged to the fourth cluster.

The discriminant analysis carried out to provide validity for the taxonomy obtained showed that 85.9% of the architectural firms based on their office structures were correctly classified through the cluster analysis (appendix 67), suggesting that the four-cluster solution was internally valid.

Figure 8.20: Cluster distributions of firms based on the office structure

Figure 8.21 shows that four variables were responsible for the formation of the first cluster, which was the largest cluster consisting of 50% of the firms. The variables were the degree of centralization of decisions, decision makers on salaries of staff, management of non-design staff and management of projects. All the firms had moderate centralization of decisions. Decisions on salaries of staff were mostly taken by the principal architect, the administrative manager or the accountant. Decisions on management of design staff were mostly taken by the administrative manager or accountant, while decisions on management of projects were mostly taken by senior architect or any architect. It appears that the firms in this cluster had persons in charge of sections of work and they could be described as decentralized firms based on their office structures.

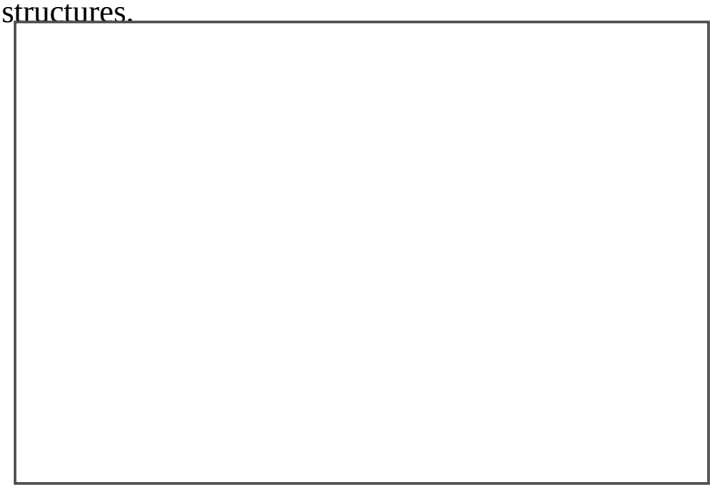


Figure 8.21: Attribute responsible for the formation of the first cluster of firms based on the office structures

The three variables responsible for the formation of the second cluster of firms were the degree of centralization of decisions, decision maker on management of non-design staff and degree of formalization of office activities (figure 8.22). Centralization of decisions in the firms in the second cluster was mostly high, with the principal or the senior architect being responsible for decisions on the management of non-design staff. Office activities in the firms were also mostly informal or moderately formal. These firms could be described as the compact firms based on their office structures.

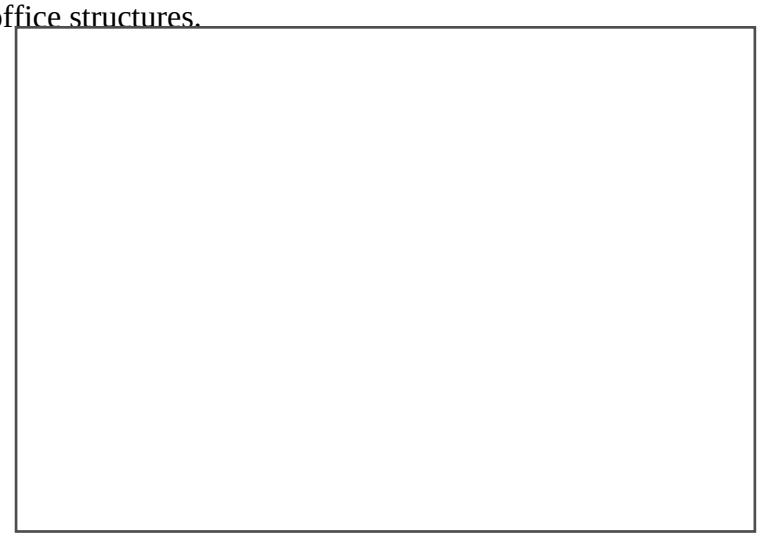


Figure 8.22: Attribute responsible for the formation of the second cluster of firms based on the office structures

Fifteen variables were responsible for the formation of the third cluster of firms based on their structures (figure 8.23). The variables include specialization of the duties of working drawings, maintenance, transport, design, site meetings and welfare as well as the existence of departments. Other variables include level of formalization of communication with other professionals outside the office, financial matters and budgeting; and management decisions; and the decision makers on fees to be charged for projects, collaborations with other firms and design ideas to use for projects. The other two variables were the degree of formalization of office activities and the degree of centralization of decisions. The duties of working drawings, maintenance, transport, design, site meetings, and welfare were not exclusively carried out by any person in the firms in the third cluster. The degree of formalization of office activities was moderate in all the firms, with communication with other professionals outside the office, financial matters and budgeting, and management decisions being fairly formal. The degree of centralization of decisions was also moderate, with the senior architect being tasked with decisions on fees charged for projects, collaborations with other firms and design ideas used for projects. It appears no one in the firms in the third cluster specialized in any basic tasks. This suggests that tasks were probably allocated as the situations demanded. There was however a measure of decentralization of decision-making. The firms could be described as the flexible firms based on their office structures.

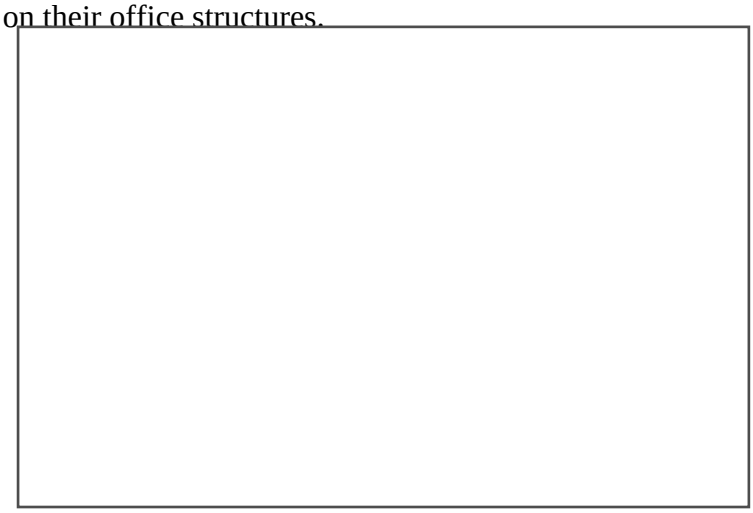


Figure 8.23: Attribute responsible for the formation of the third cluster of firms based on the office structures

The decision maker on the design ideas to use for projects and the degree of centralization of decisions were responsible for the formation of the fourth cluster (figure 8.24). The firms in this cluster operated moderate centralization of decisions, with decisions on design ideas used for projects being the responsibility of the senior architect. Although the responsibility of the design ideas to use for projects was not on the principal architect, it was on the next highest authority in the architectural firms. The firms in the fourth cluster could be described as modulated firms based on their office structure.

Figure 8.24: Attribute responsible for the formation of the fourth cluster of firms based on the office structures

8.8.2 Types of Architectural Firms based on the Task and Information Technology Characteristics of the Firms

The study examined the types of architectural firms based on the task and information technology characteristics that the firms had. The two-step cluster analysis of the 33 variables used in investigating the task and information technology characteristic of the firms (appendix 68) was carried out using the log-likelihood distances between groups. The confidence level was set at 95% and variables of importance to the formation of clusters were determined using the chi-square test. The cluster distribution pattern is presented in figure 8.25. A 3 clusters solution was obtained. The pie chart shows that 46(50.00%) firms were assigned to the first cluster, 39(42.39%) firms to the second cluster, and 7(7.61%) firms to the third cluster.

Based on the discriminate function analysis (appendix 69), 91.3 percent of the architectural firms based on their task and information technology characteristics were determined to be correctly classified through the cluster analysis, suggesting that the three-cluster solution was internally valid. This favourable validity test provides substantial support for the resulting taxonomy of architectural firms based on their task and information technology characteristics.

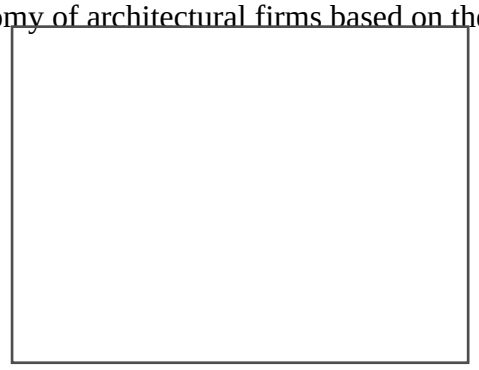


Figure 8.25: Cluster distributions of firms based on the types of task and information technology characteristic

Two variables were responsible for the formation of the first cluster of firms based on the task and information technology characteristics of the firms (figure 8.26). The variables were the use of the internet in carrying out designing and drafting; and project management tasks. The

firms in the first cluster did not carry out designing, drafting, or project management by the use of the internet. It appears that the firms in the first cluster did not use the internet for basic tasks in their firms. The firms could be described as the conservative firms based on their task and information technology characteristics.

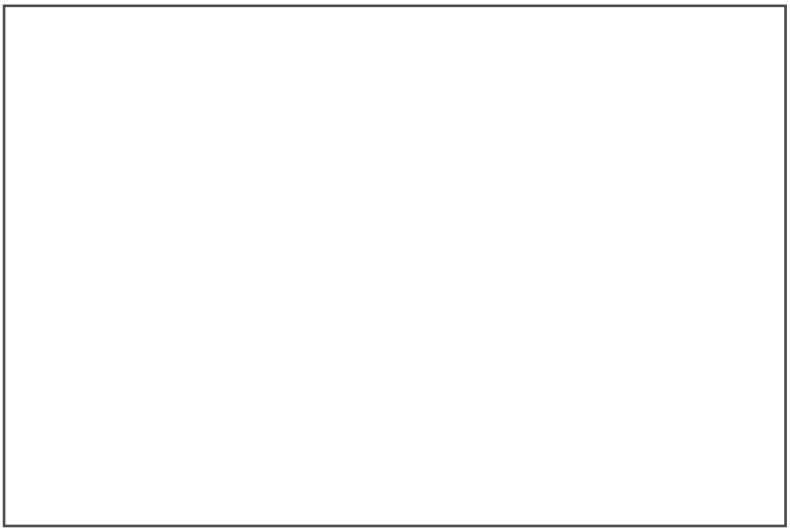


Figure 8.26: Attributes responsible for the formation of the first cluster based on the task and information technology characteristics

The firms in the second cluster grouped based on the performance of designing, drafting and correspondence with staff in the office by the use of the internet; as well as level of availability of the internet and computers in the firms (figure 8.27). Computers were available on all desks in the firms in the second cluster, and internet connection was available on few to all the desks in the firms. All the firms used the internet to carry out design, drafting and for correspondences with staff in the office. It appears that firms in this cluster used information technology in carrying out basic tasks in their offices. These firms can be described as information technology driven firms based on their task and information technology characteristics.

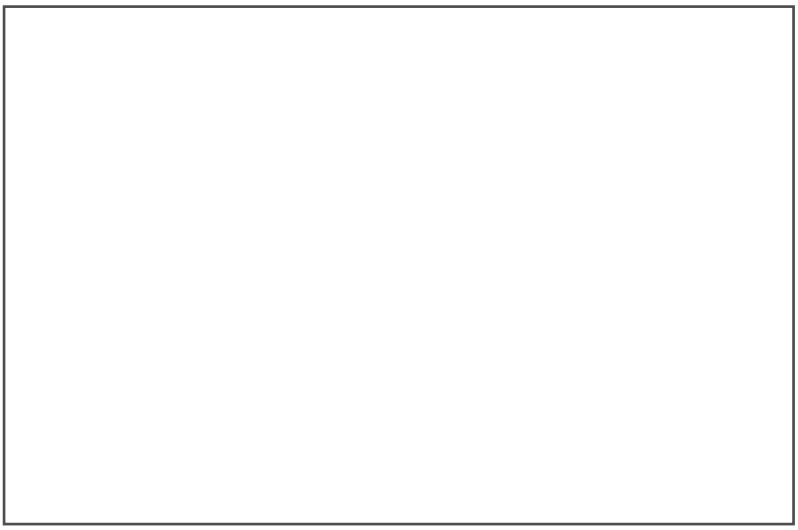


Figure 8.27: Attribute responsible for the formation of the second cluster

Figure 8.28 shows that 16 variables were responsible for the formation of the third cluster

of firms. The variables include offer of landscape design, renovation, restoration, interior and furniture design and sales of building materials services; level of availability of computers, internet, and intranet; and subletting of modeling, sketch design and supervision services. Other variables responsible for the formation of this cluster were existence of a website of the firm and the use of the internet in carrying out designing, drafting, correspondences with other professionals, correspondences with clients, sourcing for information and project management. The firms in the third cluster sometimes offered landscape design, renovation, restoration, interior and furniture design services, but never sold building materials. The firms had computers on all desks and the internet and intranet on some desks in their offices; although they had no website. The internet was fairly used in carrying out designing, drafting, correspondences with other professionals and clients, sourcing for information and project management. Although the firms sublet modeling services, they did not sublet sketch design and supervision. These firms appear to have wider service offerings, and used the internet to carry out basic tasks in the firms, although they only fairly used it. They did not also register their presence on the World Wide Web. The firms can be described as comprehensive local firms based on their task and information technology characteristics.

8.28: Attribute responsible for the formation of the third cluster

8.9 Chapter Summary

This chapter discussed the office, task, and information technology characteristics of the firms sampled. The results showed that most of the firms had at least one task, which was handled exclusively by one staff. In fact, most of the firms had just 1 or 2 tasks exclusively handled by at least one staff, depicting a fair level of specialization of duties and a fair level of horizontal differentiation. The tasks that were mostly handled exclusively by one staff of the firms were working drawing and design. More than half of the firms did not have departments and these were found to be mostly the firms owned by sole Principals or limited liability companies. The firms

that did not have departments were also mostly those that did not have branches or those that had less than 20 staff.

Office activities in most of the firms were also very formal. The most formal activities were communications with clients and communications with other professionals outside the firms. The least formal activities were meetings in the office and communications with staff in the office.

The study also found that decisions in the firms were highly centralized, with the most centralized decisions being those on hiring and promotion of staff, collaboration with other firms and how to get job. The least centralized decision was on managing non-design staff. The study found that the firms that did not have branches highly centralized decisions in the firms. Most of the Principals would also rather delegate authority to the senior architects in the firms, although the study found that some firms delegated authority to executive directors and administrative managers.

The study found five variants of organizational structures of the architectural firms based on the organizational hierarchy. These included two variants of the simple organizational structure, the expanded simple organizational structure, the project/ office manager structure and the departmental structure.

The architectural firms mostly provided design and supervision services, followed by project and construction management. Very few firms provided litigation, arbitration and sale of building materials services. The staff were mostly organized to execute projects as the situations demanded, although most of the firms organized in this way were found to be those with less than 20 staff. The study found that most of the firms with between 1 and 10 members of staff used all hands in the firms for every project, while most of the firms with more than 40 staff used 1 team to begin and finish each project. Most of the firms sublet 1 or more of their services, but the service that they mostly sublet were modeling services.

The study found that information technology facilities were highly available in most of the firms. The most available of the facilities were computers, while the least available were internet facilities. The level of the use of the internet for basic tasks in most of the firms was moderate. The internet was mostly used for sourcing information, and correspondences with other professionals. The internet was least used for communications in the office. The study found that most of the firms where decisions were highly centralized used the internet for designing and drafting. In addition, while most of the firms had electronic mail addresses, very few firms had websites. It appears that most of the firms were not global as the presence of the firms on the web could be an indication of globalization of the firms.

The study found four types of architectural firms based on the office structures of the firm. These included the decentralized firms, which had different persons with different designations making decisions on different aspects of the works of the firms; and the compact firms, with decision highly centralized and moderately formal office activities. Other types of firms based on the office structures included the flexible firms characterized by moderate centralization, no specialization of basic office tasks and moderate specialization; and the modulated firms characterized by moderate centralization and decisions on design ideas to use still centralized but resting on the next highest authority in the firms.

The conservative firms based on the task and information technology characteristic of

the architectural firms were characterized by the non-utilization of the internet for basic tasks like designing, drafting, and project management. The other two types of firms, based on the task and information technology characteristics of the architectural firms, which were found in this study, were the information technology driven firms, and the comprehensive local firms. The information technology driven firms are characterized by availability of the computer and the use of the internet to carry out basic tasks such as design, drafting and correspondences with staff in the office. The comprehensive local firms had the internet and the intranet on most staff desks in their offices, but they had no website. The firms had a wide range of services and fairly used the internet for basic tasks in the offices.

CHAPTER NINE

EXTERNAL INFLUENCES ON FIRMS AND TYPES OF FIRMS

9.0 Introduction

This chapter discusses the external influences on the architecture firms sampled and the attributes of the firms that best distinguished the firms, which were weakly influenced from those that were strongly influenced by the external environment. Next, the chapter discusses the attributes that differentiated between the successful firms, which were weakly influenced from those, which were strongly influenced by the external environment. The typologies of the firms found among the sampled firms using the data collected were lastly discussed. All figures and tables are from the field survey carried out by the researcher between February 2009 and May 2009

9.1 Strength of external influences on firms

The study examined the influences of certain factors of the external environment on the firms. The firms were asked to indicate how strong their perceptions of those factors were on their firms. The scorings for all the factors for each firm were computed to arrive at the strength of the external influences on the firms. The totals ranged from 10 to 50. Total scores from 10 to 23 were re-coded as weak external influence, scores from 24 to 37 re-coded as moderate external influence and scores from 38 to 50 were re-coded as severe external influence. Figure 9.1 shows that 65.38% of the firms were under moderate external influences, 32.69% of the firms indicated that the influences of the external environment on them was severe and 1.92% of the firms indicated that the external environment influenced them weakly.

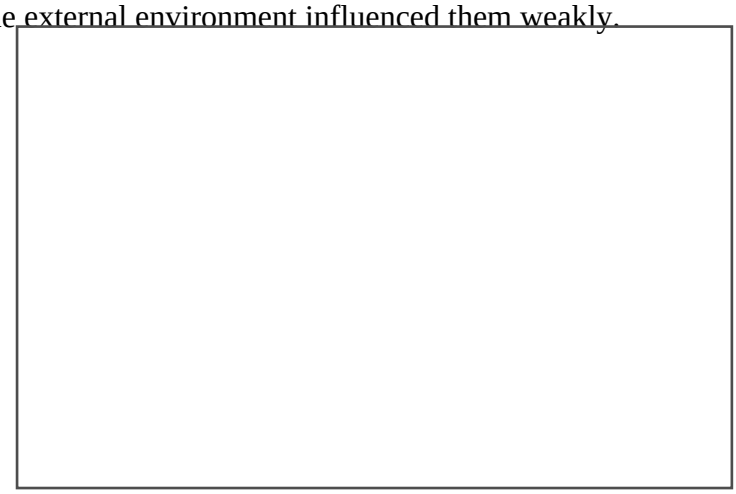


Figure 9.1: Strength of external influences on architectural firms.

Table 9.1 presents the ranking of the influences of the various factors of the external environment on the firms. Clients ranked first, with a mean score of 4.33. Next to clients, based on the strength of its influence on architectural firms were advances in information technology, which ranked second with a mean score of 4.05 and the national economy ranked third with a mean score 3.75. The result also shows that infrastructure ranked fourth with a mean score of 3.74; increasing concern about sustainable environment ranked fifth with a mean score of 3.47 and government policies ranked sixth with a mean score of 3.45. Ranked seventh was the political climate of the country with a mean score of 3.37, followed by other professionals with a mean score of 3.30. Ranked last were the architectural professional bodies in Nigeria (3.20) and current privatization programmes (2.92).

Table 9.1: Ranking of the strength of external influences on architectural firms

Sources of External Influence	Mean score	Rank
Clients	4.33	1
Advances in information technology	4.05	2
The national economy	3.75	3
Infrastructure (e.g. electricity, water etc.)	3.74	4
Increasing concern about sustainable environment	3.47	5
Government policies	3.45	6
The political climate of the country	3.37	7
Other professionals	3.30	8
The architectural professional body (NIA/ ARCON)	3.20	9
Current privatization programmes	2.92	10

The result reveals that clients exerted the strongest influence on the architectural firms. The participants in the interviews also confirm this. The aspect of the clients that the interviewees regarded as affecting their firms was the low level of awareness and understanding of architecture and the role and duties of the architect. One of the interviewees lamented that *"the number one thing is that the practice of architecture is not even developed in Nigeria. The public in Nigeria does not value the architect. They do not even know what the architect is meant to do and they have no respect whatsoever for the profession. What am I really saying? There is no real respect for what the profession really is. Some people feel that when they are going to meet an architect, it is because they are building a house. If that is the case, they cannot respect intellectual property. They look at it now as 'how many sheets are we really talking about'. So, if you charge your fees, they do not really understand."*

Some of the interviewees also agreed that "a*dvances in information technology have affected the firm negatively and I will tell you why, it has moved people from thinking… People can hardly design anymore,"* while some noted that the "*advances in information technology has affected positively is that I can now tell my staff to research on the project- the Internet."* The economy had also influenced the firms as one of the interviewees noted that *"Architectural firms are not doing well……. The economy has a lot to do with it. The scale of fees has remained the same despite the inflation. The rate of inflation of commodities is not matched by adjustments in scale of fees."*

The interviewees further added that the influence of other architectural firms was very strong, as their actions influenced the performance of their firms. One of the participants lamented that "*In Lagos, it's too much …, people scrambling,"* while also lamenting that the unethical actions of some firms affected the firms. One of the interviewees cited an experience when *"there was a project they brought me. The client sent out for a competition to five firms. I refused to take part because one of the firms decided they would do it free. Why will a firm do it for free, because they're going to make money from the construction?"*

Another participant in the interviews also mentioned the influence of the architectural professional body, stating that the inaction of the professional body influenced the architectural firm. She lamented that *"there is no protection for the profession itself. The NIA is not concentrating on issues of importance, developing the entire scale of the profession. I do not really know what they are concentrating on, I was chattered fifteen years ago and I really do not know, maybe politics"*

9.2 The external environment and other characteristics of the architectural firm

According to Rao and Narayana (2000), there is an enormous weight of the external environment on an organization's internal functioning. It was thus of interest to this study to find out the link between the external environment and the organization of architectural firms in Nigeria. Which of the architectural firms' characteristics does the external environment influence most?

A one-way between groups Multivariate Analysis of Variance (MANOVA) was performed to investigate the how firms influenced weakly by the external environment differed from those influences severely by the external environment in their characteristics. The Categorical Principal Component Analysis, (CATCPA) results of the profiles and culture, strategies, structures, information technology and task characteristics of architectural firms (Appendices 70 - 73) were used. The independent variable was the strength of external influences. Two categories of the strength of external influences were however used. Total scores from 10 to 30 were re-coded as weak external influence, while scores from 31 to 50 were re-coded as severe external influence. The results show that the effect of the external environment on the characteristics of the firms was significant and that there was a statistically significant difference between firms that were weakly influenced by the external environment and those that were severely influenced: $F_{(25, 26)} = 2.29$, $p < 0.05$, Wilks' Lambda = 0.31, Partial Eta Squared = 0.68 (appendix 74- multivariate tests).

When the results for the dependent variables were considered separately, using the Benferroni adjustment, two dependent factors were statistically significant (appendix 74 tests of between-subjects effects). The culture of the firm and the qualification of the principal was significant ($F_{(1, 50)} = 4.35$, $p = 0.04$, partial eta squared = 0.80) using the Benferroni adjusted alpha level of 0.06. The goals of the firm was also significant ($F_{(1, 50)} = 9.98$, $p = 0.00$, partial eta squared = 0.16) using the using the Benferroni adjusted alpha level of 0.15.

An inspection of the mean scores (appendix 74-estimated marginal means) indicated that the architectural firms that were weakly influenced by the external environment recorded higher scorings on culture and qualification of principal (M = 0.73, SD = 2.30) than the firms which were severely influenced (M = -0.11, SD = 0.70). However, the architectural firms that were weakly influenced by the external environment recorded lower scorings in their goals (M = -0.78, SD = 1.86) than the architectural firms that were severely influenced (M = 0.25, SD = 0.55).

The firms that indicated that they were weakly influenced by the external environment rated the cultural values of allowing employees to express personal styles, driving employees to achieve results, gender equity in hiring of staff, encouragement of teamwork and allowing new ideas and technology to determine their strategies higher than the firms that were severely influenced by the external environment. Most of the Principals of the firms that were weakly influenced by the external environment had the Bachelor of Architecture (BArch) Degree and had been registered as architects for between 16 and 30 years. However, most of the Principals of the firms that were severely influenced by the external environment had just been registered for between 5 and 25 years and had the Master of Science (MSc) Degree as their highest qualifications.

The results also show that most of the firms that were weakly influenced by the external environment rated the importance of being known by key players in the building industry, for expertise in particular building types, for efficient architectural services and for service to the society lower than the firms than the firms which were severely influenced by the external environment rated those strategic principles. They however rated the importance of having a

broad range of clientele, keeping the firm busy, and being known in important client circles higher than firms that were severely influenced by the external environment did.

These suggest that the firms that were weakly influenced by the external environment had more intense staff management culture (section 6.2) than the firms, which were severely influenced. The Principals of the firms, which were weakly influenced, had been registered as architects longer than the Principals of the firms, which were severely influenced by the external environment. The results also suggest that although the firms that were weakly influenced by the external environment had weaker desire to be known (section 7.2.7) than the firms that were severely influenced by the external environment, they had stronger activity consciousness and variety of clientele.

9.3 Characteristics of architectural firms and success of the firms

The study was interested in finding out the characteristics of the architectural firms, which differentiated between successful and unsuccessful firms. For the purpose of the analysis, the perception of success was re-coded, with responses of good and very good recoded as successful and responses of very poor to fair recoded as unsuccessful. Discriminant analysis was carried out to identify the characteristics, which distinguished successful firms from unsuccessful firms. The analysis was carried out using the factors scores obtained for the profiles, strategy, structure; information technology and tasks characteristics of architectural firms. (Result on the profiles, strategy, structure; information technology and tasks characteristics of architectural firms were reduced using Categorical Principal Component Analysis, CATCPA- see appendix 70-73). The perception of the success of the firms was the dependent variable, while the CATCPA scores were the independent variables. The stepwise method using the wilk's lambda was used and the F value set at 3.84 for entry and 2.71 for removal.

Table 9.2 shows that five factors best discriminated the firms that were successful from those that were unsuccessful. They were the factors with significance of less than 0.05, suggesting that they resulted in significant group differences. The factors included availability and use of information technology facilities (wilks' lambda = 0.78, $F_{(1, 87)} = 23.57$, $p < 0.01$), offer of interior/furniture design and communication with other professionals (wilks' lambda = 0.66, $F_{(1, 86)} = 21.41$, $p < 0.01$), business related training of architect (wilks' lambda = 0.60, $F_{(1, 85)} = 18.32$, $p < 0.01$), offer of variety of services (wilks' lambda = 0.56, $F_{(1, 84)} = 16.26$, $p < 0.01$), and supervision subletting (wilks' lambda = 0.52, $F_{(1, 83)} = 15.34$, $p < 0.01$).

Table 9.2: Discriminant Analysis- Success of Firms

Step	Entered	Wilks' Lambda				
		Statistic	df1	df2	df3	Exact F
						1
	Business-related training of the architects (BRT)					0.41
	Availability and use of information technology facilities (AUIT)					0.80
	Offer of variety of services (ES)					0.41
	Offer of interior/furniture design and communication with other professionals (IUA)					-0.62
	Supervision subletting (SS)					0.40

Table 9.4: Functions at Group Centroids- Success of Firms

perception of success	Function
	1
Successful	0.59
Unsuccessful	-1.52

Unstandardized canonical discriminant functions evaluated at group means

The functions were used to classify the firms. Table 9.5 shows that 85.4% of the firms were correctly classified based on their perception of success. The table shows that 95.3% of the successful firms were correctly classified, with 4.7% being misclassified as unsuccessful while 60.0% of the unsuccessful firms were correctly classified, with 40.0% being misclassified as successful. When cross-validated, 93.8% of the successful firms were correctly classified, while 56% of the unsuccessful firms were correctly classified, giving an overall average of 83.1% of the firms correctly classified. This suggests that the variables were effective in discriminating between the successful and unsuccessful firms.

Table 9.5: Classification Results (b, c)- Success of Firms

perception of success			Predicted Group Membership		Total
			Successful Firms	Unsuccessful firms	
Original	%	Successful Firms	95.3	4.7	100.0
		Unsuccessful firms	40.0	60.0	100.0
		Ungrouped cases	66.7	33.3	100.0
Cross-validated(a)	%	Successful Firms	93.8	6.3	100.0
		Unsuccessful firms	44.0	56.0	100.0

a Cross validation is done only for those cases in the analysis. In cross validation, each case is classified by the functions derived from all cases other than that case.
b 85.4% of original grouped cases correctly classified.
c 83.1% of cross-validated grouped cases correctly classified.

The result suggests that information technology facilities (computers, internet and intranet) were more available in the successful architectural firms than the unsuccessful ones. The use of the internet facilities for drafting, design, graphic presentation, project management and graphic presentation was also more common in the successful firms than the unsuccessful firms. The successful firms also had more architects with the Masters in Business Administration (MBA) degrees and offered more construction, structural design, modeling and project management services than the unsuccessful firms offer. However, the internet was more commonly used to communicate with other professionals in the unsuccessful firms than it was used for such purpose by the successful firms, and the unsuccessful firms carried out interior or furniture design more often than the successful firms did. In addition, the unsuccessful firms mostly sublet supervision services, while most of the successful firms did not.

9.4 Characteristics of architectural firms and success of the firms severely or weakly influenced by the external environment

Rao and Narayana (2000) noted that the contingency theory is premised on the view that

organizations are most effective when the design of the organization fits the contextual environment. Thus, further to section 9.3, the study investigated the characteristics, which differentiated successful firms, which were severely influenced by the external environment from the unsuccessful firms, which were also severely influenced, by the external environment.

Discriminant analysis was carried out to identify the characteristics, which distinguished unsuccessful architectural firms from those that were successful, when the influence of the external environment was severe. The analysis was carried out using the factors scores obtained for the profiles, strategy, structure; information technology and tasks characteristics of architectural firms. (Result on the profiles, strategy, structure; information technology and tasks characteristics of architectural firms were reduced using Categorical Principal Component Analysis, CATCPA- see appendix 70-73). The perception of the success of the firms was the dependent variable, while the CATCPA scores were the independent variables and the strength of influence of the external environment was the selection variable. Only the firms that were severely influenced by the external environment were selected for the analysis. The stepwise method using the wilk's lambda was used and the F value set at 3.84 for entry and 2.71 for removal.

Table 9.6 shows that two factors best discriminated the firms that were successful from those that were unsuccessful when the influence of the external environment was severe. They were the factors with significance of less than 0.05, suggesting that they resulted in significant group differences. The factors were core task specialization and centralization (wilks' lambda = 0.67, $F_{(1, 38)} = 18.49$, $p < 0.01$), and formalization of office activities (wilks' lambda = 0.54, $F_{(1, 37)} = 15.33$, $p < 0.01$).

One discriminant function was extracted, explaining 100%. Wilk's lambda was significant for the function as shown in appendix 75 ($?^2 = 22.33$, df = 2, p ? 0.01), suggesting that the means of the function were equal across groups and the discriminant function does better than chance at separating the groups.

Table 9.6: Discriminant Analysis- Success under severe external influences

Step	Entered	Wilks' Lambda				Exact F	
		Statistic	df1	df2	df3		
	Formalization of office activities (FOA)	0.67					
	Core task specialization and centralization (CTS)	0.95					

Table 9.8: Functions at Group Centroids- Success under severe external influences

perception of success	Function 1
Successful	0.54
Unsuccessful	-1.44

The functions were used to classify the firms. Table 9.9 shows that 87.5% of the firms that were severely influenced by the external environment were correctly classified based on their perception of success. The table shows that 93.1% of the successful firms, which were severely influenced by the external environment, were correctly classified, with 6.9% being misclassified as unsuccessful, while 72.7% of the unsuccessful firms under the same degree of external

influence were correctly classified, with 27.3% being misclassified as successful. When cross-validated, 86.2% of the successful firms, which were severely influenced by the external environment, were correctly classified, while 72.7% of the unsuccessful firms also severely influenced were correctly classified, giving an overall average of 82.5% of the firms correctly classified. This suggests that the variables were effective in discriminating between the successful and unsuccessful firms, which were severely influenced by the external environment.

Table 9.9: Classification Results (b, c)- Success under severe external influences

Perception of Success				Predicted Group Membership		Total
				Successful	Unsuccessful	
Cases Selected	Original	%	Successful	93.1	6.9	100.0
			Unsuccessful	27.3	72.7	100.0
			Ungrouped cases	100.0	0.0	100.0
	Cross-validated(a)	%	Successful	86.2	13.8	100.0
			Unsuccessful	27.3	72.7	100.0

a Cross validation is done only for those cases in the analysis. In cross validation, each case is classified by the functions derived from all cases other than that case.
b 87.5% of selected original grouped cases correctly classified.
c 82.5% of selected cross-validated grouped cases correctly classified.

The result suggests that budgeting and financial matters, management decisions, and meetings in the office were more formal in the successful firms, which were severely influenced by the external environment than in unsuccessful ones under the same degree of external influence. In addition, successful firms, which were severely influenced by the external environment, had at least one staff in charge of the task of working drawing, while the unsuccessful firms influenced to the same degree by the external environment did not. However, while all decisions on the fees to charge for projects were mostly made by the principal in the unsuccessful firms which were severely influenced by the external environment, such decisions were made by different persons ranging from the administrative manager, accountant, senior architect or principal in the successful firms influenced in the same way influenced. It thus appears that only the structure of the firms significantly influenced the success of the firms when the external environment was considered.

Discriminant analysis was also carried out to identify the characteristics which distinguished unsuccessful architectural firms from those that were successful, when the influence of the external environment was weak. This was also done using the perception of the success of the firms as the dependent variable, while the CATCPA scores were the independent variables and the strength of influence of the external environment was the selection variable. Only the firms that were weakly influenced by the external environment were selected for the analysis. The stepwise method using the wilk's lambda was used and the F value set at 3.84 for entry and 2.71 for removal.

Table 9.10 shows that three factors best discriminated the firms that were successful from those that were unsuccessful when the influence of the external environment was weak. They were the factors with significance of less than 0.05, suggesting that they resulted in significant group differences. The factors were age of firm and principal (wilks' lambda = 0.54, $F_{(1, 9)} = 7.43$,

p <0.05), specialization of duties (wilks' lambda = 0.30, $F_{(1, 8)} = 9.15$, p <0.05) and religious clientele (wilks' lambda = 0.14, $F_{(1, 7)} = 14.06$, p <0.05).

Table 9.10: Discriminant Analysis- Success under weak external influences

Step	Entered	Wilks' Lambda				
		Statistic	df1	df2	df3	Exact F
Age of firm and Principal (AP)		1.82				
Religious clientele (RC)		0.99				
Specialization of duties (SD)		1.65				

Table 9.12: Functions at Group Centroids Success under weak external influences

success	Function 1
Successful	-1.04
Unsuccessful	4.71

The functions were used to classify the firms. Table 9.13 shows that 90.9% of the firms that were weakly influenced by the external environment were correctly classified based on their perception of success. The table shows that 100.0% of the successful firms, which were weakly influenced by the external environment, were correctly classified, and 100.0% the unsuccessful firms under the same degree of external influence were correctly classified. When cross-validated, 88.9% of the successful firms, which were weakly influenced by the external environment, were correctly classified, while 100.0% of the unsuccessful firms also weakly influenced were correctly classified, giving an overall average of 90.9% of the firms correctly classified. This suggests that the variables were effective in discriminating between the successful and unsuccessful firms, which were weakly influenced by the external environment.

Perception of Success				Predicted Group Membership		Total
				Successful	Unsuccessful	
Cases Selected	Original	%	Successful	100.0	0.0	100.0
			Unsuccessful	0.0	100.0	100.0
	Cross-validated(a)	%	Successful	88.9	11.1	100.0
			Unsuccessful	0.0	100.0	100.0

Table 9.13: Classification Results (b, c)

a Cross validation is done only for those cases in the analysis. In cross validation, each case is classified by the functions derived from all cases other than that case.

b 100.0% of selected original grouped cases correctly classified.

c 90.9% of selected cross-validated grouped cases correctly classified.

The result suggests that the successful firms and Principals of firms that were weakly influenced by the external environment were younger than the unsuccessful firms and their Principals when also influenced weakly by the external environment. In fact, the successful firms, which were weakly influenced by the external environment, had existed for 15 years or less, and Principals who were between the ages of 31 and 50 years. In addition, most successful firms which were weakly influenced by the external environment did not have departments neither did they engage any staff exclusively on any office duty. The successful firms in this category did not also have any religious client, while the unsuccessful firms weakly influenced by the external environment had.

It thus appears that while the structure of the firms alone distinguished between successful and unsuccessful firms when severe external environmental influence is recorded, other factors such as age of principal and firm, and religious clientele distinguished the firms weakly influenced by the external environment in addition to specialization of duties, which is a structural factor.

9.5 Description of the external factors of the architectural firms

Rao and Narayana (2000) noted that the contingency theory is concerned with the relationship between the relevant environmental variables. The study thus examined the dimensions that best described the external influences on the architectural firms sampled. A principal component analysis was carried out using the variable principal normalization method, the criteria for convergence set at 0.00001. The factor analysis of the external influences variables shows that three (3) factors accounted for 71.69% of the variance in the result (table 9.14). The component loadings in appendix 77 reveal the variables that the factors represented. Table 9.15 show that the first factor which accounted for 29.93% of the variance in the data represented the influences of the national economy (0.52); the political climate (0.82); current privatization programmes (0.82); government policies (0.67); and infrastructure (0.63). The second factor (accounting for 25.06% of the variances between the firms) loaded highly on the influence of advances in information technology (0.84) and clients (0.64) while the third factor (accounting for 16.69% of the variance) loaded highly on the influence of the architectural professional body (0.68).

Table 9.14: Categorical Principal Component Analysis- Model Summary

Dimension	Cronbach's Alpha	Variance Accounted For	
		Total (Eigenvalue)	% of Variance
1	0.74	2.99	29.93
2	0.66	2.50	25.06
3	0.44	1.66	16.69
Total	0.95(a)	7.16	71.69

a Total Cronbach's Alpha is based on the total Eigenvalue.

Table 9.15: Description of Dimensions of the external environment

Dimensions	Variables in Dimension	Factor Score
Dimension 1- The country's socio-economic condition (29.91%)	The national economy	(0.52)
	The political climate of the country	(0.82)
	Current privatization programmes	(0.82)
	Government policies	(0.67)
	Infrastructure	(0.63)
Dimension 2- Advances in information technology and clients (25.09%)	Advances in information technology	(0.84)
	Clients	(0.64)
Dimension 3- The professional body (16.61%)	The Architectural professional body (NIA/ARCON)	(0.68)

The results show that the external influences on the architectural firms could be described by the socio-economic conditions of the country, advances in information technology, clients and the architectural professional bodies.

9.6 Types of Architecture Firms

The researcher was interested in finding out what types of architectural firms existed in Nigeria, based on the characteristics of the firms. The 211 variables responded to by the architectural firms on the characteristics of their firms (appendices 19, 51, 53, 55, 66 and 68) were subjected to the two step cluster analysis to determine natural groupings of the firms, using the log-likelihood distances between groups. The cluster distribution is presented in figure 9.2. A 5 cluster solution was obtained. The table shows that, of the 92 cases, 25(25.17%) firms were assigned to the first cluster, 36(39.13%) to the second cluster, 9(9.78%) to the third cluster, 15(16.3%) to the fourth cluster and 7(7.61%) of the firms to the fifth cluster.

The validity of the cluster solution was tested using the discriminant analysis. The analysis showed that 100% of the firms were determined to be correctly classified by the cluster analysis (appendix 78), revealing that the five-cluster solution was internally valid.

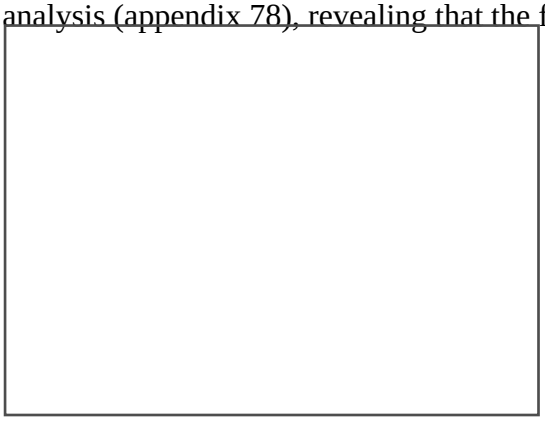


Figure 9.2: Cluster Distributions Based on their Types

A further examination of the variables that were important in formation of the different clusters was carried out. Figure 9.3 reveals the variable that was important in defining the first cluster. This variable was the number of male architects. All the firms in this cluster had more than 5 male architects. The firms within this cluster can be described as male dominated firms.

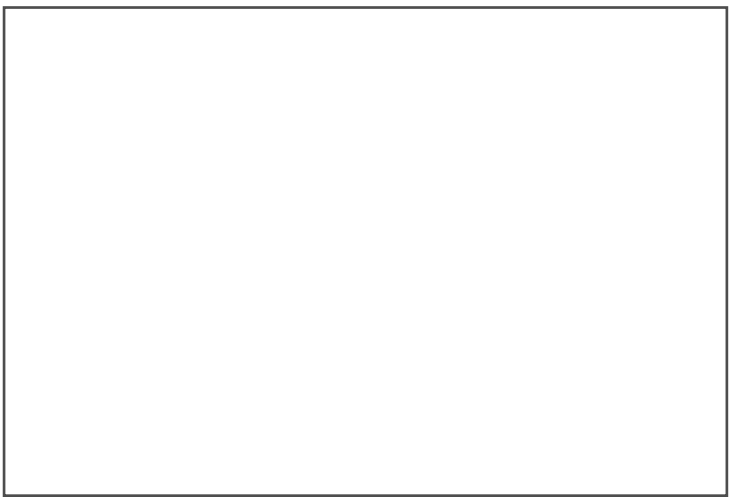


Figure 9.3: Attributes important in the formation of the first cluster of firms based on their types

No particular variable was important in the formation of the second cluster, as presented in figure 9.4. These could be referred to as the small amorphous firms.

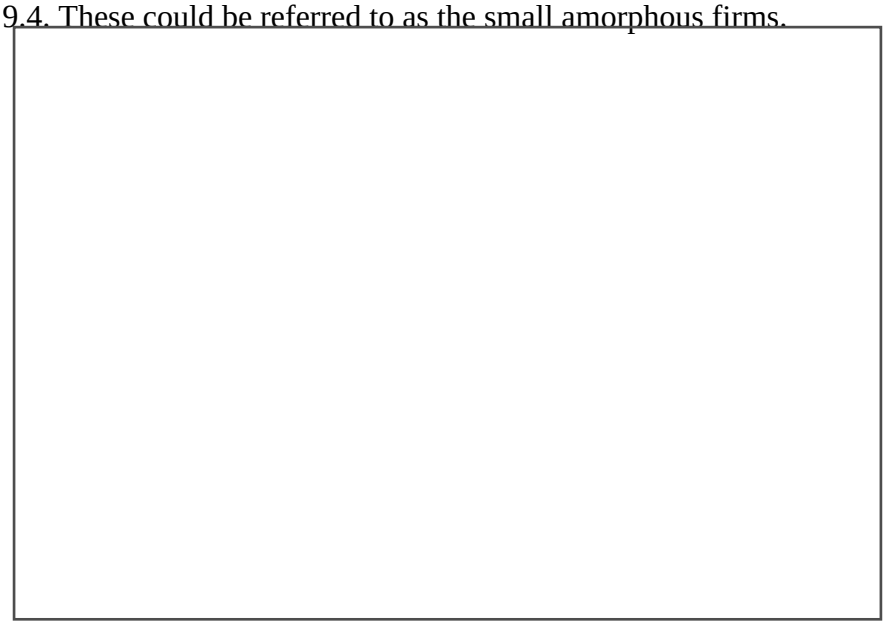


Figure 9.4: Attributes important in the formation of the second cluster of firms based on their types

Figure 9.5 shows that the only attribute that was important in the formation of the third cluster are the proportion of other types of clients. The firms within the third cluster no other type of clients. These firms can be described as conventional firms.

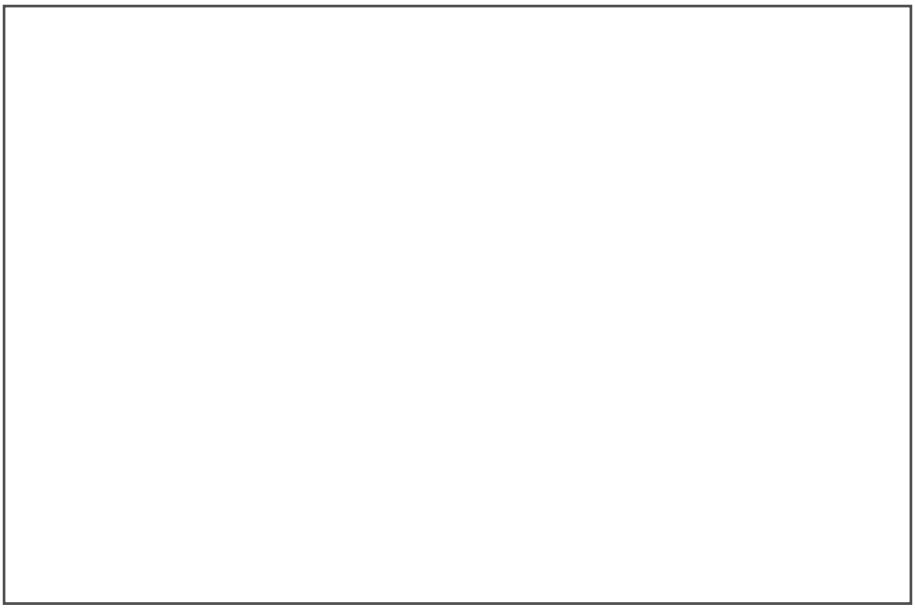


Figure 9.5: Attributes important in the formation of the third cluster of firms based on their types

The religious buildings in a firm's portfolio, and the importance of maintaining tradition and consistency were the important attributes that made firms in cluster 4 to form (figure 9.6). Maintaining tradition and consistency was important to the firms in this cluster and they had no religious clients. These firms can be described as the stable or traditional firms.

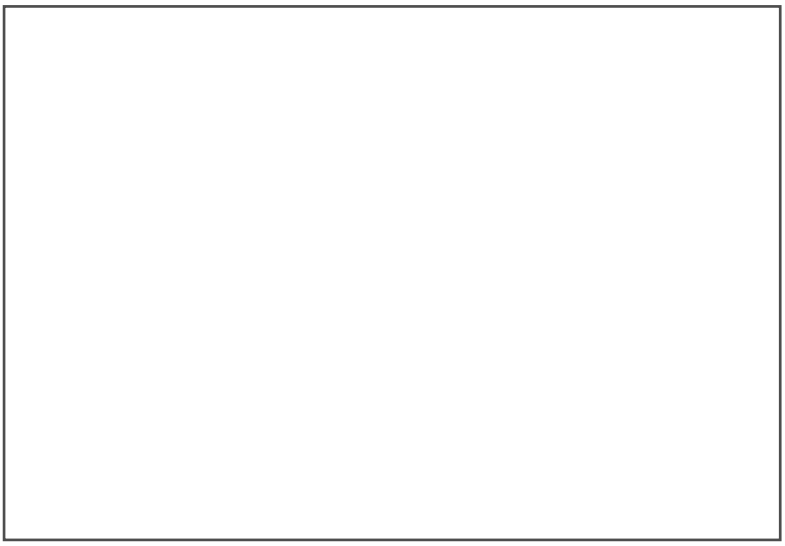


Figure 9.6: Attributes important in the formation of the fourth cluster of firms based on their types

Thirteen important variables led the formation of the fifth cluster of firms. The variables, as shown in figure 9.7 included offering of landscape design, and valuation services; subletting of sketch design tasks, performance of design, drafting and project management services through the internet; and specialization of working drawings and modeling services. Other variables include importance of the knowledge of construction in the selection of staff; mode of organizing staff to execute projects; and the encouragement of staff to express personal styles and initiatives. The

remaining variables were collaborations because of the size of the project, importance of being known by key players in the building industry and level of availability of information technology facilities. The firms in the fifth cluster sometimes carried out landscape design and valuation services, they did not sublet sketch design tasks, had at least one personnel that exclusively carried out the task of working drawings, but not the task of modeling. Information technology facilities were fairly available in the firms in the fifth cluster and the internet fairly used to perform design, drafting, and project management tasks. The knowledge of construction was an important criterion in the selection of the staff of the firms in the fifth cluster. The firms held a small core of committed staff, employing additional staff as required and encouraged staff to express personal styles and initiatives. The firms did not collaborate because of the size of the projects and but sought to be known by key-players in the building industry. It appears that the firms in this cluster had wider service offerings, took advantage of advances in information technology in executing basic tasks and staffed their firms with persons with the knowledge of construction. This suggests that the firms in this cluster took advantage of all opportunities from service offerings, technology, staff, to being acquainted to key players in the industry. These firms can be described as the versatile firms

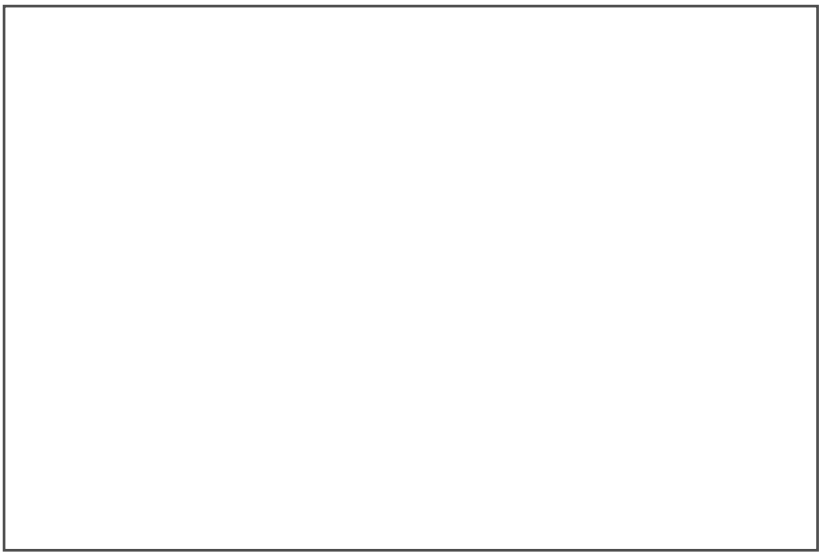


Figure 9.7: Attributes important in the formation of the fifth cluster of firms based on their types

9.7 Determinants of organizational differences between architectural firms

Both Thompson et al., (2004) and Blau, (1984) asserted that the driving force of firms, which is their ideology, is the major underlying cause of differences in organizations. It was thus of interest to this study to however find out the factors which were most closely associated with the differences observed in the types of architectural firms and the proportion of variance in the architectural firms that were explained by the factors. Multiple regression analysis was thus carried out to establish the relationship between the types of firms and factors of the firms' characteristics. The object scores obtained from the categorical principal component analysis (appendices 70-73) were entered as independent variables, while the firm types were the dependent variables. The step-wise procedure was used, with the probability of F test of significance of regression being set at 0.05 for entry and 0.10 for removal. The Four models were obtained as shown appendix 79. Analysis of Variance (ANOVA) table in appendix 79 shows that

the F statistics for the five models obtained were significant.

Appendix 79 shows that the model as a whole explained 73.3% of the variance in the architectural firms sampled. In the stepwise multiple regression analysis, specialization of office duties entered first and explained 42% of the variance in architectural firm type ($F_{1, 90} = 65.27$, $p < 0.01$). Offer of variety of services was entered second and explained a further 12.6 percent of the variance ($F_{2, 89} = 24.72$, $p < 0.01$). Next entered was international collaboration, which also accounted for 12.6 percent of the variance in architectural firms ($F_{3,88} = 33.93$, $p < 0.01$). Availability and use of information technology facilities for office activities entered fourth and accounted for 3.7% of the variance in the architectural firms ($F_{4,87} = 11.15$, $p < 0.01$), while size of the firm entered last as a cause of variance in the firms, accounting for 2.3% of that variance ($F_{5,86} = 7.42$, $p < 0.01$).

The results show that, contrary to the assertions of Thompson et al., (2004) and Blau, (1984), the major underlying causes of differences between architectural firms in Nigeria were not the ideologies of the firms. Rather, they were the level of specialization of activities, varieties of services offered, international collaborations, level of availability and use of information technology facilities and the sizes of the firms, which overall accounted for 73.3 percent of the variances observed in the organization of the architectural firms sampled.

9.8 Chapter Summary

The external influences on most of the firms were not so strong and clients, advances in information technology and the national economy exerted the greatest influences. The study found that the staff management culture, strategic goals of the firms (desire to be known, activity consciousness and variety of clientele) and the qualification and experience of the principal differentiated the firms that were weakly influenced by the external environment from the ones that were severely influenced.

The successful architectural firms in the study were found to score higher in the availability and use of information technology facilities. The use of the internet facilities for drafting, design, graphic presentation, project management and graphic presentation was also more common in the successful firms than the unsuccessful firms. The successful firms also had more architects with the Masters in Business Administration (MBA) degrees and offered more construction, structural design, modeling and project management services than the unsuccessful firms offer. However, the internet was more commonly used to communicate with other professionals in the unsuccessful firms than it was used for such purpose by the successful firms, and the unsuccessful firms carried out interior or furniture design more often than the successful firms did. In addition, the unsuccessful firms mostly sublet supervision services, while most of the successful firms did not.

When severely influenced by the external environment the firms that were successful architectural firms had more formal office activities than the unsuccessful ones. In addition, successful firms, which were severely influenced by the external environment, had at least one staff in charge of the task of working drawing, while the unsuccessful firms influenced to the same degree by the external environment did not. However, while all decisions on the fees to charge for projects were mostly made by the principal in the unsuccessful firms, which were severely influenced by the external environment, such decisions were less centralized in the successful firms influenced to the same degree.

The results show that the external influences on the architectural firms could be described

by the socio-economic conditions of the country, advances in information technology, clients and the architectural professional bodies.

This chapter discussed the types of architecture firms which existed among the firms that were sampled in Nigeria. Five types of firms were found which were the male-dominated firms, the amorphous firms, the conventional firms, the stable/ traditional firms and the versatile firms. The male-dominated firms had more than 5 male architects while the amorphous firms were not characterized by anything in particular. The conventional firms did not have any other client groups apart from the usual ones. The study also found that maintaining tradition and consistency; and absence of religious clients characterized the stable/ traditional firms, while the unreserved firms were characterized by wide-ranging service offerings, fair use of information technology, and staff that had the knowledge of construction.

Finally, the study found that the most important causes of differences between architectural firms in Nigeria were level of specialization of activities, and varieties of services offered, which accounted for more than half of the differences between the firms. Other factors that caused significant differences between the firms were international collaborations, level of availability and use of information technology facilities and the sizes of the firms.

CHAPTER TEN

SUMMARY AND CONCLUSIONS

10.0 Introduction

In this chapter, the aim is to provide a summary and overview of the research, followed by concluding comments. At the end, an attempt would be made to point out opportunities for related future research.

1. Summary of Results and Discussions

Very little is known and documented about what architectural firms in Nigeria are like. This study was thus an attempt to understand and describe the characteristics of architectural firms in Nigeria. It is believed that for the profession of architecture to develop strategic plans for its development, a thorough understanding of the basic characteristics of the architectural firms, particularly those that employed the largest number of architects in the country, is needed. There is however a dearth of basic information on the nature of existing architectural firms in Nigeria, resulting in young architects being left to grapple with the understanding of the local context of practice when they actually start practicing.

The study sets out to examine the organizational profiles, and the operational (information technology, task and managerial -strategy and structural) characteristics; of the selected architectural firms in Nigeria. The study also set out to identify the external influences on the architectural firms, investigate the relationships, which exist between the profiles of the firms, operational characteristics and the external influences of the selected firms, and to identify the types of architectural firms that exist in Nigeria.

The study found that the architectural firms in Nigeria were still at a low level of globalization. A high level of availability and use of information technology was recorded among the architectural firms sampled and this, according to Knox and Taylor (2005), enables globalization. The firms however had very few international clienteles, very few offices outside Nigeria, and very few of the firms collaborated internationally. The study also found that the profiles of the firms in Nigeria were different from the architectural firms in other countries. The firms in Nigeria were larger, had more female Principals and had more allied professionals than the firms in Britain. However, the architectural firms in Nigeria had fewer female staff than their counterparts in Britain and the United States of America.

The firms in Nigeria were found to be highly professional, with most of the Principals and staff having the professionally registerable degrees of Bachelor of Architecture (BArch) or Master of Science (MSc) in Architecture. Most of the Principals had also worked in 2 firms for upwards of 10 years before starting their firms. Most of the Principals had also been registered with the professional body for 5 years or more. It was also interesting to note that most of the Principals that had other qualifications in addition to their basic qualifications in architecture had qualifications related to business. The findings of the study however refuted the argument by Bucher and Stelling (1969) that there is continual internal differentiation in professional organizations resulting in the proliferation of departments and teams. The study found that just about half the firms had departments, and very few of the firms had teams handling projects,

although this was found to be related to the sizes of the firms. The architectural firms were however similar to other professional organizations in that hierarchy was also rare. In fact, the hierarchical culture was not found at all in the architectural firms studied.

The study also found that most of the architectural firms in Nigeria ranked innovation high. They however did not rank aggression in the pursuit of business opportunities or concern for profit as high. Also, although innovation ranked first as a cultural value of the architectural firm, satisfying the needs of the client was the most important strategic principle that the architectural firms had. The architectural firms would also rather make money than just keep the firms busy or just be known in the building industry. In the same way, more than half of the architectural firms did not have the culture of reflecting their identities in their reception areas by the use of drawings and models, or other items related to their work or their achievements. The study also found that most of the Principals described themselves as productivity-oriented achievers; while very few described themselves as mentor. The results however showed that most of the firms where the Principals described themselves as productivity-oriented achievers had sole Principal form of ownership, while most of the firms where the Principals described themselves as mentors had the partnership form of ownership.

Most of the clients of the architectural firms were sourced through personal contact and the projects most of the firms carried out were the ones that were more readily available. The clients of the firms were thus mostly private individuals in Nigeria and most of their projects were residential projects. It was interesting to note that most of the firms participated in projects that used the design and build procurement method and their participation were related to the proportion of the residential projects that the firms had. Participation in projects that used the design and build procurement method however appear to be a survival strategy as the firms that had existed for more than 15 years did not participate in this procurement method. The firms also mostly used competence in design, followed by AUTOCAD and information technology literacy as criteria for the selection of staff.

The study found that the types of firms based on the business strategies adopted by architectural firms in the Britain (Katsanis and Katsanis, 2001) were also found among the architectural firms in Nigeria. This suggests that the firms irrespective of their locations sources for their jobs in similar ways. Also, two of the types of firms based on culture were similar in way to those obtained by Cameron et al. (1999) for organizations generally. However, the market and hierarchical types were completely absent confirming that professional organizations are indeed different. It was interesting however to note that the types of firms based on the competitive strategies of the firms found by Schwennsen (2004) were not found among the firms in Nigeria. This may be due to the fact that the ways the firms responded to competition was dictated by the environments in which they operated. This is also corroborated by the fact that the staff of organizations were hired into functional departments, while the study shows that the staff of architectural firms was not necessarily hired into any department. Also, while organizations that decentralized decisions were more successful than those that did not, architectural firms that centralized decisions were more successful that those that decentralized decisions. It thus appears that the types of firms found in the study were contingent on the contexts of the firms and the firms were not the same.

The study found the characteristics that differentiated successful firms from unsuccessful firms were the availability and use of information technology facilities, the use of the internet and

offer of additional services, the offer of variety of services, the business training of architects, and the subletting of supervision services. In fact, the most important causes of differences between the types of architectural firms in Nigeria were level of specialization of activities, and the varieties of services offered, which accounted for more than half of the differences between the firms.

This study on architectural firms using the systems approach proved to be useful as it afforded the opportunity to use the multivariate approach to investigate interrelationships between the various parts that make up the organization of the architectural firms. This has culminated in the identification of natural clusters of architectural firms. With this approach, the architectural firms have been compared and contrasted at several points, using the subsystems as bases.

2. Implications of findings

This section draws attention to some consequences arising from the data analyzed in the short and long-term perspectives. The implications for education and the implications for the practice of architecture are subsequently discussed.

An issue that arose from this research is that most architectural firms played down on need for the professional firms to develop and follow the worldwide trend of globalization. There was a very low level of globalization, suggesting that most of the architectural firms were still local. There is the need for architectural firms in Nigeria to utilize the opportunity that information technology offers in terms of operating internationally. In addition, the high level of availability and use of information technology facilities, and the varieties of services offered including structural design, construction, project management and modeling were also found to be important attributes of the successful architectural firms. This suggests the need for architectural firms to better use information technology and open up to the provision of other related services apart from the core architectural firms.

The study also found the basic characteristics of architectural firms in Nigeria and these findings can be useful for the development of the much-needed strategic plan for the development of the profession. The findings on the responses of the architectural firms to external influences also suggest the areas of internal planning which architectural firms can concentrate on depending on the degree to which they are influenced by the external environment.

The high level of professionalization suggests there is a need for schools of architecture to further integrate internship as part of the programme of study of the students. There is also a need to concentrate on competence in design and information technology and AUTOCAD literacy of the students as these were more important criteria in the selection of the staff of the architectural firms than the educational qualification itself. The results also suggest the need for architectural firms to train students of architecture extensively in construction and projects management as design and build and projects management were more popular project procurement methods that the firms engaged in. The business related training of architects was also found to be one of the significant determinants of the success of the architectural firms. This suggests that business studies should be integrated into the curriculum of architectural schools in Nigeria to ensure that upcoming architects are thoroughly prepared before they leave school. The need for business training of practicing architects also needs to be addresses through the Continuous Professional Development (CPD) of the Nigerian Institute of Architects.

The context of practice of architectural firms in Nigeria was established by the study. The findings of the study can thus be used as a basis for the development of a book, which can be used to teach the organization of architectural firms, instead of using foreign practices as examples.

The architectural firms were found to be different from other organizations. In addition, in terms of the way they competed, the architectural firms were different from the architectural firms in other countries. Most importantly, the typologies suggest that architectural firms are different from one another. Architectural firms can no longer be assumed different: they are indeed different. This suggests that architectural firms should further be studied as unique organizations, where assumptions about organizations generally do not hold. This also suggests the need for architectural firms in Nigeria to devise their own ways of running their firms, different from the way architectural firms in other countries are organized.

The systems approach to the study of architectural firms was also found to be useful, confirming that architectural firms as organizations could also be expected to differ both in their internal structure and in the way that they respond to the external influences. It thus confirms that the ways that the architectural firms were organized was depends on or is contingent on the other factors within and outside the firms. This suggests that more empirical studies on architectural firms, which also adopt the holistic stance of the systems approach, may be useful to investigate further differences and similarities between architectural firms.

10.4 Opportunities for Further Research

This study is probably the pioneering study on the characteristics of architectural firms in Nigeria. Consequently, further opportunities abound particularly in further applied research. Supplementary studies on the same topic would be useful and complimentary if they covered the whole country rather than areas where architectural firms are concentrated. It would also be useful to address in details the characteristics of successful architectural firms in Nigeria.

From the point of view of basic literature, an opportunity for further research exists in terms of the study of particular types of architectural firms that exist in the country. The practical management of the types of firms identified can be further studied. The level of specialization of activities, varieties of services offered, international collaborations, level of availability and use of information technology facilities and the sizes of the firms could also be further studied vis-à-vis the types of architectural firms.

10.5 Concluding Remarks

What are probably unique about this study are its empiricism, and its systems approach in studying architectural firms. The contribution of the study to literature on Nigerian architectural firms is therefore both methodological and theoretical. The study has identified the peculiar organizational characteristics of architectural firms in Nigeria. It has also identified the principles of organizational processes and functioning of architectural firms in Nigeria using the systems approach to the study of organizations. The dominant responses to the influences of the external

environment were also identified. Lastly, the study identified the types of architectural firms in Nigeria and the major factors in the architectural firms that contributed to the differences between the firms.

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APPENDICES
Appendix 1
Questionnaire

Dear Sir/Madam,

Kindly give candid answers to the questions below. The questionnaire is designed to collect information for a Ph.D. research on the characteristics of architectural firms in Nigeria. I would be grateful if the principal or a senior partner completes the questionnaire. The goal of the research is to understand and describe fully these firms. Please be assured that the information which you will provide will be treated in strict confidence and the results will be published only in an aggregated form. Your firm will remain anonymous. I hope to give you a summary of the findings at the end of the research.

Thank you.

Arc. Adedapo Oluwatayo
Department of Architecture
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General instruction

Please answer the following questions by ticking the relevant answers. Some questions may require you to circle one answer only, whereas others may request you to circle more than one number. The numbers beside the answers are for official use only.

Section A: (Organizational Profile)

Section A1

1. When was the firm established? 19……/ 20…….
2. Is your firm registered with ARCON? Yes [1] No [2] Not sure [3]
3. If yes to (2) above, when? 19……/ 20…….
4. How would you describe the form of ownership of this firm?
   Sole Principal 1] Partnership [2] Unlimited liability company [3]
   Limited liability company [4] Public company [5] Not Sure [6]
5. In which city or town is the head office of your firm located? …….
6. Does your firm have branches in Nigeria? Yes [1] No [2] Not sure [3]
7. If yes to (6) above, how many? [1] [2] [3] [4] [5] [6] [7 or more]
8. In which cities are these other branches located?

……

9. Does your firm have branches in West Africa and other parts of the world?
   Yes [1] No [2] Not sure [3]
10. What is the total number of each of the following professionals in your firm?

Professionals	No of staff
a. Architects	
b. All engineers	
c. Quantity surveyors	
d. Builders	
e. Urban designers/others	
f. Administrative staff	
g. Accountants	
h. Others	

11. How many of the architects in your office have the following qualifications?

	OND/ HND	BSc	BArch or MSc	PhD	Other qualifications (Specify…….…….)	MNIA/FNIA
Architects						

12. How many architects are in the following categories?

	(a) Partners	(b) Senior Architects	(c) Junior Architects	(d) Trainee Architects	(e)Others specify (……)
No of architects					

. How many of your staff belong to the following gender groups?

	Male [a]	Female [b]
13. Architects		
14. Other professionals		
15. Administrative staff/ accountants		

Section A2

16. Please indicate how much of each of the following client types is comprised in your clientele, past and present?

Client type	None of my clientele [1]	Few of my clientele [2]	Some of my clientele [3]	Majority of my clientele [4]	All of my clientele [5]
a. Individual clients in Nigeria					
b. Private organizations in Nigeria					
c. Banks and financial institutions in Nigeria					
d. Religious organizations in Nigeria					
e. Local/ State/ Federal governments					
f. International private individual clients					
g. International organizations					
h. Others (…….……)					

Section A3

17. What is your perception of the success of your firm's profit in the last two years?

Very good [1] Good [2] Fair [3] Not so good [4] Very Poor [5]

18. In the last two years, please indicate the average size of most of the projects that you did?

Below N 10 million [1] N 11 - N 50 million [2] N 51 - N 100 million [3]

N 101- N 500 N million[4] N 501 million - N 1 billion [5] Above N 1 billion [6]

19. What range of projects does your firm intend to target in the next one year?

Below N 10 million [1] N 11 - N 50 million [2] N 51 - N 100 million [3]

N 101- N 500 N million [4] N 501 million - N 1 billion [5] Above N 1 Billion [6]

20. How do you get remunerated for most of your projects?

Scale of fees [1] Bid / Negotiation [2] Others [3] (Please specify)……

Section A4

21. How applicable are the following statements to your firm? Tick the level of applicability on a scale of 1 to 5.

	[1] Not applicable at all	[2]	[3]	[4]	[5] Very applicable
a. In this firm innovation is very important					
b. The Staff are encouraged to express their personal styles and initiative					
c. This firm is concerned mainly about profits					
d. Teamwork and staff development is very important in this firm					
e. Employees are driven to achieve results					
f. In this firm, female architects will be just as easily hired as their male counterparts					
g. In this firm, new ideas and technology are the most important determinant of our strategy					
h. This firm will aggressively pursue every business opportunities					
i. Female architects are given the same job as their male counterparts in this firm					
j. Our firm exercises a lot of caution in risky ventures					
k. Maintaining a tradition and consistency is important in this firm					

22. Which of the following is displayed in the reception area? (please tick as many)

Drawings [1] Models [2] Arts works/paintings [3]

Plants [4] Awards, plaques, souvenirs [5] Reading materials [6]

23. How is most of your office designed?

As Cubicles/ individual offices [1]

Open plan design/ One or two large workspaces for the staff [2]

Partly open plan and partly cubicles {3}

Section A5: Characteristics of the principal partner

24. What is the sex of the principal partner? Male [1] Female [2]

25. Please tick the age group of the principal partner.

Below 30 [1] 31-40 [2] 41-50 [3] 51-65 [4] Above 65 [5]

26. What is the highest qualification of the principal partner in architecture?

HND [1] BSc [2] MSc{3} BArch [4] Others [5] (specify……..…**)**

27. When did the principal partner obtain the qualification above? 19…… 20……

28. Does he/she have other qualifications apart from his/her degree(s) in architecture?

Yes [1] No [2] Not sure [3]

If yes which qualification(s)?……..……

30. How long has the principal partner been registered as an architect?

Above 30 years [1] 24-30years [2] 16-25 years [3]

5- 15 years [4] Less than 5 years [5]

31. Which institution did the principal partner attend?……

How many firms have the principal partner worked previously?

[1] [2] [3] [4] [5 or more] None [6]

How would you describe the principal?

A mentor in the firm [1] A visionary and innovative leader [2]

An efficient manager [3] A productivity-oriented achiever [4]

Others [5] (Please specify…….)

Section B1: Strategies of the firm

34. Which clients does your firm often target?

Private local individuals [1] Private local organizations [2] Governments [3]

International organizations [4] International private individuals [5]

Others [6] (specify……..)

35. Please tick the proportion of your projects that come through each of the following sources.

Source of project	None[1]	Few[2]	Some[3]	Many[4]	All[5]
a. Family and friends					
b. Our personal contacts					
c. Public relations strategies of the firm including office brochures					
d. Old clients					
e. Other professionals					
f. Previous projects					
g. Others (specify…….……)					

36. How important are the following to the goals of your firm?

Actions	Not at all [1]	Fairly important [2]	Neutral [3]	Important [4]	Very important [5]
a. Satisfying the needs of clients					
b. Generating new design ideas and being creative					

c. Making money					
d. To be known by key players in the building industry					
e. To be known for expertise in particular building types					
f. To be known for efficient architectural services					
g. Having a broad range of clientele					
h. Keeping the firm busy always					
i. To be known in important clientele circles					
j. Service to society/ enhancing the environment by design					

37. Has the firm ever collaborated with other firms on certain projects locally?

Yes [1] No [2] Not sure [3]

38. Has the firm ever collaborated with other firms on certain projects internationally?

Yes [1] No [2] Not sure [3]

39. If yes to question 37 and/or 38, which type of collaborations?

Combining expertise [1] Sharing facilities [2]

Others [3] (Please Specify……)

40. Which type of firms did your firm collaborate with?

	Architectural firms [1]	Other professional firms[2]	Others [3] (specify ……)
(a) locally			
(b) internationally			

41. What was the usual reason for such collaborations that were local?

The size of the project [1]

It was a requirement of the clients [2]

To take advantage of the expertise of the other firm [3]

To take advantage of the experience of the other firm(s) [4]

The nature of the project [5]

Others [6] (please specify……)

42 Does the firm have any long-term contract(s)?

Yes [1] No [2] Not sure [3]

43. About what proportion of your commissions in a year are usually sub-commissions?

None [1] A quarter [2] Half [3] Three-quarters [4] All [5]

44. Which of the following procurement types does your firm get involved in most?

Design and build [1] Architect only supervises projects [2]

Project management [3] Design and manage [4]

Private finance initiative [5] Others [6] (specify……..)

45. How important are the following criteria to your selection of new architects as staff?

Criteria	Not important	Fairly important	Neutral	Important	Most important
a. Design competence					
b. Knowledge of construction					
c. AUTOCAD/ IT literacy					
d. Sex (gender)					
e. Personality					
f. Educational qualification					
g. Interpersonal/ Managerial skills					
i. Others (specify)……					

What does your firm do to retain competent staff?(tick as many)

(a) Improved salary (b) Retention bonus (c) Performance bonus

(c) Rewards and recognition (d) Staff development (e) Leadership development

(f) Others (Please specify)…….

47. How is the staffing for each project organized?

Employing temporary staff for each project [1] Employing all required staff [2]

Holding a small core of committed staff and employing additional staff for projects as required [3]

Others [4] (Specify)…….

Section B2: Structure of the firm

49. Does the firm have departments/ work units (accounting, personnel, transportation etc)?

Yes [1] No [2] Not sure [3]

47. Which of the following activities are dealt with exclusively by at least one full time personnel? (Please tick as many as apply)

a. Public/ clients relations d. Sourcing for job g. Transport j. Modeling
b. Personnel e. Maintenance h. Training k. Site meetings
c. Working drawings f. Accounts i. Design l. Welfare

48. Please list the official job titles used in your firm (e.g. principal partner, clerk, drivers etc.)……
……

49. How formal (written or documented) are the following office tasks?

Task	Informal	Fairly formal	Very formal
a. Communication with staff within the office			
b. Communication with other professionals			
c. Communication with clients			
d. Financial matters and budgeting			
e. Management decisions			
f. Staff working conditions and job descriptions			

g. Meetings in the office			

50. Who usually takes decisions about the following?

Issues requiring decisions	Principal Partner	Senior architect	Any architect	Admin. Manager /Accountant	Any Admin staff	Any staff
a. How to get new jobs and clients						
b. Collaborations with other firms						
c. Managing the non-design staff						
d. Fees to be charged for projects						
e. Hiring /promotion of architects						
f. Design ideas to use in projects						
g. Managing projects						
h. Salaries of staff						

51. Who takes over in the principal's absence?……..……

Section B3: Information Technology characteristics

52. Please indicate how widespread each of the following facilities is in your firm?

Facility	Not available at all	Available at few staff desks	Available at most staff desks	Available at all staff desks
a. Computers				
b. Intranet/ local networking				
c. Internet				

53. Do you perform the following tasks through the Internet/ e-mail?

Task	Not at all	Fairly	Very much
a. Designing/ drafting			
b. Project management			
c. Correspondence with staff in the office			
d. Correspondence with clients			
e. Correspondence with other professionals			
f. Graphic presentation			
g. Sourcing information for design			

54. Does your firm have a website? Yes [1] No [2] Not sure [3]

55. Does your firm have e-mail address? Yes [1] No [2] Not sure [3]

Section B4: Task environment

56. Does your firm offer the following services?

Services	Never	Sometimes	Always
a. Architectural design and supervision			
b. Construction			
c. Landscape design			
d. Feasibility studies			
e. Valuation			
f. Urban design			
g. Interior/ furniture design			
h. Renovation/Restoration			
Services	Never	Sometimes	Always
i. Litigation and arbitration			
j. Sales of building materials			
k. Structural design			
l. Modeling			
m. Project/ construction management			
n. Others (specify)……			

57. Please indicate the proportion of projects that each of the following represent in the firm's portfolio

Project type	Not at all	Some	Most	All
a. Residential				
b. Commercial (including offices)				
c. Hospitality (hotels, restaurants etc.)				
d. Educational				
e. Healthcare				
f. Cultural/ entertainment (theatres, museums)				
g. Civic building				
h. Religious buildings				
i. Transportation (airports, garages) and urban projects				
j. Others (specify……)				

58. Why does the firm have the types of projects in (57) above?

They are more readily available [1] Such projects are more profitable [2]
The firm is positioned to source such projects [3] The firm handles such specialized projects [4]
No specific reason [5] Do not Know [6]

59. How are design projects carried out in the office?

Using one team to begin and complete project [1] As the situation demands [2]
Using different teams at different stages of the project [3]
All hands are always on every project [4]

60. Which of the following services are provided by others outside the firm? Please tick as many as apply?

a. Modeling c. Sketch design e. Supervision
b. Presentation d. Working drawings f. Others (please specify…….)

Section C: External Influence

61. In your opinion, to what extent do the following influence the performance of your firm?

	Very weakly [1]	Weakly [2]	Neither weak nor strong [3]	Strongly [4]	Very strongly [5]
a. Clients					
b. The architectural professional body (NIA/ ARCON)					
c. Advances in information technology					
d. The national economy					
e. The political climate of the country					
f. Current privatization programmes					
g. Government policies					
h. Infrastructure (e.g. electricity, water etc.)					
i. Increasing concern about sustainable environment					
j. Other professionals					

Thank you.

I sincerely appreciate your taking time out to fill this questionnaire. Please provide your name and e-mail address if you will like to have a 2-page summary of the work at the end of the research.

Name :……..(optional)

E-mail address……

Appendix 2

INTERVIEW SCHEDULE

My name is Adedapo Oluwatayo, a PhD student in the Department of Architecture, Covenant University. I am carrying out a study of the characteristics of architectural firms in Nigeria. I would like to ask you questions about your firm, your projects, the organizational type, working methods, and the responses of the firm to changing external circumstances. The intention is to understand and describe fully architectural firms in Nigeria. This study is expected to contribute to our knowledge of what architectural practices are like in Nigeria, thus aiding the further development of the practice and education of architecture in Nigeria. The interview is not expected to take long. Please be assured that the interview is completely anonymous. The information will be treated in strict confidence and results will only be published in an aggregated form

- Background
- Clients, Obtaining Commissions, Retaining Clients

- o Projects, Remuneration
- o Staff
- o Finance
- o Management Issues
- o Office Handling of Projects
- o Information Technology
- o Goals
- o Plans For Succession/ Transition
- o Gender Issues
- o Competition
- o Other Challenges
- o External Influences on the Success of Practice.

Appendix 3

Chi-Square Tests- Ownership form and age of firm

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.89	9	0.17

Appendix 4

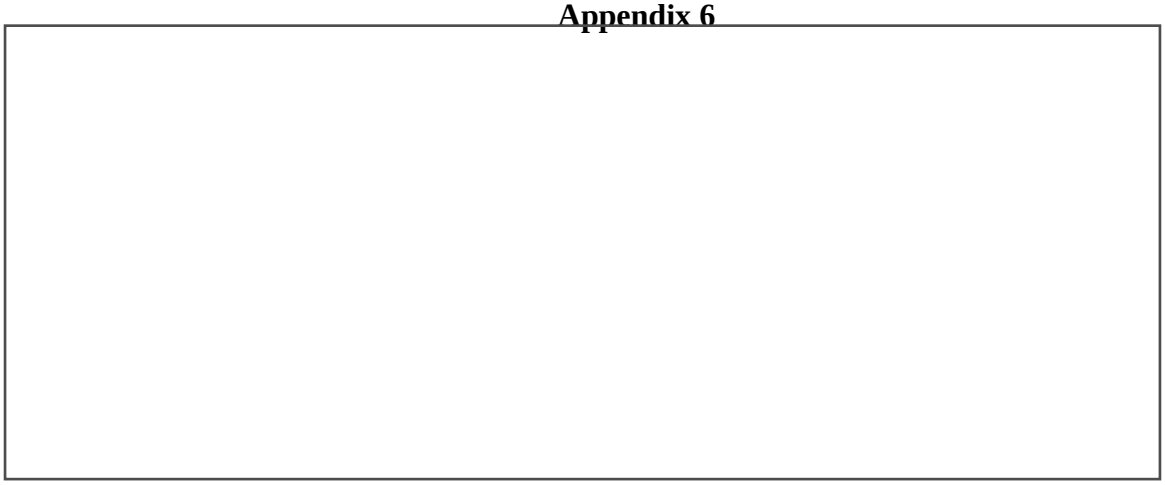
Cross tabulation Ownership Form of the Firm by the City of Firm

City of firm	Ownership form of firm					
	Sole Principal	Partnership	Unlimited liability company	Limited liability company	Public company	Total
Lagos	47.9%	27.1%	12.5%	12.5%	0.0%	100.0%
Kaduna	14.3%	0.0%	0.0%	85.7%	0.0%	100.0%
Enugu	75.0%	16.7%	0.0%	0.0%	8.3%	100.0%
Abuja	60.0%	0.0%	10.0%	30.0%	0.0%	100.0%
Port Harcourt	71.4%	28.6%	0.0%	.0%	0.0%	100.0%
Ibadan	50.0%	50.0%	0.0%	0.0%	0.0%	100.0%

Appendix 5

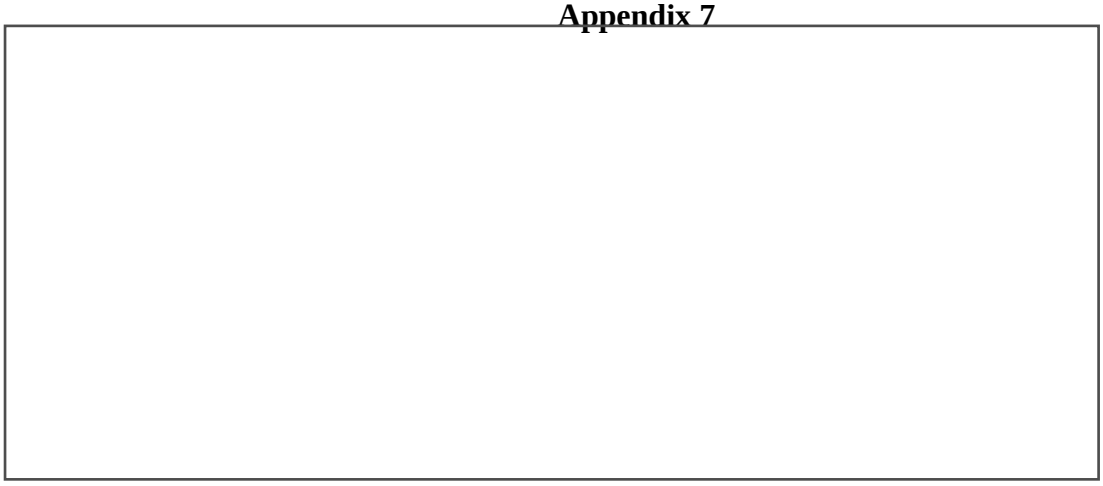
Registration of Architectural Firm and age of firm

Appendix 6



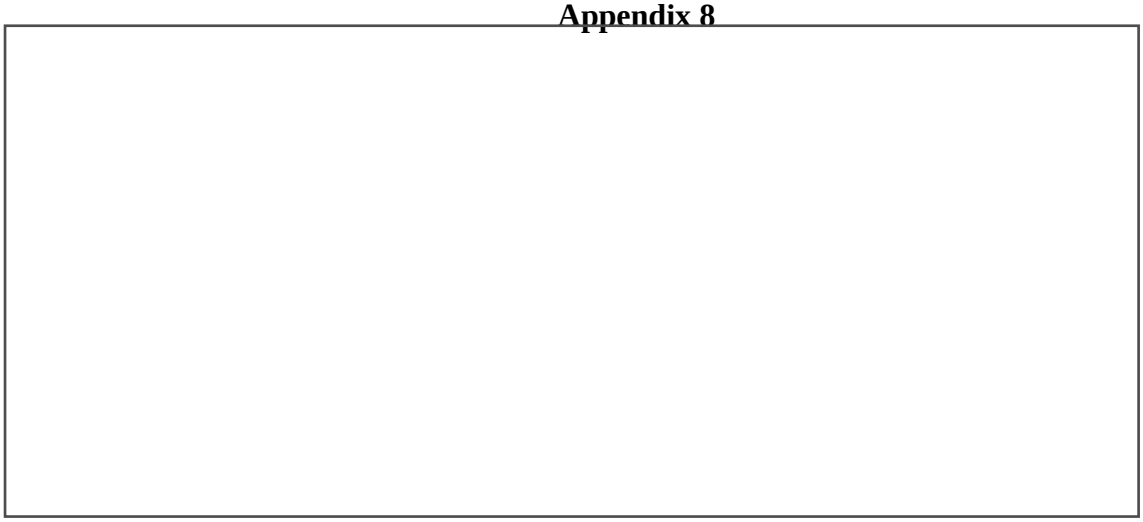
Total Number of Staff by Age of Firms

Appendix 7



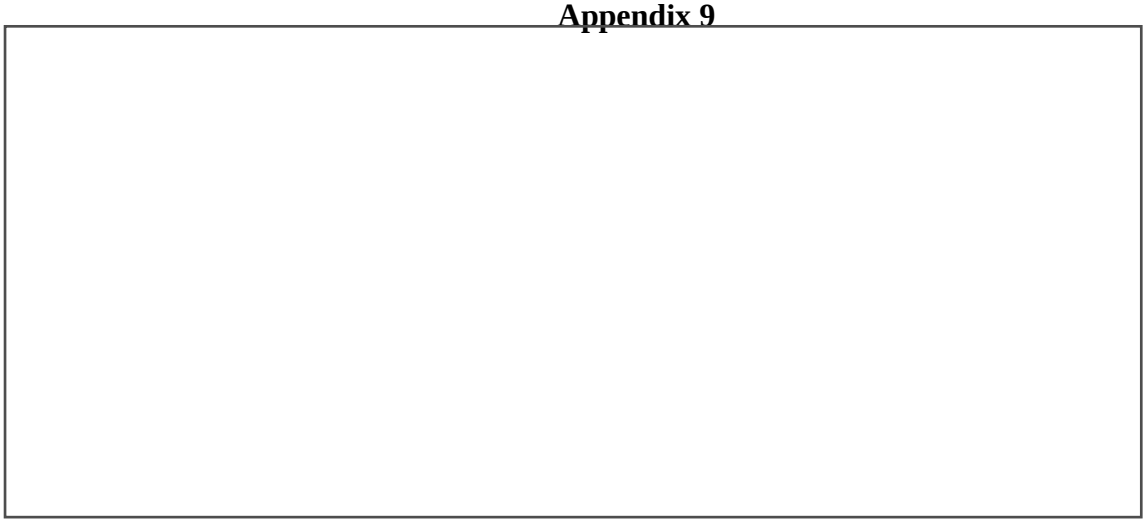
Total Number of Staff by the ownership form of the firm

Appendix 8



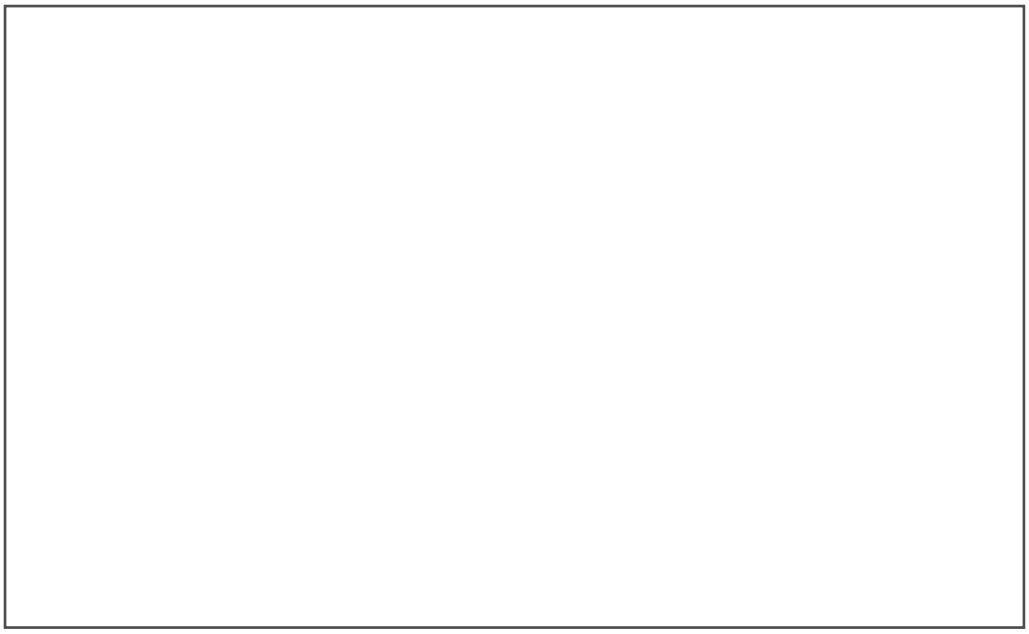
Number of accountant by the number of staff in the firm

Appendix 9



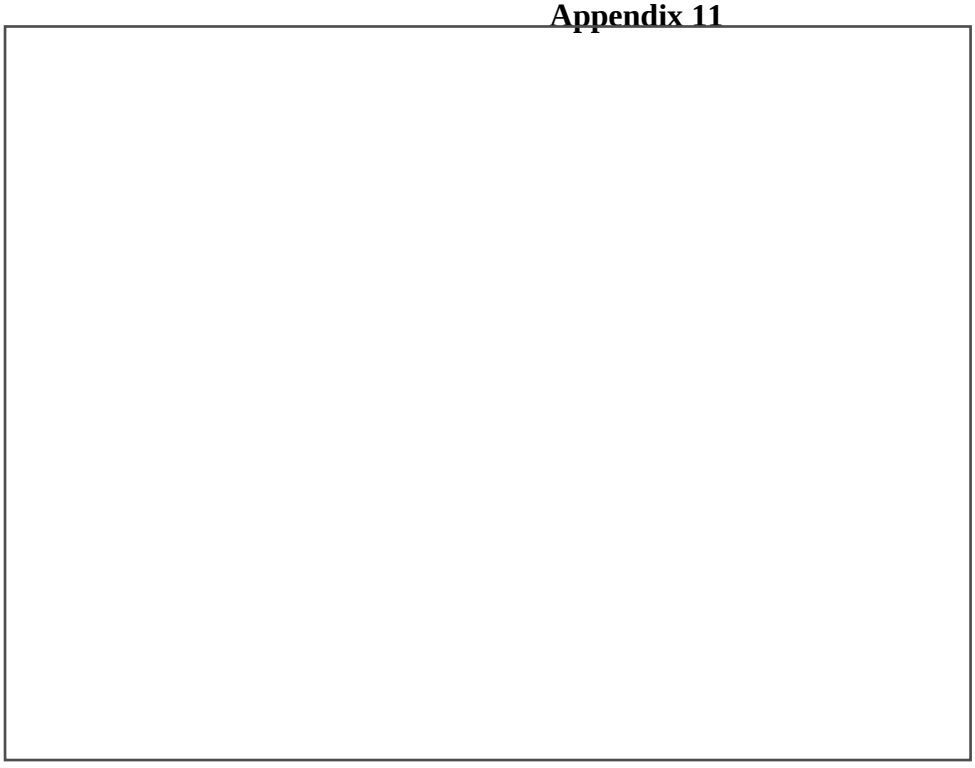
Number of administrative staff by the ownership form of firm

Appendix 10



Proportion of clients that are banks and financial institution in Nigeria and the ownership form of the firm

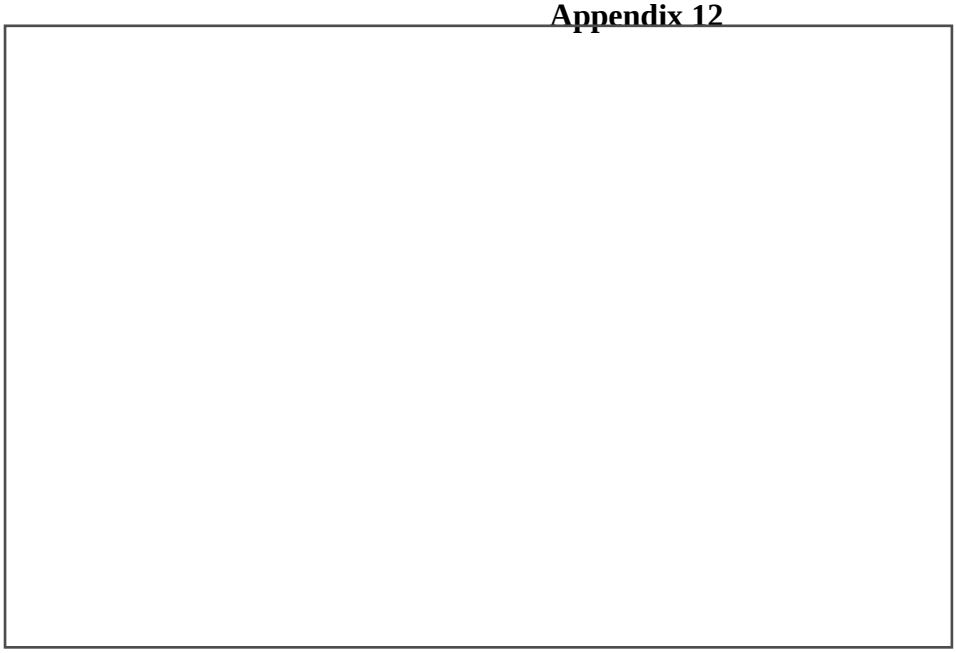
Appendix 11



Proportion of clients that governments in Nigeria constitute and the ownership form of the

firms

Appendix 12

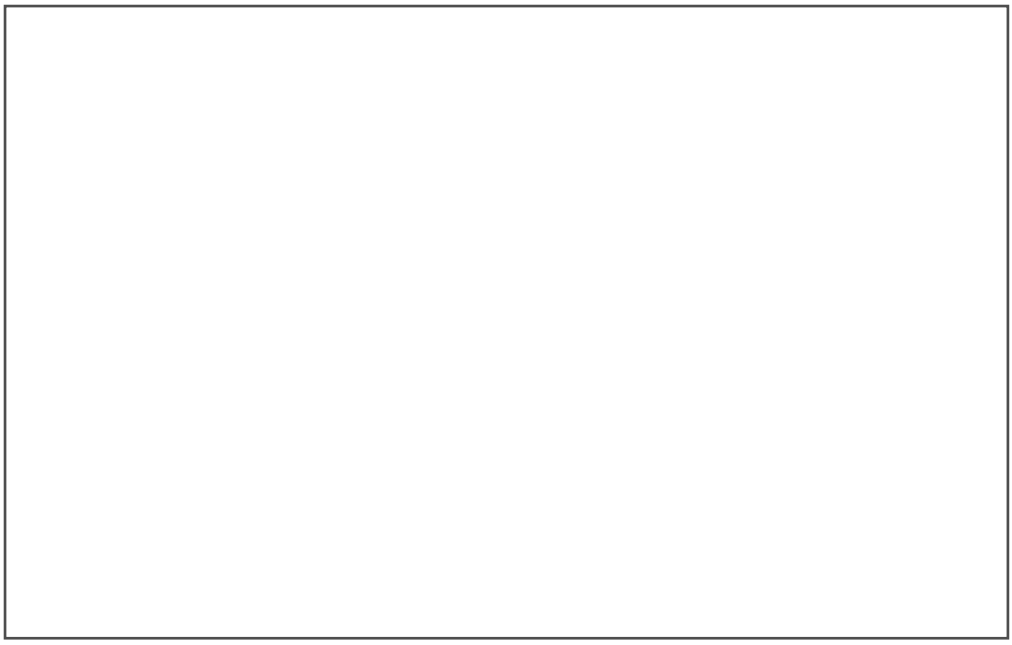


Proportion of Clients that Governments in Nigeria constitute by the age of firm

Appendix 13
The average size of projects done in the last two years and the proportion of individual clients

Proportions of clients that are individual in Nigeria	Average cost of most of the firm's projects in the last two years						Total
	Below N10m	N 11m- N 50m	N 51m- N 100m	N 101m- N 500m	N 501m- N 1b	above N 1b	
none of my clients	0.0%	14.3%	57.1%	28.6%	0.0%	0.0%	100.0%
few of my clients	0.0%	18.2%	0.0%	45.5%	9.1%	27.3%	100.0%
some of my clients	0.0%	10.5%	15.8%	31.6%	26.3%	15.8%	100.0%
majority of my clients	16.7%	44.4%	8.3%	16.7%	8.3%	5.6%	100.0%
all of my clients	66.7%	0.0%	33.3%	0.0%	0.0%	0.0%	100.0%

Appendix 14

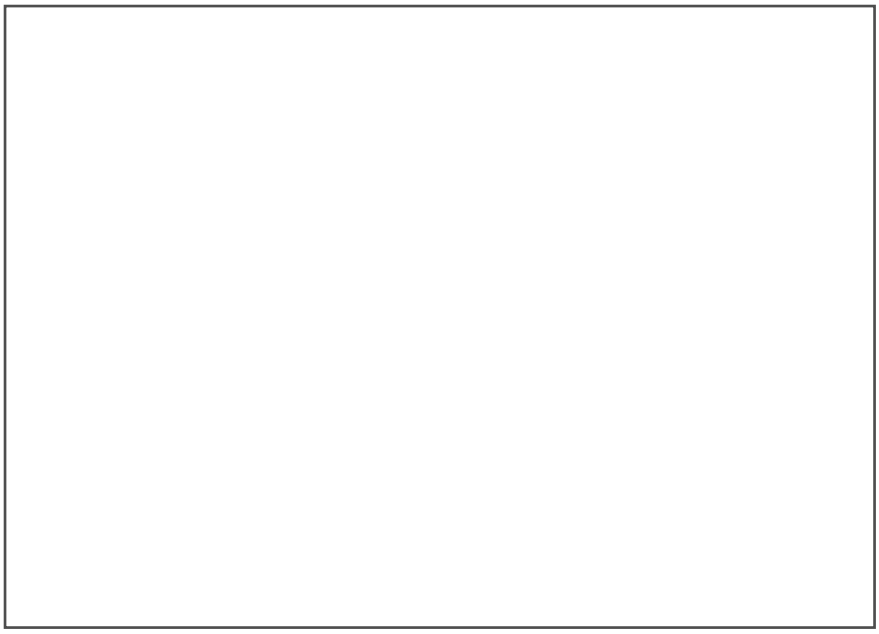


Perception of the success of the firm's profit in the last two years and proportion of clients that religious organizations in Nigeria constituted

Appendix 15

Perception of the Success of the architectural Firm in Profit and the Proportion of Clients that International Organizations Constituted

Appendix 16



The highest qualification of the principal architect in architecture by the ownership form of the firm

Appendix 17

Cross-tabulation of Institution attended by principal by the location of head the office

Institution attended by Principal	City the head office of firm is located						Total
	Lagos	Kaduna	Enugu	Abuja	Port Harcourt	Ibadan	
Abia State University	0	0	1	0	0	0	1
Rivers State University	0	0	0	0	1	0	1
University of Nigeria Nsukka	4	1	6	3	0	1	15
Enugu State University of Science and Technology	0	0	2	1	0	0	3
Ahmadu Bello University, Zaria	8	8	1	5	0	2	24
University of Jos, plateau state	1	0	0	1	0	0	2
University of Lagos	11	0	0	0	1	0	12
Federal Polytechnic, Nekede	0	0	0	0	2	0	2
Federal University of Technology, Akure	2	0	0	0	0	0	2
Ambrose Alli University	2	0	0	0	0	0	2
Obafemi Awolowo University, Ile Ife	3	0	0	0	0	1	4
Ogun State Polytechnic	1	0	0	0	0	0	1
Foreign universities	3	0	0	0	1	0	4
Total	50	9	12	10	7	4	92

Appendix 18

Categorical Principal Component Analysis of the profiles of architectural firms

Model Summary

Dimension	Cronbach's Alpha	Variance Accounted For	
		Total (Eigenvalue)	% of Variance
1	0.93	11.93	20.94
2	0.84	5.86	10.29
3	0.77	4.12	7.23
4	0.69	3.12	5.48
5	0.67	2.98	5.23
6	0.65	2.79	4.89
7	0.60	2.47	4.33
8	0.59	2.38	4.18
Total	0.99(a)	35.68	62.59

a Total Cronbach's Alpha is based on the total Eigenvalue.

Component Loadings of factors on the variables of profile

Component Loadings

Variable		Dimension
		1
		1
		1
	1	2
1	a1.1arecode	Age of firm
2	a1.2	Registered with ARCON
3	a1.3arecode	Number of years of registration
4	a1.4	ownership form of firm
5	a1.5a	City of head office of firm
6	a1.6	Existence of branches in Nigeria
7	a1.7	Number of branches in Nigeria
S/N	Variable Label	Variable Description
8	a1.8	Location of the branches in Nigeria
9	a1.9	Existence of branches in other countries
10	a1.10af	Number of architects
11	a1.10bf	Number of engineers
12	a1.10cf	Number of quantity surveyor
13	a1.10df	Number of builders
14	a1.10ef	Number of urban planners
15	a1.10ff	Number of administrative staff
16	a1.10gf	Number of accountants
17	a1.10hf	Number of other staff
18	a1.10totcode	Total number of staff
19	a1.11a	Number of architects with OND/HND
20	a1.11b	Number of architects with BSc
21	a1.11c	Number of architects with BArch/ MSc
22	a1.11d	Number of architects with PhD
23	a1.11e	Number of architects with MBA
24	a1.11f	Number of architects with other qualifications
25	a1.11g	Number of architects with MNIA/ FNIA
26	a1.12a	Number of architects who are partners
27	a1.12b	Number of architects who are senior architects
28	a1.12c	Number of architects who are junior architects
29	a1.12d	Number of architects who are trainee architects
30	a1.12e	Number of architects with other designations
31	a1.13a	Number of male architects
32	a1.13b	Number of female architects
33	a1.14a	Number of other professional that are males
34	a1.14b	Number of other professional that are females
35	a1.15a	Number of male administrative staff/ accountants
36	a1.15b	Number of female administrative staff/ accountants
37	a2.16a	Individual clients in Nigeria
38	a2.16b	private organization clients in Nigeria
S/N	Variable Label	Variable Description
39	a2.16c	Banks and financial institution clients in Nigeria
40	a2.16d	Religious organization clients in Nigeria
41	a2.16e	Government clients in Nigeria
42	a2.16f	International private clients
43	a2.16g	International private organizations

44	a2.16h	Other client groups
45	a3.17	Perception of the success of the firm’s profit in the last two years
46	a3.18	Average size of most of the projects carried out in the last two years
47	a3.19	Average cost of projects targeted in the next one year
48	a3.20a	Remuneration by scale of fees
49	a3.20b	Remuneration by bid/ negotiation
50	a3.20c	Remuneration by other means
51	a5.24	Sex of the Principal
52	a5.25	Age group of the Principal
53	a5.26	Highest qualification of the Principal architect in architecture
54	a5.27af	Number of years of experience of Principal
55	a5.28	Possession of other qualification(s) apart from architecture by Principal
56	a5.29	Other qualification(s) apart from architecture possessed by Principal
57	a5.30	Years of registration of Principal partner as an architect
58	a5.31a	Institution Principal attended
59	a5.32	How many firms have the principal worked previously?

Appendix 20

Discriminant Analysis to test the validity of clusters of profiles of architectural firms

Classification Results (a)

Two-step Cluster Number		Predicted Group Membership					Total
		1	2	3	4	5	
Count	1	13	3	1	0	0	17
	2	1	25	4	0	0	30
	3	0	3	23	0	4	30
	4	0	3	1	0	0	4
	5	0	1	2	0	8	11
%	1	76.5	17.6	5.9	0.0	0.0	100.0
	2	3.3	83.3	13.3	0.0	0.0	100.0
	3	0.0	10.0	76.7	0.0	13.3	100.0
	4	0.0	75.0	25.0	0.0	0.0	100.0
	5	0.0	9.1	18.2	0.0	72.7	100.0

a 75.0% of original grouped cases correctly classified.

Appendix 21

Categorical Principal Component Analysis of cultural values of architectural firms

Model Summary

Dimension	Cronbach's Alpha	Variance Accounted For	
		Total (Eigenvalue)	% of Variance
1	0.77	3.42	31.14
2	0.38	1.54	14.00
3	0.36	1.48	13.52
Total	0.93(a)	6.45	58.67

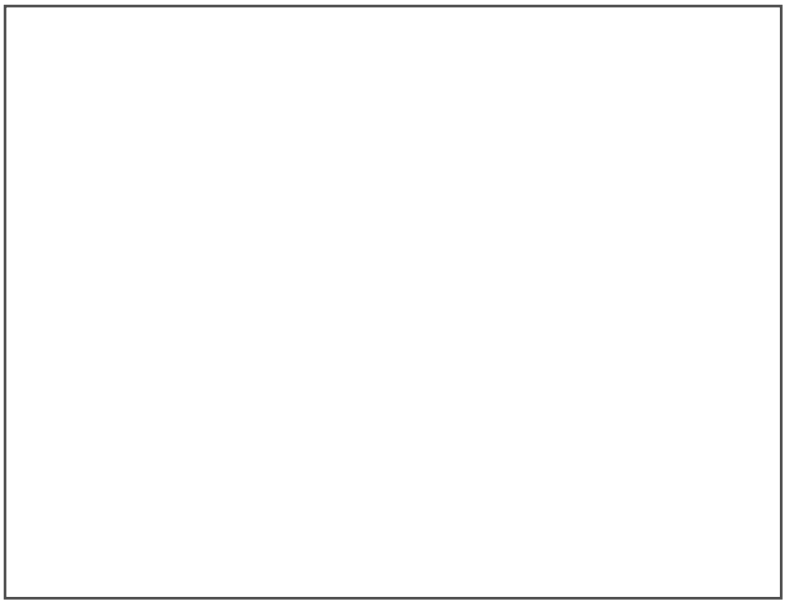
a Total Cronbach's Alpha is based on the total Eigenvalue.

Component Loadings

	Dimension		
	1	2	3
Important of innovation	0.65	0.18	-0.04
Encouragement of expression of personal styles and initiatives	0.68	-0.01	-0.06
Concerned mainly for profits	0.12	0.30	0.82
Teamwork and staff development	0.70	-0.21	-0.06
Driving employees to achieve result	0.70	0.10	0.25
Gender equity in hiring of staff	0.67	0.06	-0.12
New ideas and technology as most important determinants of strategy	0.74	-0.16	-0.05
Aggression in the pursuit of every business opportunity	0.39	-0.24	0.62
Gender equity in task allocation	0.57	0.13	-0.39
Caution in risky ventures	-0.05	0.82	0.23
Tradition and consistency	0.11	0.75	-0.35

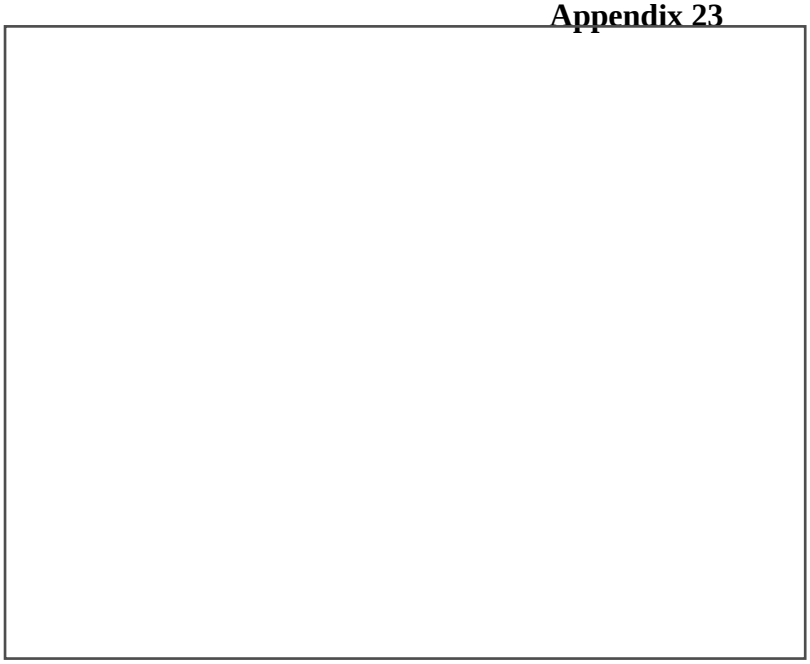
Variable Principal Normalization.

Appendix 22



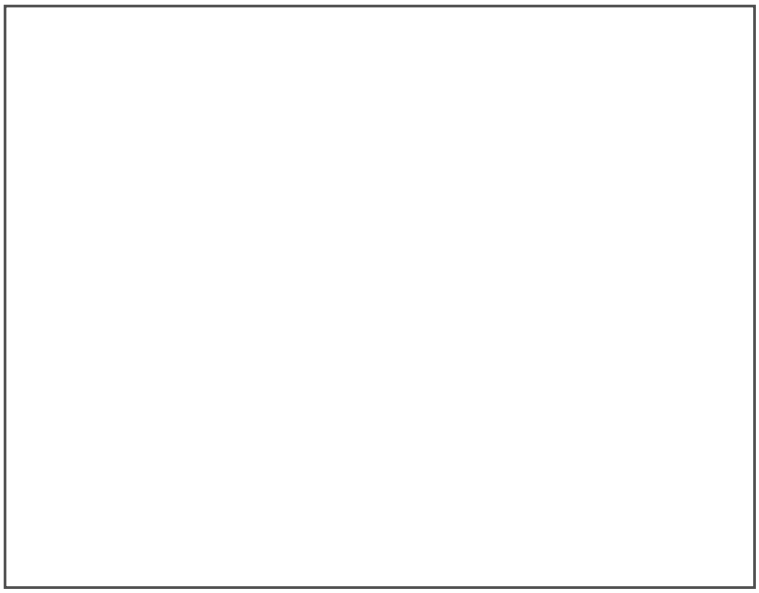
Aggressive Pursuit of Business Opportunities and Ownership Form of Architectural Firm

Appendix 23



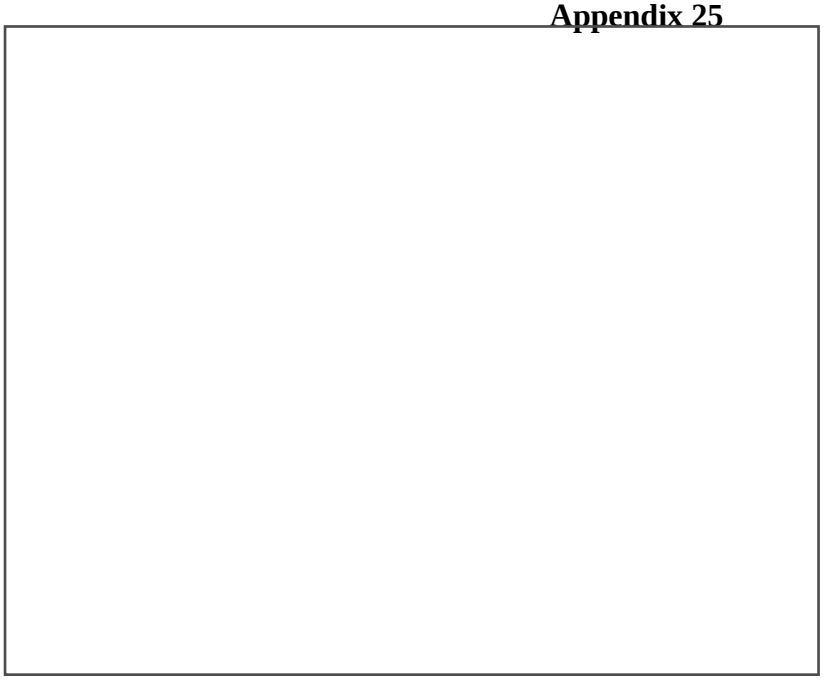
Aggressive Pursuit of Every Business Opportunity and Remuneration by Bid or/ and Negotiation

Appendix 24



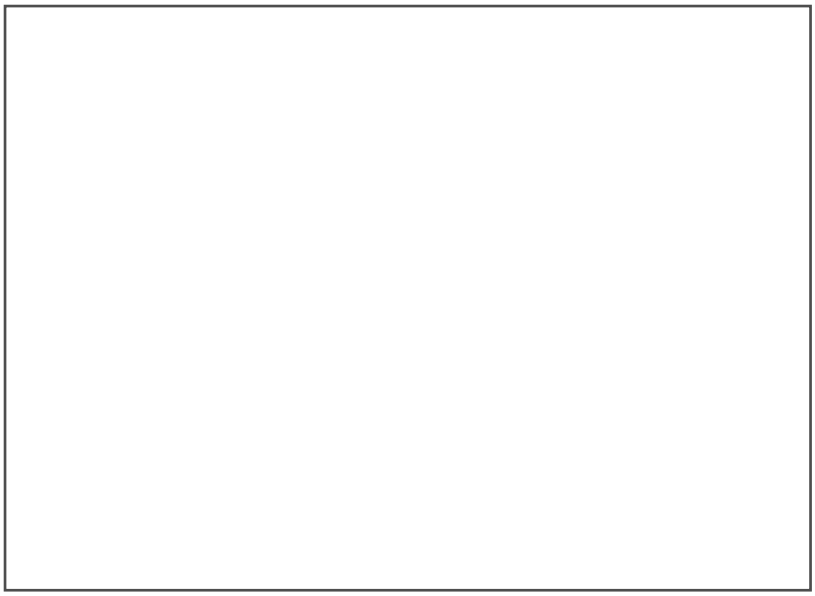
Concern for Profit and Remuneration by Bid / negotiation

Appendix 25



Importance of new ideas and technology in determining the strategies of firms by the ages of the Principals

Appendix 26



The ownership form of the firm by the description of the Principal

Appendix 27

Cultural Variables used in Two-Step Cluster

S/N	Variable Label	Variable Description
1	a4.21a	Important of innovation
2	a4.21b	Encouragement of expression of personal styles and initiatives
3	a4.21c	Concerned mainly for profits
4	a4.21d	Teamwork and staff development
5	a4.21e	Driving employees to achieve result
6	a4.21f	Gender equity in hiring of staff
7	a4.21g	New ideas and technology as most important determinants of strategy
8	a4.21h	Aggression in the pursuit of every business opportunity
9	a4.21i	Gender equity in task allocation
10	a4.21j	Caution in risky ventures
11	a4.21k	Tradition and consistency
12	a4.22a	Drawings are in the reception area
13	a4.22b	Models are in the reception area
14	a4.22c	Artworks/ paintings are in the reception area
15	a4.22d	Plants are in the reception area
16	a4.22e	Awards, plaques, souvenirs are in the reception area
17	a4.22f	Reading materials are in the reception area
18	a4.23	Design of most parts of office
19	a5.33	Description of Principal?

Appendix 28:

Discriminant Analysis to test the Validity of Clusters of Cultures of Architectural Firms

Classification Results (a)

Two-step Cluster Number		Predicted Group Membership				Total
		1	2	3	4	
Count	1	16	1	2	0	19
	2	0	2	0	2	4
	3	3	5	19	2	29
	4	0	2	0	12	14
	Ungrouped cases	6	5	3	12	26
%	1	84.2	5.3	10.5	0.0	100.0
	2	0.0	50.0	0.0	50.0	100.0
	3	10.3	17.2	65.5	6.9	100.0
	4	0.0	14.3	0.0	85.7	100.0
	Ungrouped cases	23.1	19.2	11.5	46.2	100.0

a 74.2% of original grouped cases correctly classified.

Appendix 29

Cross tabulations of the means of building clients and the proportions of projects types

Building clientele through family and friends and proportional of project types

		projects from family and friends			
		none	few	some	many
residential projects	none	2	0	0	0
	some	4	13	7	5
	most	4	10	15	19
hospitality projects	none	7	5	1	7
	some	3	17	15	17
	most	0	1	6	2
cultural/ entertainment projects	none	6	13	4	17

		some	3	10	15	8
		most	1	0	3	0
healthcare projects	none	10	4	4	7
		some	0	15	15	17
		most	0	4	3	2
religious building projects	none	8	5	2	5
		some	2	16	13	17
		most	0	2	7	4

Building clientele through personal contacts and the proportions project types

		projects through personal contacts				
		none	few	some	many	Total
residential	none	0	0	0	2	2
projects						
	some	0	4	5	20	29
	most	1	5	14	30	50

Building clientele through public relations strategies and the proportions of project types

		projects through public relations strategies including				
		office brochure				
		none	few	some	many	
hospitality	none	11	6	1	2	
projects						
	some	11	20	15	6	
	most	1	0	4	4	
cultural/	none	16	15	5	4	
entertainmen						
t projects						
	some	6	10	14	6	
	most	1	0	1	2	
educational	none	11	1	0	3	
projects						
	some	9	24	16	3	
	most	3	1	4	6	
civic	none	11	9	4	3	
building						
projects						
	some	9	16	13	4	
	most	3	0	3	5	
religious	none	11	3	1	5	
building						
projects						
	some	9	20	14	5	
	most	3	3	5	2	

Building clientele through old clientele and proportions of project types

		projects through old clients			
		none	few	some	many
commercial projects	none	0	0	0	1
	some	0	4	10	17
	most	6	5	11	19
hospitality projects	none	4	2	5	9
	some	0	7	11	34
	most	0	0	5	4
educational projects	none	4	2	0	9
	some	0	7	15	30
	most	0	0	6	8
healthcare projects	none	4	3	4	14
	some	0	6	9	32
	most	0	0	8	1

Building clientele through previous projects and proportions of project types

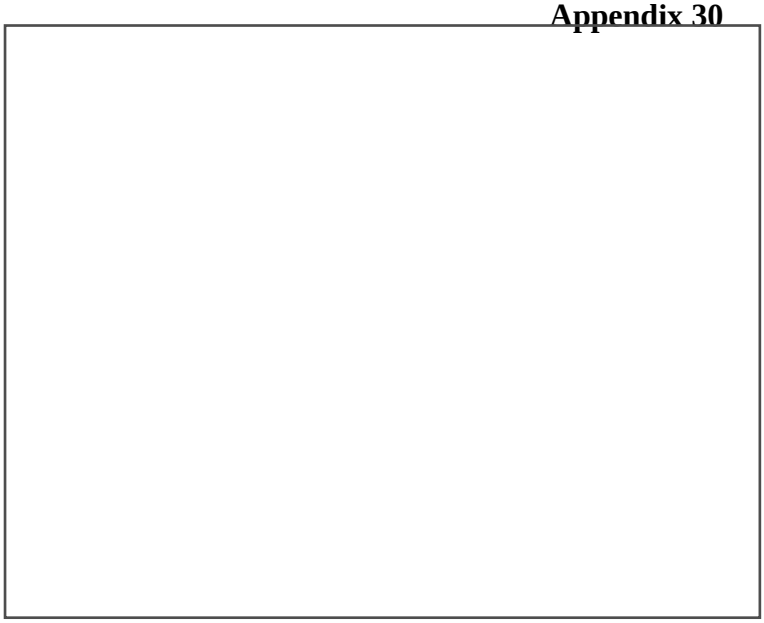
		projects through previous projects			
		none	few	some	many
commercial projects	none	0	0	0	1
	some	0	14	7	19
	most	10	5	8	16
hospitality projects	none	8	2	0	10
	some	2	17	12	20
	most	0	0	3	5
cultural/ entertainment projects	none	8	12	1	19
	some	2	5	12	15
	most	0	1	2	1
religious building projects	none	7	5	0	8
	some	3	14	11	18
	most	0	0	4	9

Building clientele through other professionals and proportions of project types

		projects through other professionals			
		none	few	some	many
residential projects represent	none	2	0	0	0
	some	2	13	8	5
	most	6	16	15	12
hospitality projects	none	8	1	5	6
	some	2	25	14	9
	most	0	3	4	2
healthcare projects	none	7	4	4	9
	some	3	22	14	7

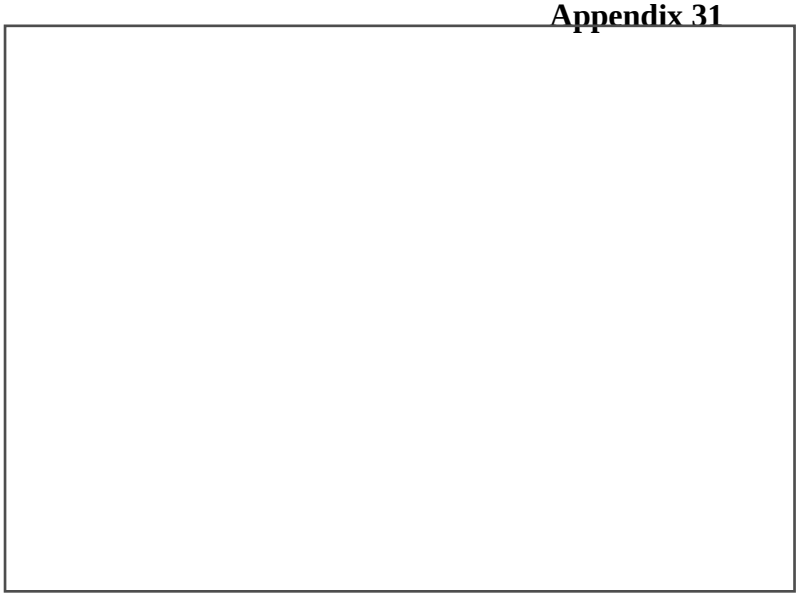
	|most	|0	|3	|5	|1	
religious building	|none	|8	|4	|2	|6	
projects											
	|some	|2	|20	|16	|8	
	|most	|0	|5	|5	|3	

Appendix 30



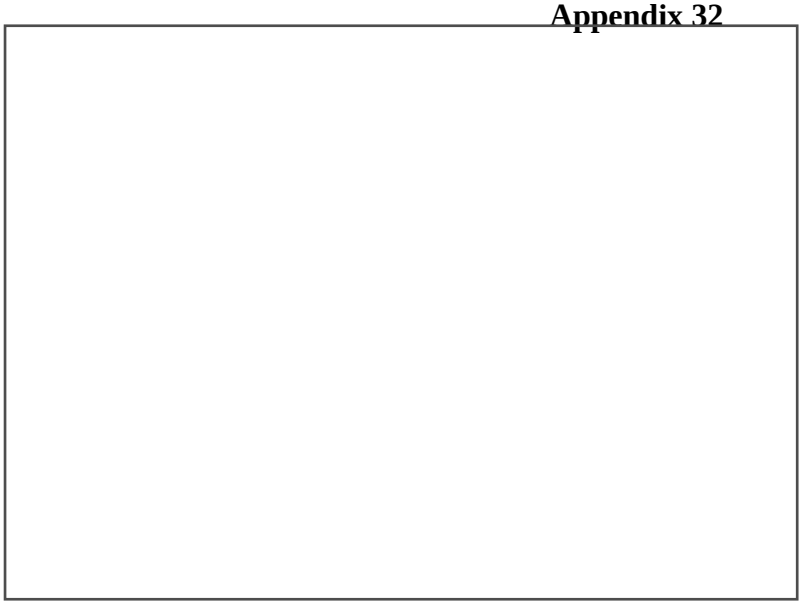
Network of branches and the ownership forms of architectural firms in Nigeria

Appendix 31



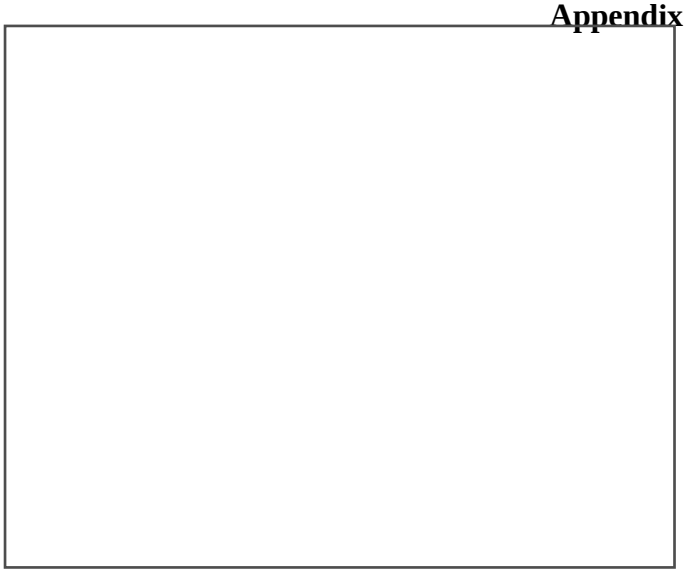
Number of branches by target of government clients

Appendix 32



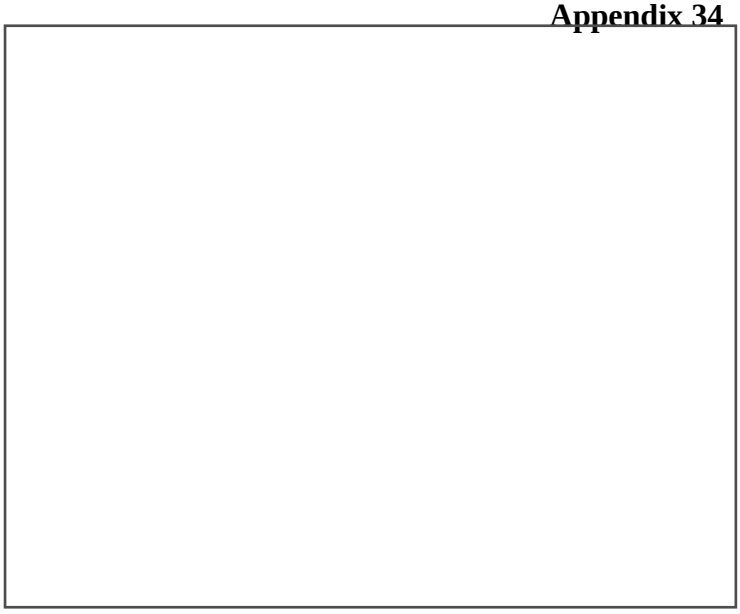
Proportion of projects that were sub-commissions by the ages of the firms

Appendix 33



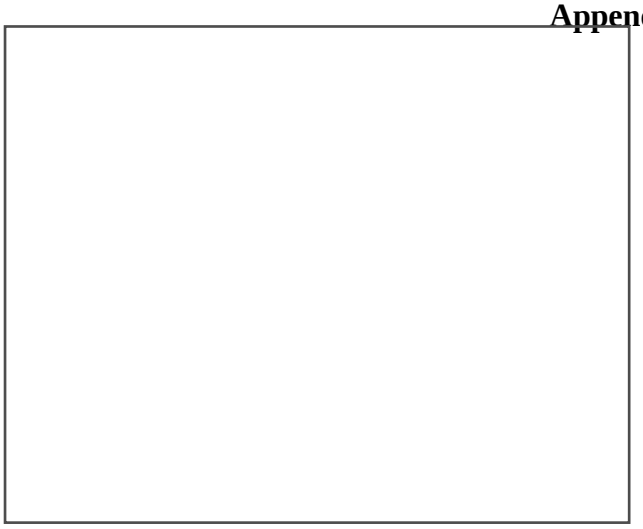
Proportion of projects that were sub-commissions by the ownership forms of the firms

Appendix 34



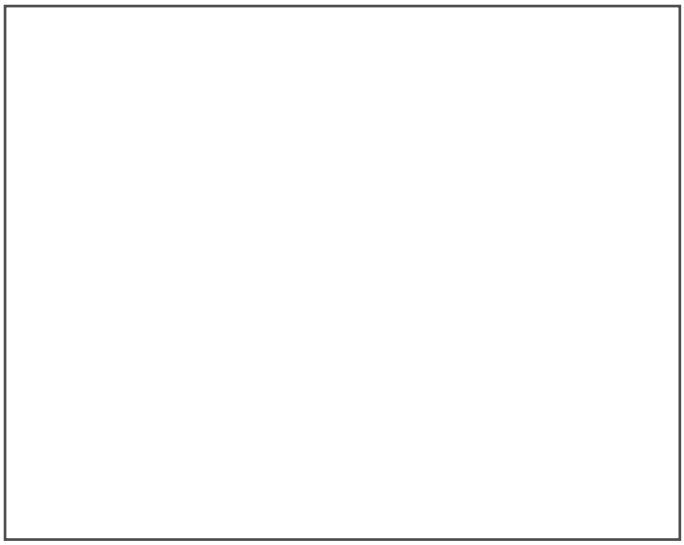
Proportion of Projects that were sub-commissions and the proportion of clients of the firm that were governments

Appendix 35



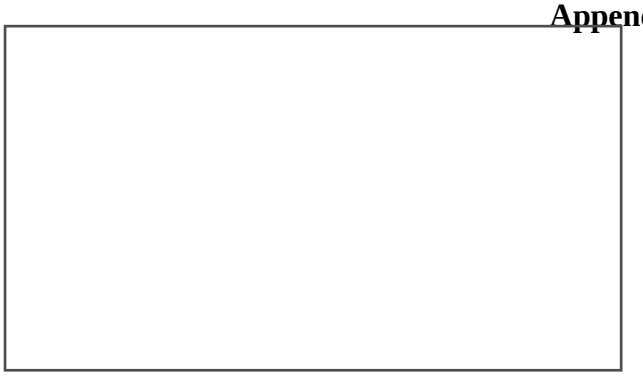
Participation on projects that used the design and build procurement method and the proportion of project that residential projects represented

Appendix 36



Participation in the traditional procurement method and proportion of project that residential projects represented

Appendix 37



Participation in project management procurement method and the proportion of projects that cultural/ entertainment projects represented

Appendix 38

Procurement of projects by design and build and the age of the firm

Appendix 39

Principal Component Analysis of the Strategic Principles of Architectural firms

Model Summary

Dimension	Cronbach's Alpha	Variance Accounted For	
		Total (Eigenvalue)	% of Variance
1	0.80	3.65	36.50
2	0.63	2.34	23.47
3	0.36	1.48	14.86
Total	0.96(a)	7.48	74.83

a Total Cronbach's Alpha is based on the total Eigenvalue.

Component Loadings

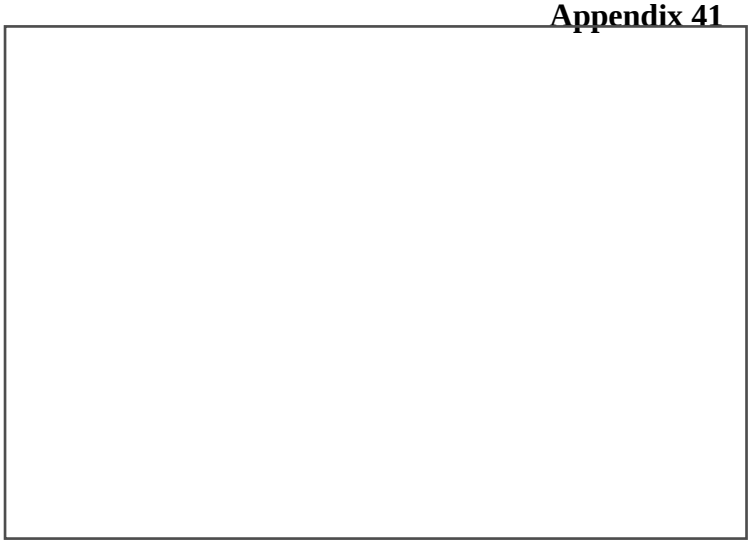
	Dimension		
	1	2	3
satisfying the needs of clients	0.01	-0.19	0.85
generating new design ideas and being creative	-0.06	-0.05	0.82
making money	-0.19	0.40	-0.09
being known by key players in the building industry	0.94	-0.17	-0.03
being known for expertise in particular building types	0.76	-0.23	-0.09
being known for efficient architectural services	0.93	-0.18	-0.06
having a broad range of clientele	0.21	0.92	0.14
keeping the firm busy always	0.20	0.90	0.10
being known in important clientele circles	0.72	0.55	0.03
service to the society/enhancing the environment by design	0.80	-0.23	0.14

Variable Principal Normalization.

Appendix 40

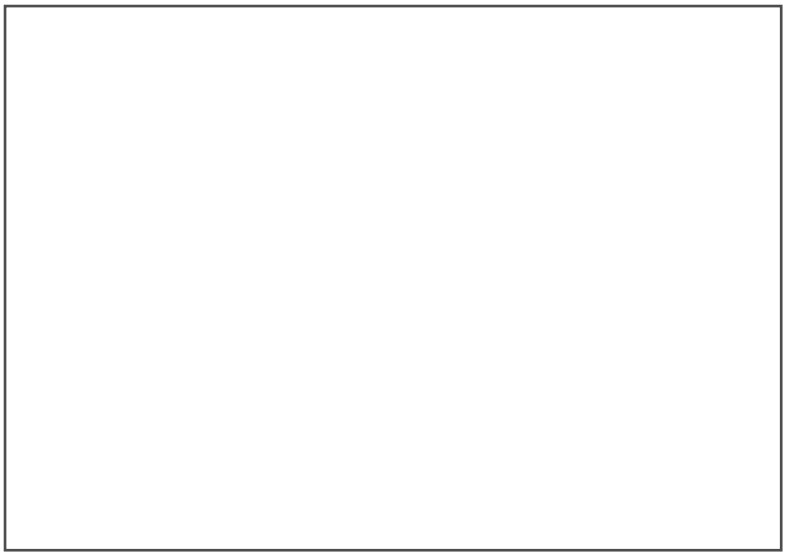
Importance of gender in the selection of staff and the size of the firms (in terms of total number of staff)

Appendix 41



Retention of staff through improved salary and the ownership form of the firm

Appendix 42

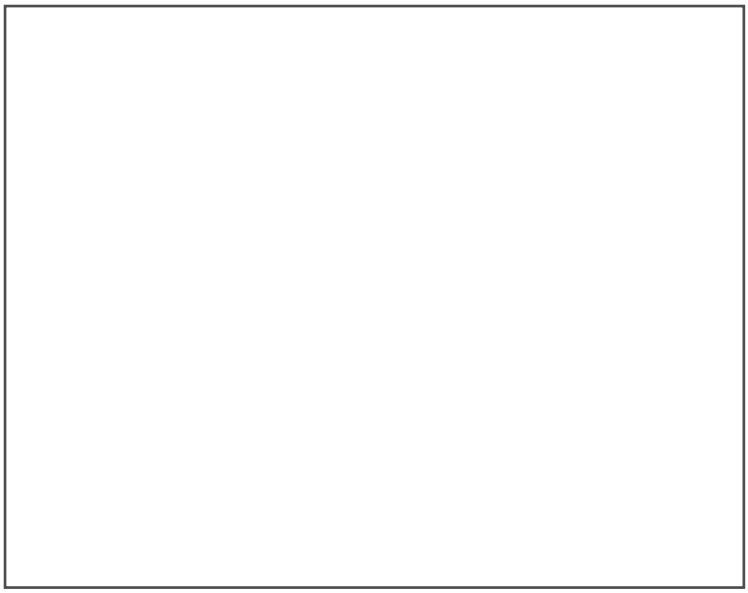


Retention of staff through Rewards and Recognitions and the ownership form of the firm

Appendix 43

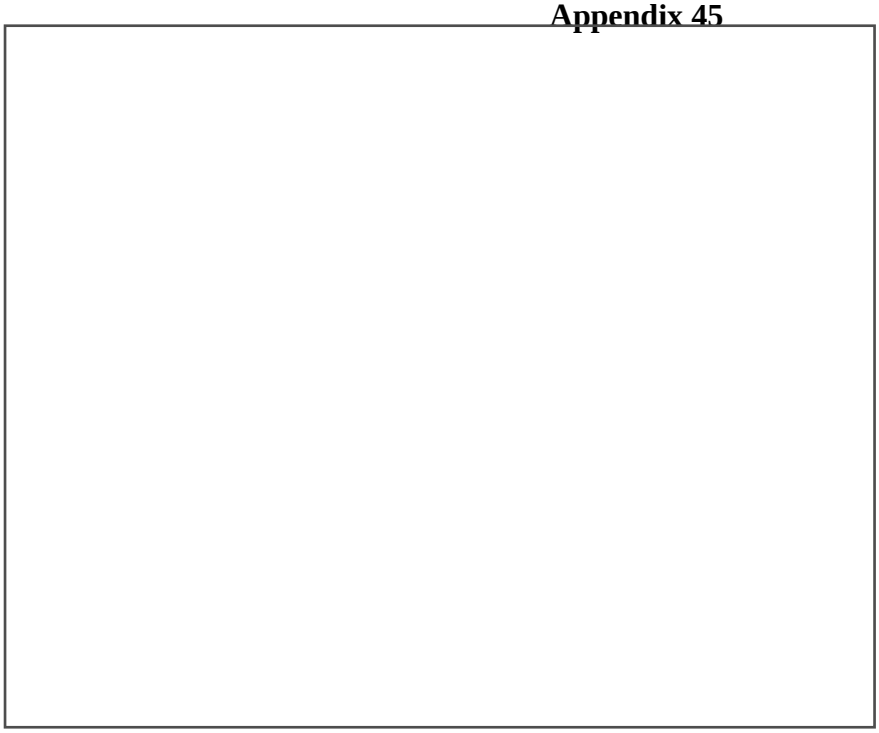
Retention of staff through leadership development and the ownership form of the firm

Appendix 44



Retention of staff through rewards and recognitions and the culture of innovation

Appendix 45

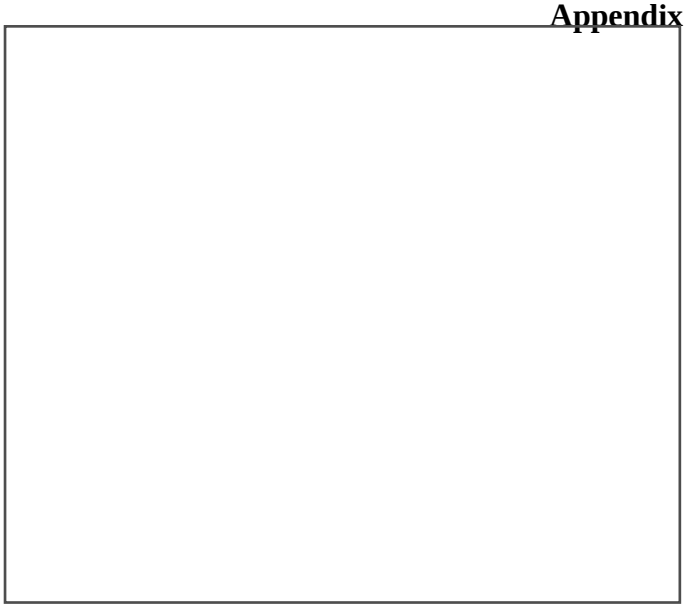


Retention of staff through rewards and recognitions and the culture of teamwork and staff development

Appendix 46

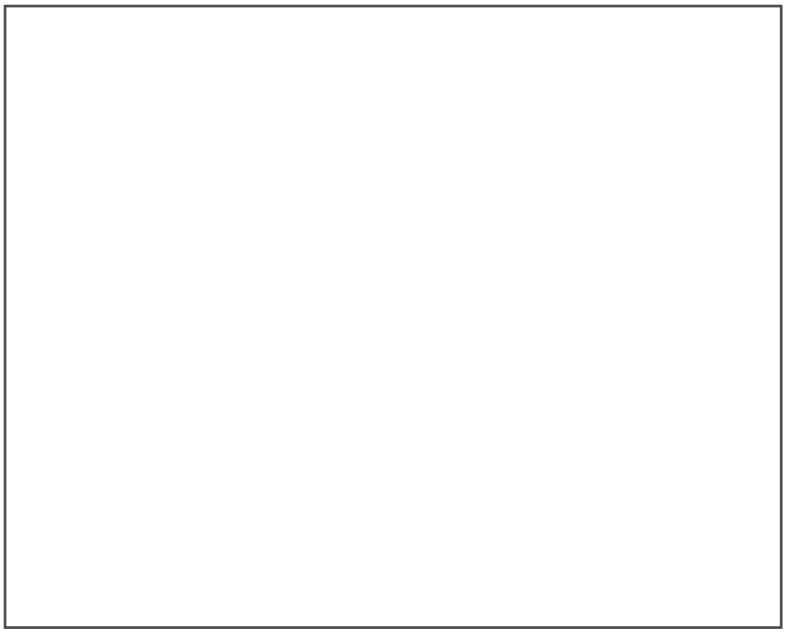
Retention of staff through rewards and recognitions and the culture of employees being driven to achieve result

Appendix 47



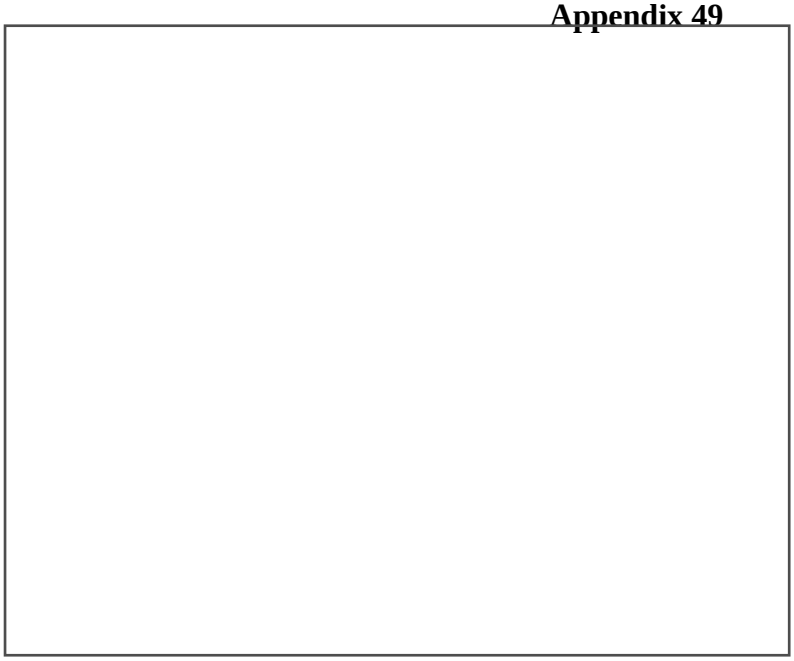
Retention of staff through rewards and recognitions and the culture of new ideas and technology being the most important determinants of the firm’s strategy

Appendix 48



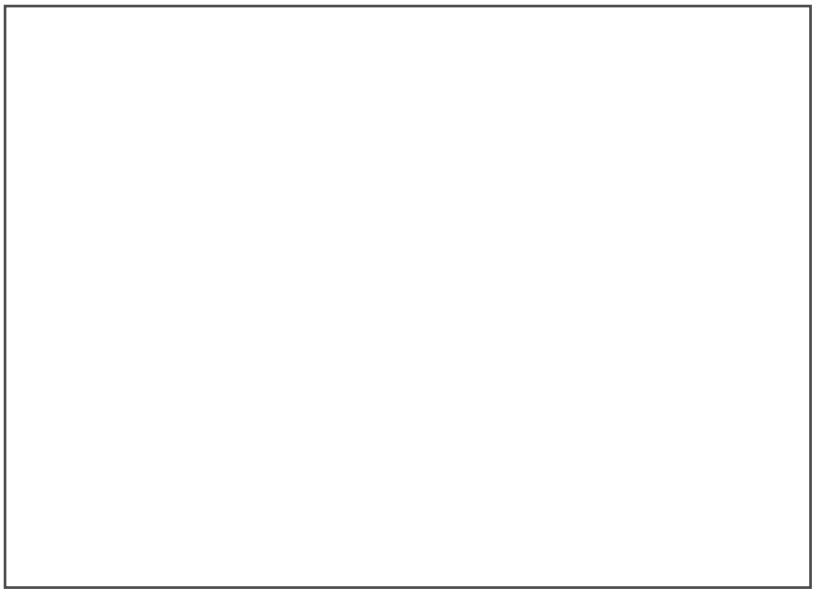
Retention of staff through improved salary and the culture of employees being driven to achieve result

Appendix 49



Retention of staff through rewards and recognitions, and the description of the Principal

Appendix 50



Staffing mode of architectural firm and the highest qualification of Principal

Appendix 51

Variables used for the Cluster analysis for types of firms based on the business strategies of the firms

S/N	Variable label	Variable description
1	b1.34a	Target of private local individuals
2	b1.34b	Target of private local organization
3	b1.34c	Target of governments
4	b1.34d	Target of international organizations
5	b1.34e	Target of international private individuals
6	b1.34f	Target of other client groups
7	b1.35a	projects from family and friends
8	b1.35b	projects through personal contacts
9	b1.35c	projects through public relations strategies including office brochure
10	b1.35d	projects through old clients
11	b1.35e	projects through other professionals
12	b1.35f	projects through previous projects
13	b1.35g	projects through other sources
14	b4.59a	residential projects
15	b4.59b	commercial projects
16	b4.59c	hospitality projects
17	b4.59d	educational projects
18	b4.59e	healthcare projects
19	b4.59f	cultural/ entertainment projects
20	b4.59g	civic building projects
21	b4.59h	religious building projects
22	b4.59i	transportation and urban projects
23	b4.59j	other projects
24	b4.60	reason for types of projects in 59

Appendix 52

Discriminant Analysis to test the Validity of Clusters of Business Strategies of Architectural Firms

		Two Step Cluster Number	Predicted Group Membership				Total
			1	2	3	4	
Original	Count	1	27	1	1	4	33
		2	2	26	0	2	30
		3	3	0	15	1	19
		4	3	0	0	7	10
	%	1	81.8	3.0	3.0	12.1	100.0
		2	6.7	86.7	0.0	6.7	100.0
		3	15.8	0.0	78.9	5.3	100.0
		4	30.0	0.0	0.0	70.0	100.0

a 81.5% of original grouped cases correctly classified.

Appendix 53

Competitive Strategy Variables used in cluster analysis

S/N	Variable Label	Variable Description
1	b1.36a	satisfying the needs of clients
2	b1.36b	generating new design ideas and being creative
3	b1.36c	making money
4	b1.36d	being known by key players in the building industry
5	b1.36e	being known for expertise in particular building types
6	b1.36f	being known for efficient architectural services
7	b1.36g	having a broad range of clientele
8	b1.36h	keeping the firm busy always
9	b1.36i	being known in important clientele circles
10	bi.36j	service to the society/enhancing the environment by design
11	b1.37	collaboration with other firms locally
12	b1.38	collaboration with other firms internationally
13	b1.39	type of collaboration
14	b1.40a	firms the firm collaborated with locally
S/N	Variable Label	Variable Description
15	b1.40b	firms the firm collaborated with internationally
16	b1.41a	the size of the project was the usual reason for collaborations
17	b1.41b	the requirement of the client was the usual reason for collaboration
18	b1.41c	taking advantage of the expertise of the other firm was the usual reason for collaboration
19	b1.41d	taking advantage of the experience of the other firm was the usual reason for collaboration
20	b1.41e	the nature of the project was the usual reason for collaboration
21	b1.41f	other reasons were responsible for the collaborations
22	b1.42	long term contract(s)
23	b1.43	proportion of commissions in a year that are usually sub-commissions
24	b1.44a	Involvement in design and build
25	b1.44b	Involvement in supervising projects only
26	b1.44c	Involvement in project management
27	b1.44d	Involvement in design and manage
28	b1.44e	Involvement in private finance initiative
29	b1.44f	Involvement in other means of procurement method
30	a1.7	Number of branches in Nigeria

31	a1.8	Location of branches in Nigeria
32	a1.9	Existence of branches in other countries

Appendix 54
Discriminant Analysis to test the Validity of Clusters of Competitive Strategies of Architectural Firms

Two-Step Cluster Number	Predicted Group Membership						Total
	1	2	3	4	5	6	
Count	1	29					
1	b1.45a	importance of design competence in the selection of new staff					
2	b1.45b	importance of knowledge of construction in the selection of new staff					
3	b1.45c	importance of AUTOCAD/IT literacy in the selection of new staff					
4	b1.45d	importance of gender in the selection of new staff					
5	b1.45e	importance of personality in the selection of new staff					
6	b1.45f	importance of educational qualification in the selection of new staff					
7	b1.45g	importance of interpersonal/ managerial skills in the selection of new staff					
8	b1.45h	importance of other factors in the selection of new staff					
9	b1.46a	firm retains competent staff through improved salary					
10	b1.46b	firm retains competent staff through retention bonus					
11	b1.46c	firm retains competent staff through performance bonus					
S/N	Variable label	Variable Description					
12	b1.46d	firm retains competent staff through rewards and recognitions					
13	b1.46e	firm retains competent staff through staff development					
14	b1.46f	firm retains competent staff through leadership development					
15	b1.46g	firm retains competent staff through other means					
16	b1.47	how is staffing for each project organized?					

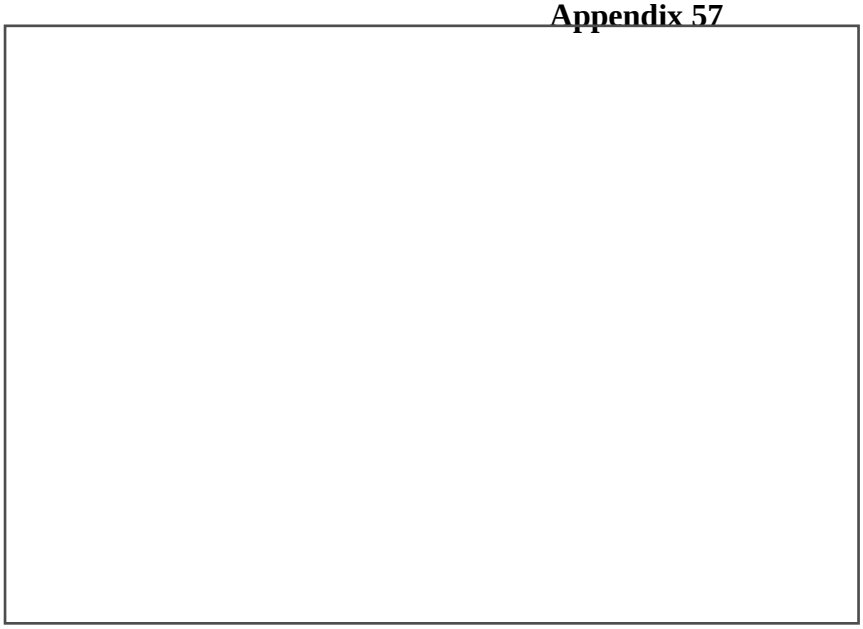
Appendix 56
Discriminant Analysis to test the Validity of Clusters of Staffing Strategies of Architectural Firms

	Two-Step Cluster Number	Predicted Group	Total

			Membership			
			1	2	3	
Original	Count	1	33	6	10	49
		2	1	27	5	33
		3	0	1	9	10
	%	1	67.3	12.2	20.4	100.0
		2	3.0	81.8	15.2	100.0
		3	0.0	10.0	90.0	100.0

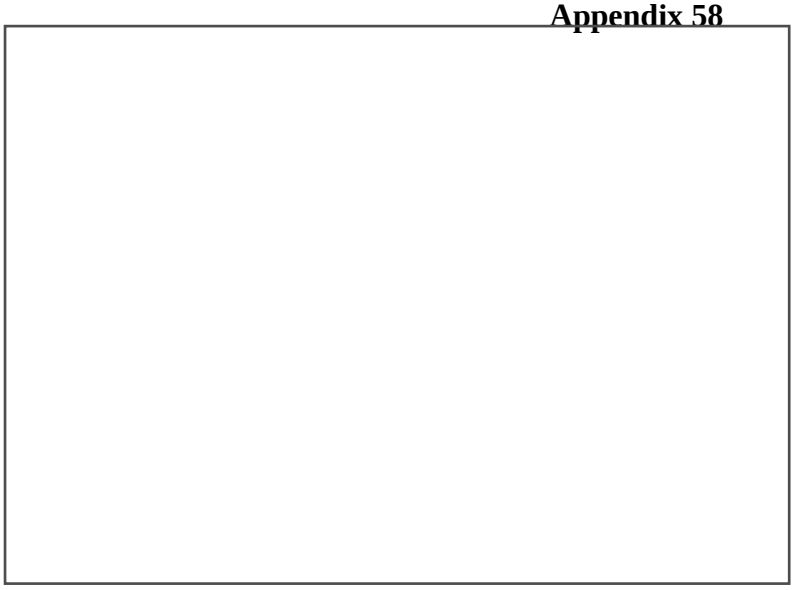
a 75.0% of original grouped cases correctly classified.

Appendix 57



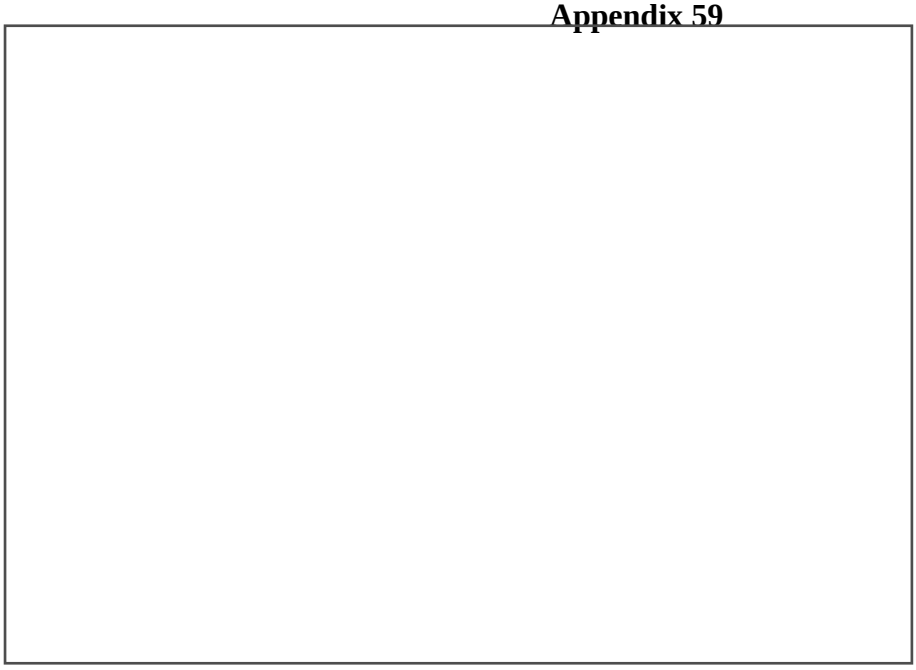
Existence of departments in architectural firms and the ownership forms of the firms

Appendix 58



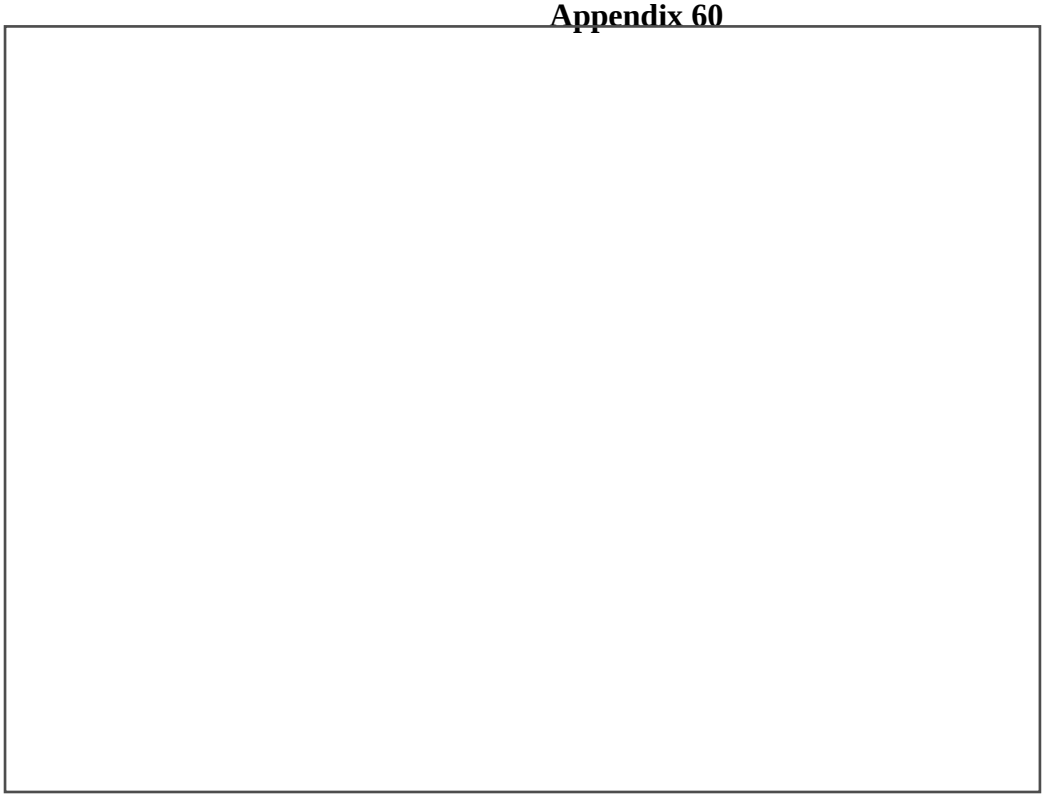
Existence of departments in architectural firms and the existence of branches of the firms

Appendix 59



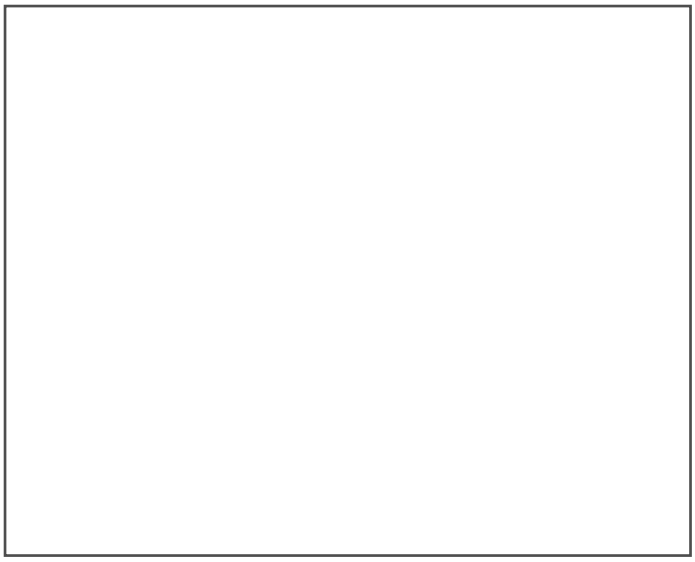
Existence of departments in architectural firms and the number of staff of the firms

Appendix 60



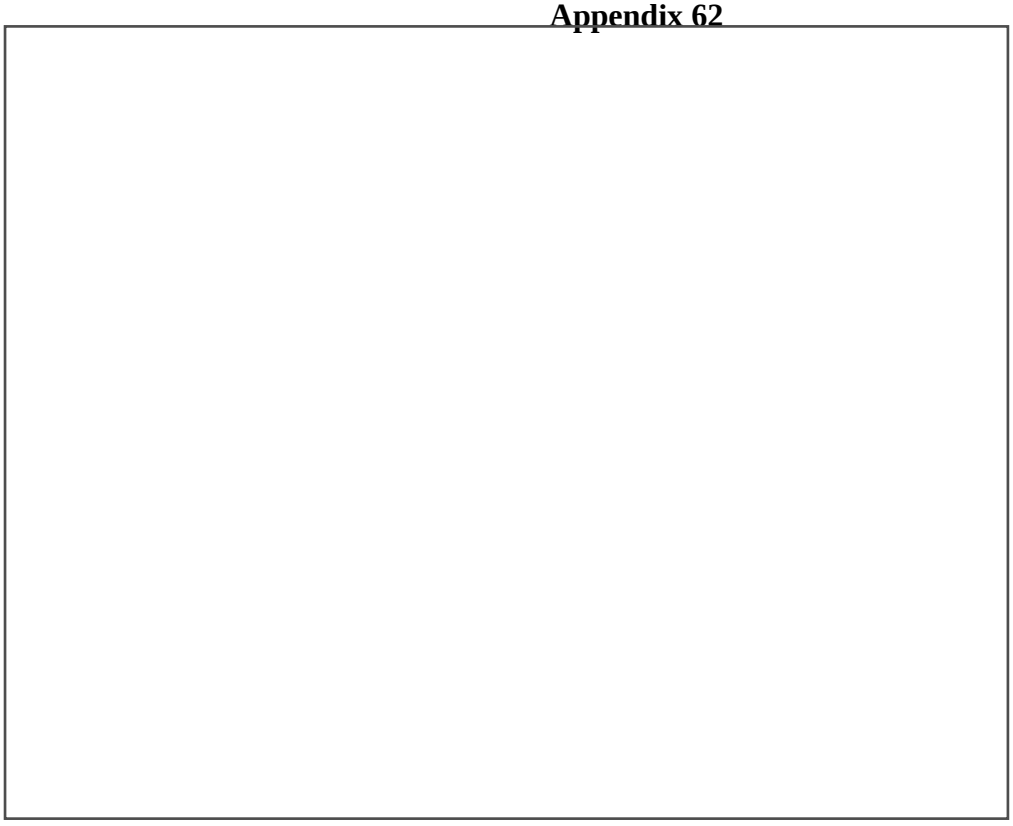
Decision maker on design ideas to use for projects and the age of the firm

Appendix 61



Degree of centralization of decision making and existence of branches

Appendix 62

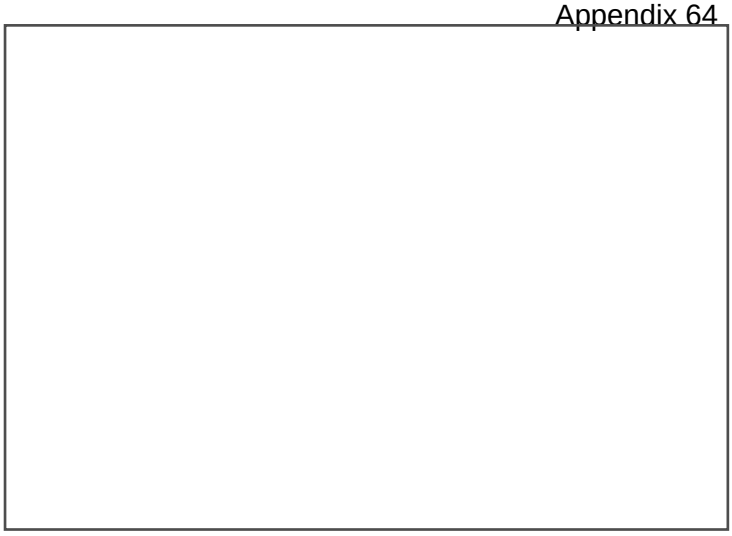


Degree of Centralization and the Perception of the Success of the Firm in the Last Two Years

Appendix 63

Organization of staff for execution of projects and the total number of staff in the firms.

Appendix 64



Use of the internet in designing and drafting and the degree of centralization of decisions in firms

Appendix 65

Information Technology, Size, Ownership Forms and Structures of Architectural Firms

		what is your perception of the success of the firm’s profit in the last two years			
		very good	good	fair	not so good
degree of use of internet facilities	low use	1	9	10	1
	moderate use	11	11	2	0
	high use	11	7	1	0

level of availability of information technology facilities	low availability	2	3	11	2	
	moderate availability	7	10	4	0	
	high availability	13	17	2	0	

Availability of information technology facilities and existence of department(s)

Use of internet facilities and total number of staff

degree of use of internet facilities	total number of staff				Total	
	1 - 5				6 -10	
	yes		no			
low availability	3		16		19	
moderate availability	5		17		22	
high availability	16		14		30	

Level of availability of information technology facilities by sourcing for jobs is handled exclusively by at least one employee

level of availability of information technology facilities	sourcing for jobs is handled exclusively by at least one employee		Total
	yes	no	
low availability	3	16	19
moderate availability	12	10	22
high availability	10	20	30

Level of availability of information technology facilities by accounts is handled exclusively by at least one full time employee

level of availability of	accounts is handled exclusively by at	Total

information technology facilities	least one full time employee		
	yes	no	
low availability	2	17	19
moderate availability	9	13	22
high availability	17	13	30

Level of availability of information technology facilities by how formal is communication with staff within the office?

level of availability of information technology facilities	how formal is communication with staff within the office			Total
	informal	fairly formal	very formal	
low availability	12	4	3	19
moderate availability	5	15	2	22
high availability	8	16	8	32

Appendix 66

Office Structure Variables used in cluster analysis

S/N	Variable label	Variable description
1	b2.48	does your firm have departments/ work units?
2	b2.49a	public/clients relations is handled exclusively by at least one employee
S/N	Variable label	Variable description
3	b2.49b	personnel is handled exclusively by at least one employee
4	b2.49c	working drawing is handled exclusively by at least one personnel
5	b2.49d	sourcing for jobs is handled exclusively by at least one employee
6	b2.49e	maintenance is handled exclusively by at least one employee
7	b2.49f	accounts is handled exclusively by at least one full time employee
8	b2.49g	transport is handled exclusively by at least one employee
9	b2.49h	training is handled exclusively by at least one employee
10	b2.49i	design is handled exclusively by at least one full time employee
11	b2.49j	modeling is handled exclusively by at least one employee
12	b2.49k	site meeting is handled exclusively by at least one employee
13	b2.49l	welfare is handled exclusively by at least one employee
14	b2.49plusrecode	please list the official job titles used in your firm
15	b2.51a	how formal is communication with staff within the office?
16	b2.51b	how formal is communication with other professionals outside the office?
17	b2.51c	how formal is communication with clients?
18	b2.51d	how formal are financial matters and budgeting?
19	b2.51e	how formal are management decisions?
20	b2.51f	how formal are staff working conditions and job descriptions?
21	b2.51g	how formal are meetings in the office?
22	b2.51plusrecode	Degree of Formalization
23	b2.52a	decision maker on how to get new jobs and clients?
24	b2.52b	decision maker on collaborations with other firms?
25	b2.52c	decision maker on managing the non-design staff?
26	b2.52d	decision maker on fees to be charged for projects?
27	b2.52e	decision maker on hiring and promotion of architects?
28	b2.52f	decision maker on design ideas to use for projects?
29	b2.52g	decision maker on managing projects?
30	b2.52h	decision maker on salaries of staff?
31	b2.52plusrecode	Degree of Centralization

Appendix 67

Discriminant analysis to test the validity of clusters of office structure of architectural Firms

Two-Step Cluster Number		Predicted Group Membership				Total
		1	2	3	4	
Count	1	40	1	1	4	46
	2	0	23	4	1	28
	3	0	0	8	0	8
	4	1	0	1	8	10
%	1	87.0	2.2	2.2	8.7	100.0
	2	0.0	82.1	14.3	3.6	100.0
	3	0.0	0.0	100.0	0.0	100.0
	4	10.0	0.0	10.0	80.0	100.0

a 85.9% of original grouped cases correctly classified.

Appendix 68

Task and information technology characteristics variables used in cluster analysis

S/N	Variable labels	Variable descriptions
1	b3.54a	how widespread are computers in your firm?
2	b3.54b	how widespread is intranet in your firm?
3	b3.54c	how widespread is internet in your firm?
4	b3.55a	designing and drafting through the internet/ email?
5	b3.55b	project management through the internet/ email?
6	b3.55c	correspondence with staff in the office through the internet / email?
7	b3.55d	correspondences with clients through the internet/ email?
8	b3.55e	correspondences with other professional through the internet/ email?
9	b3.55f	graphic presentation through the internet/ email?
10	b3.55g	sourcing information for design through the internet/ email?
11	b3.56	does your firm have a website?
12	b3.57	does your firm have e-mail address?
13	b4.58a	Offer of architectural design and supervision
14	b4.58b	Offer of construction
S/N	Variable label	Variable description
15	b4.58c	Offer of landscape design
16	b4.58d	Offer of feasibility studies
17	b4.58e	Offer of valuation
18	b4.58.f	Offer of urban design
19	b4.58g	Offer of interior/ furniture design
20	b4.58h	Offer of renovation/ restoration
21	b4.58i	Offer of litigation and arbitration
22	b4.58j	Offer of sales of building materials
23	b4.58k	Offer of structural design
24	b4.58l	Offer of modeling
25	b4.58m	Offer of project/ construction management
26	b4.58n	Offer of other services
27	b4.61	how are design projects carried out in the office?
28	b4.62a	Subletting of modeling
29	b4.62b	Subletting of presentation of projects
30	b4.62c	Subletting of sketch design
31	b4.62d	Subletting of working drawings
32	b4.62e	Subletting of supervision of projects
33	b4.62f	Subletting of other services

Appendix 69

Discriminant Analysis to test the Validity of Clusters of task and information technology

characteristic of Architectural Firms

	Two Step Cluster Number		Predicted Group Membership			Total
			1	2	3	
Original	Count	1	41	0	5	46
		2	0	36	3	39
		3	0	0	7	7
	%	1	89.1	0.0	10.9	100.0
		2	0.0	92.3	7.7	100.0
		3	0.0	0.0	100.0	100.0

a 91.3% of original grouped cases correctly classified.

Appendix 70

Categorical **Principal Component analysis of the profiles and culture of architectural firms**

Model Summary

Dimension	Cronbach's Alpha	Variance Accounted For	
		Total (Eigenvalue)	% of Variance
1	0.93	12.76	16.80
2	0.84	5.96	7.85
3	0.83	5.77	7.59
4	0.79	4.53	5.96
5	0.72	3.53	4.65
6	0.69	3.20	4.22
7	0.68	3.09	4.06
Total	0.98(a)	38.87	51.15

a Total Cronbach's Alpha is based on the total Eigenvalue.

Component Loadings of factors on the variables of profile and culture

Component Loadings

	Dimension						
Variables							
	1	2	3	4	5	6	7
ownership form of firm	0.49	-0.25	-0.25	-0.20	0.20	0.00	-0.18
Existence of branches in Nigeria	-0.67	0.03	-0.02	-0.18	-0.05	-0.03	-0.25
Number of branches in Nigeria	-0.67	0.03	-0.03	-0.18	-0.05	-0.03	-0.25
Existence of branches in other countries	-0.38	-0.35	-0.02	-0.17	0.18	-0.05	-0.06
individual clients in Nigeria	-0.16	0.20	-0.14	0.21	0.47	-0.33	-0.05
private organizations clients in Nigeria	-0.12	-0.10	-0.30	-0.22	-0.43	0.10	-0.21
banks and financial institution clients in Nigeria	0.14	-0.03	0.04	0.24	0.02	0.59	0.00
religious organizations clients in Nigeria	0.16	-0.17	0.02	0.26	0.59	-0.29	0.14
government clients	0.43	-0.00	-0.01	0.13	0.30	-0.12	0.17
international private clients	0.32	-0.28	0.34	-0.03	-0.07	-0.27	0.07
Variables	Dimension						
	1	2	3	4	5	6	7
international private organizations	0.33	-0.20	0 .11	0.26	-0.37	-0.36	0.32
other client groups	0.15	0.18	-0.11	0.16	0.07	0.08	0.08
perception of the success of the firm's profit in the last two years	-0.34	-0.18	0.09	0.27	0.40	-0.25	-0.31
average size of most of the	0.73	-0.07	-0.15	0.02	-0.10	-0.04	0.02

projects carried out in the last two years							
Average size of projects firm intends to target in the next one year	0.47	-0.07	-0.19	0.04	-0.36	0.11	0.08
Remuneration by scale of fees	-0.53	-0.00	0.24	-0.11	-0.01	0.35	-0.15
Remuneration by bid/ negotiation	0.41	0.13	-0.22	0.23	-0.12	-0.35	0.20
Remuneration by other means	0.05	-0.03	0.08	0.07	0.12	0.11	-0.10
importance of innovation	0.03	-0.21	0.49	0.07	-0.09	0.14	-0.32
encouragement of expression of personal styles and initiatives by staff	-0.12	-0.36	0.58	0.13	-0.02	-0.08	-0.20
concern for about profits	-0.16	-0.11	0.06	-0.38	-0.23	0.11	0.39
teamwork and staff development	0.07	-0.14	0.65	0.31	0.14	-0.07	0.05
Driving employees to achieve result	-0.07	-0.32	0.56	0.15	0.14	0.07	0.09
Gender equity in hiring of staff	-0.05	-0.48	0.46	-0.02	-0.17	-0.18	-0.21
new ideas and technology as determinants of strategy	0.12	-0.44	0.52	0.17	0.02	0.10	-0.23
aggression in the pursuit of every business opportunity	-0.37	-0.00	0.29	0.33	0.10	0.21	0.34
Gender equity in task allocation	-0.03	-0.37	0.29	0.43	-0.45	-0.01	-0.10
caution in risky ventures	0.22	-0.20	0.41	0.02	-0.05	0.22	-0.04
tradition and consistency	0.21	-0.03	-0.05	0.22	-0.37	0.18	0.10
drawings are in the reception area	-0.04	0.20	-0.05	0.13	-0.08	0.23	0.08
models are in the reception area	-0.20	0.17	0.03	-0.06	-0.29	-0.17	0.01
artworks/ paintings are in the reception area	-0.16	-0.29	0.19	-0.22	-0.18	0.01	0.09
plants are in the reception area	-0.32	0.03	-0.00	-0.00	-0.17	0.00	0.46
Variables	Dimension						
	1	2	3	4	5	6	7
awards, plaques, souvenirs are in the reception area	0.10	-0.05	0.12	0.08	0.01	-0.06	0.23
reading materials are in the reception area	0.07	0.08	-0.04	-0.08	0.20	0.09	0.18
how are most parts of your office designed?	0.10	-0.11	-0.25	-0.29	-0.41	-0.12	0.03
sex of the Principal	-0.06	0.26	0.30	-0.03	-0.25	-0.21	-0.34
age group of the Principal	0.20	-0.04	-0.38	0.64	0.07	0.19	-0.06
highest qualification of the Principal architect in architecture	0.33	-0.15	-0.56	-0.06	-0.14	0.06	-0.16
other qualification(s) possessed by the Principal partner apart from architecture	0.20	0.12	-0.04	0.29	-0.26	0.28	-0.04
years of registration of Principal partner	-0.25	0.14	0.52	-0.50	-0.01	-0.07	0.17
Number of firms Principal had worked previously	0.05	0.05	-0.05	0.38	0.26	-0.12	0.26
description the Principal?	-0.15	0 .10	0.17	-0.10	-0.16	0.26	0.39
ages of firms	0.37	-0.20	-0.29	0.57	0.05	0.01	-0.14
total number of staff	0.87	0.04	0.01	-0.19	0.13	0.08	-0.03
Number of architects	0.77	-0.25	-0.10	-0.18	-0.02	-0.17	0.05
Number of engineers	0.52	0.54	0.15	-0.18	-0.01	-0.08	0.02
Number of quantity surveyors	0.38	0.75	0.28	-0.03	-0.08	-0.10	-0.26

Number of builders	0.34	0.75	0.30	-0.04	-0.08	-0.11	-0.28
Number of urban planners	0.20	0.10	0.36	0.24	-0.37	0.07	-0.06
Number of administrative staff	0.74	-0.07	0.04	-0.07	0.15	-0.21	-0.10
Number of accountants	0.42	0.73	0.29	-0.01	-0.07	-0.10	-0.26
Number of other staff	0.43	0.42	0.11	0.17	0.00	0.54	-0.10
Number of architects with OND/HND	0.52	-0.16	0.41	-0.17	0.12	0.00	0.33
Number of architects with BSC	0.16	-0.21	0.01	-0.42	0.16	-0.09	-0.20
Variables	Dimension						
	1	2	3	4	5	6	7
Number of architects with BArch/MSc	0.79	-0.23	-0.28	0.09	-0.10	-0.08	-0.05
Number of architects with PhD	0.31	-0.21	-0.15	-0.52	0.34	-0.04	-0.24
Number of architects with MBA	0.26	-0.05	0.20	-0.10	-0.23	-0.13	0.49
Number of architects with other qualification	0.21	0.61	0.177	0.02	-0.01	-0.16	-0.01
Number of architects with MNIA/FNIA	0.52	0.02	-0.18	0.41	-0.03	-0.06	-0.05
Number of architects with partners	0.63	-0.10	0.06	-0.02	-0.04	-0.08	0.08
Number of architects with senior architects	0.56	-0.22	-0.15	-0.32	-0.25	-0.21	0.04
Number of architects with junior architects	0.68	-0.29	-0.00	-0.20	0.07	0.02	-0.00
Number of architects with trainee architect	0.62	0.02	0.15	-0.04	-0.17	0.05	0.18
Number of architects with other designation	0.49	-0.16	0.14	-0.23	0.22	0.59	-0.09
Number of male architects	0.76	-0.16	-0.06	0.00	-0.02	-0.18	0.02
Number of female architects	0.58	-0.40	0.11	-0.38	0.00	0.01	-0.14
Number of male other professionals	0.50	0.20	0.27	-0.12	0.14	0.32	0.13
Number of female other professionals	0.57	-0.19	-0.00	-0.35	0.17	0.43	-0.04
Number of male administrative staff	0.66	0.06	0.19	0.06	0.05	0.08	0.11
range female administrative staff	0.58	-0.05	-0.02	0.30	0.21	0.11	-0.21
culture group	-0.05	0.46	-0.68	-0.29	0.10	-0.00	0.18
Number of years of experience before stating a firm	0.13	-0.16	0.01	0.33	-0.35	-0.34	-0.25
Number of years of experience of Principal	0.04	-0.02	-0.53	0.34	-0.19	0.29	-0.07
Number of professionals	0.46	0.73	0.32	-0.08	-0.05	-0.07	-0.21
city of firm	0.02	0.35	0.33	0.11	0.32	-0.06	0.44

Variable Principal Normalization.

Factor Descriptions

Factor	Variables
1- Size (branch network, cost of projects, number of staff, gender	Existence of branches in Nigeria (-0.67) (BN)

ratio)	
	Number of branches in Nigeria (-0.67) (NBN)
	Average size of most of the projects done by firm (0.73) (ASP)
	Remuneration by scale of fees (-0.53) (RSF)
	Number of architects (0.77)
	Number of administrative staff (0.74)
	Number of total staff (0.87)
	Number of architects with BArch/ MSc (0.79)
1- Size (contd.)	Number of architects with HND? OND (0.52)
	Number of architects with MNIA? FNIA (0.52)
	Number of partners (0.63)
	Number of senior architects (0.56)
	Number of junior architect (0.68)
	Number of trainee architects (0.62)
	Number of male architects (0.76)
	Number of female architects (0.58)
	Number of male professionals (apart from architects) (0.50)
	Number of female professionals (apart from architects) (0.57)
	Number of male administrative staff (0.66)
	Number of female administrative staff (0.58)
2 – Number of professionals	Number of accountants (0.73)
	Number of architects with other qualifications (0.61)
	Number of builders (0.75)
	Number of quantity surveyors (0.75)
3- Culture	Importance of teamwork and staff development (0.65)
	Employees being driven to achieve result (0.56)
	Gender equity in hiring of staff (0.64)
	Staff initiative (0.58)
	New ideas and technology being the most the most important determinants of the firm’s strategy (0.52)
Factor culture (contd.)	Variables
	Highest qualification of Principal (-0.56)
	Age of Registration of Principal (0.52)
4- Age (firm, Principal - physical and experience)	Age group of Principal (0.64)
	Age of firm (0.57)
	Number of architects with PhD (-0.52)
5- religious organization clients	Proportion of clients that religious organizations represent (0.59)
6- number of non-professional staff and proportion of bank clients	Number of architects with other designations (0.59)
	Number of other staff (0.54)
	Proportion of clients that are banks and financial

	institutions (0.59)	
7- Business related training	Number of architects with MBA (0.49)	

Appendix 71

Categorical principal analysis of the variables of the strategies of architectural firms

Model Summary

Factor	Cronbach's Alpha	Variance Accounted For	
		Total (Eigenvalue)	% of Variance
1	0.90	9.05	15.61
2	0.78	4.41	7.61
3	0.76	3.96	6.83
4	0.74	3.69	6.36
5	0.65	2.83	4.88
6	0.63	2.68	4.62
7	0.59	2.42	4.18
Total	0.98	29.06	50.11

a Total Cronbach's Alpha is based on the total Eigenvalue.

Component Loadings of factors of strategies of architectural firms

Variables	Factors						
	1	2	3	4	5	6	7
Target of private local individuals	-0.09	0.12	-0.05	-0.04	-0.25	0.03	-0.30
Target of private local organization	-0.00	0.18	-0.18	0.15	0.05	-0.02	-0.28
Target of governments	-0.10	-0.25	0.18	0.01	-0.17	-0.14	-0.11
Target of international organizations	0.25	-0.07	0.30	-0.04	-0.02	0.16	0.06
Target of international private individuals	-0.09	-0.09	-0.24	0.05	-0.28	0.30	-0.07
Target of other client groups	0.07	0.10	0.05	-0.31	-0.08	-0.15	0.63
projects from family and friends	0.30	0.10	0.02	0.04	0.56	0.30	-0.10
projects through personal contacts	0.02	0.10	0.37	0.16	-0.34	0.21	0.26
projects through public relations strategies including office brochure	0.00	0.32	-0.16	-0.04	0.33	0.47	0.12
projects through old clients	0.18	0.01	-0.21	-0.00	0.41	0.23	0.16
projects through other professionals	0.18	0.32	-0.27	-0.09	0.43	0.32	0.06
projects through previous projects	0.22	0.28	-0.36	-0.11	0.42	0.23	-0.02
projects through other sources	-0.11	0.14	-0.53	0.50	-0.16	-0.01	0.11
satisfying the needs of clients	0.19	-0.05	0.08	-0.32	0.22	-0.00	0.47
generating new design ideas and being creative	0.03	0.07	0.29	-0.14	0.29	-0.07	0.05
making money	0.01	0.00	0.31	0.35	-0.04	-0.24	-0.24
being known by key players in the building industry	0.09	0.65	-0.26	-0.50	-0.25	-0.03	-0.18
being known for expertise in	0.08	0.54	-0.19	-0.41	-0.24	-0.06	-0.30

particular building types							
being known for efficient architectural services	0.09	0.64	-0.28	-0.48	-0.24	-0.02	-0.23
having a broad number of clientele	-0.01	0.55	0.45	0.33	-0.16	0.12	0.17
keeping the firm busy always	-0.00	0.56	0.34	0.44	-0.09	0.06	0.13
being known in important clientele circles	0.16	0.77	0.16	0.01	-0.32	-0.02	-0.01
Variables	Factors						
	1	2	3	4	5	6	7
service to the society/enhancing the environment by design	0.15	0.58	-0.06	-0.54	-0.27	-0.16	0.27
collaboration with other firms locally	0.80	-0.09	0.07	0.03	-0.12	-0.08	-0.05
collaboration with other firms internationally	0.26	0.00	0.61	0.00	-0.09	0.10	-0.22
type of collaboration	0.93	-0.07	-0.01	0.02	-0.03	-0.06	-0.11
firms collaborated with locally	0.86	-0.07	-0.00	0.04	-0.02	-0.02	-0.05
firms collaborated with internationally	0.18	-0.18	0.68	-0.36	0.03	0.15	-0.20
the size of the project was the usual reason for collaborations	0.97	-0.05	-0.03	0.06	-0.02	-0.04	-0.02
the requirement of the client was the usual reason for collaboration	0.97	-0.06	-0.04	0.06	-0.01	-0.04	-0.02
taking advantage of the expertise of the other firm was the usual reason for collaboration	0.97	-0.06	-0.02	0.06	-0.02	-0.05	-0.00
taking advantage of the experience of the other firm was the usual reason for collaboration	0.97	-0.07	-0.04	0.05	-0.01	-0.04	-0.02
the nature of the project was the usual reason for collaboration	0.97	-0.06	-0.04	0.06	-0.01	-0.04	-0.02
other reasons were responsible for the collaborations	0.97	-0.07	-0.04	0.06	-0.01	-0.04	-0.02
any long term contract(s)	-0.12	-0.37	0.01	-0.05	-0.07	-0.29	-0.20
sub-commissions	-0.25	-0.02	-0.02	-0.17	0.30	0.05	-0.55
Involvement in design and build	-0.16	-0.16	-0.42	-0.30	0.10	-0.34	0.06
Involvement in supervising projects only	-0.16	0.16	0.28	0.32	-0.13	-0.03	-0.09
Involvement in project management	-0.18	0.11	0.28	0.04	0.09	0.15	0.13
Variables	Factors						
	1	2	3	4	5	6	7
Involvement in design and manage	-0.21	-0.09	0.29	-0.02	-0.02	0.15	-0.09
Involvement in private finance initiative	0.00	-0.22	-0.00	-0.24	-0.01	0.03	0.12
Involvement in other means of	0.05	-0.09	-0.13	0.00	-0.37	0.66	0.11

procurement method							
importance of design	0.06	-0.11	0.03	-0.04	-0.16	0.69	-0.07
competence in the selection of new staff							
importance of knowledge of construction in the selection of new staff	-0.08	0.11	0.48	-0.12	0.33	0.22	-0.35
importance of AUTOCAD/IT literacy in the selection of new staff	0.10	0.26	-0.03	0.46	0.25	0.02	0.17
importance of gender in the selection of new staff	-0.03	0.25	0.16	0.00	0.36	-0.57	-0.05
importance of personality in the selection of new staff	-0.20	0.33	0.19	-0.09	0.38	-0.17	-0.07
importance of educational qualification in the selection of new staff	0.08	0.50	0.02	0.39	0.21	-0.18	0.08
importance of managerial skills in the selection of new staff	0.05	0.42	0.49	0.23	0.07	-0.19	0.00
importance of other factors in the selection of new staff	-0.09	0.18	-0.36	0.48	-0.05	0.00	-0.14
firm retains competent staff through improved salary	-0.05	0.00	0.12	-0.21	-0.19	0.08	-0.34
firm retains competent staff through retention bonus	0.09	-0.03	-0.04	0.10	0.00	0.05	-0.08
firm retains competent staff through performance bonus	-0.23	-0.30	0.05	-0.07	-0.20	-0.06	0.05
firm retains competent staff through rewards and recognitions	-0.05	-0.11	-0.03	0.25	-0.21	-0.17	0.26
Variables	Factors						
	1	2	3	4	5	6	7
firm retains competent staff through staff development	-0.32	-0.05	-0.05	0.09	0.02	-0.08	0.06
firm retains competent staff through leadership development	-0.02	0.02	0.13	0.18	-0.10	0.12	-0.10
firm retains competent staff through other means	0.05	-0.06	0.00	-0.07	0.09	-0.18	-0.16
how is staffing for each project organized?	-0.12	0.07	-0.51	0.64	-0.06	-0.01	-0.35

Variable Principal Normalization.

Factor Descriptions

Factor1	Collaborations locally, types and reasons
	Had the firm collaborated locally (0.80) (CL)
	What type of collaboration did the firm get involved in locally (0.97) (TC)
	Requirement of the client was the reason for collaboration (0.97) (CRR)
	Taking advantage of the expertise of the firm was the reason for collaboration (0.97)
	Taking advantage of the experience of the other firm was the

	reason for collaboration (0.97)	
	The nature of the projects was the reason for collaboration (0.97)	
	Other reasons were responsible for such collaboration (0.97)	
Factor 2	Goals of the firm	
	Being known by key players in the industry (0.65)	
	Being known for expertise in particular building types (0.54)	
	Being known for efficient architectural services (0.64)	
	Having a broad number of clientele (0.55)	
	Keeping the firm busy always (0.56)	
	Being known in important client circles (0.77)	
	Service to the society (0.58)	
	Educational qualification in the selection of new staff (0.50)	
Factor 3	International collaboration	
	collaboration internationally (0.61)	
Factor 4	Staffing mode/ other sources of projects	
	Proportion of projects through other sources (0.50)	
	How is staffing for each project done? (0.64)	
Factor 5	Projects through family and friends	
	Proportion of projects through family and friends (0.56)	
Factor 6	Design competence and gender based hiring of staff and other procurement methods adopted	
	Involvement in other procurement methods (0.66)	
	Importance of design competence in the selection of new staff (0.69)	
	Importance of gender in the selection of new staff (- 0.57)	
Factor 7	Sub-commissions and other groups of clients	
	Does the firm often target other client groups (0.63)	
	About what proportion of your commissions are sub-commissions (-0.55)	

Appendix 72

Categorical **principal component analysis of the variables of structure of architectural firms**

Model Summary

Factors	Cronbach's Alpha	Variance Accounted For	
		Total (Eigenvalue)	% of Variance
1	0.87	6.43	20.74
2	0.73	3.43	11.09
3	0.64	2.62	8.47
4	0.54	2.09	6.75
5	0.47	1.83	5.93
Total	0.97(a)	16.43	53.00

a Total Cronbach's Alpha is based on the total Eigenvalue.

Component Loadings of factors of structures of architectural firm

Variables	Factors				
	1	2	3	4	5
Existence of departments/ work units	0.59	0.03	0.11	0.31	-0.34
public/clients relations is handled	0.57	-0.13	0.33	0.05	-0.11
exclusively by at least one employee					
personnel is handled exclusively by at	0.39	-0.05	0.15	-0.28	0.14

least one employee					
working drawing is handled exclusively by at least one personnel	0.39	0.10	0.31	-0.00	0.55
sourcing for jobs is handled exclusively by at least one employee	0.51	0.11	-0.01	-0.19	0.05
maintenance is handled exclusively by at least one employee	0.50	0.33	0.20	-0.25	-0.26
accounts is handled exclusively by at least one full time employee	0.42	0.01	0.28	-0.24	-0.44
transport is handled exclusively by at least one employee	0.38	-0.01	0.10	-0.00	0.37
training is handled exclusively by at least one employee	0.12	-0.27	0.20	0.14	-0.03
design is handled exclusively by at least one full time employee	0.58	0.01	0.30	-0.18	0.31
modeling is handled exclusively by at least one employee	0.00	-0.16	-0.07	-0.04	0.24
site meeting is handled exclusively by at least one employee	0.60	0.04	0.27	-0.07	-0.03
welfare is handled exclusively by at least one employee	0.56	0.17	0.28	-0.07	-0.00
how formal is communication with staff within the office	-0.32	0.49	0.28	-0.22	0.09
how formal is communication with other professionals outside the office?	-0.26	0.45	0.40	0.66	0.01
how formal is communication with clients?	-0.14	0.45	0.36	0.71	0.02
Variables	Factors				
	1	2	3	4	5
how formal are financial matters and budgeting	-0.38	0.65	-0.15	-0.03	0.06
how formal are management decisions?	-0.37	0.59	-0.12	-0.46	-0.02
how formal are staff working conditions and job descriptions?	-0.56	0.11	0.32	-0.34	0.07
how formal are meetings in the office?	-0.33	0.52	0.30	-0.07	-0.01
who takes decisions on how to get new jobs and clients?	-0.30	-0.26	0.39	-0.06	0.12
who takes decisions on collaborations with other firms?	-0.01	-0.28	0.58	0.02	-0.14
who takes decisions on managing the non-design staff?	-0.36	-0.24	0.32	0.21	-0.31
who takes decisions on fees to be charged for projects?	-0.41	-0.31	0.24	0.01	0.50
who takes decisions on hiring and promotion of architects?	-0.30	-0.59	-0.05	-0.02	0.36
who takes decisions on design ideas to use for projects?	-0.29	-0.26	0.22	-0.32	-0.43
who takes decisions on managing projects?	-0.44	-0.39	0.09	-0.25	-0.22
who takes decisions on salaries of staff?	-0.59	-0.23	0.35	-0.00	-0.03
degree of specialization	-0.85	-0.06	-0.39	0.20	-0.13
degree of formalization	-0.61	0.59	0.23	-0.27	0.06
degree of centralization	0.64	0.33	-0.52	0.08	0.00

Variable Principal Normalization.

Factor description

Factor 1	Specialization of duties	
	Existence of departments (0.59)	
	Specialization of the duty of public and clients relations (0.57)	
	Specialization of the duty of sourcing for job (0.51)	
	Specialization of the duty of maintenance (0.50)	
	Specialization of the duty of design (0.58)	
	Specialization of the duty site meetings (0.60)	
	Specialization of the duty of welfare (0.56)	
	Formality of staff working conditions and job specifications (-0.56)	
Factor 2	Formalization of office activities	
	Formalization of budgeting and financial matters (0.65)	
	Formalization of management decisions (0.59)	
	Formalization of meetings in the office (0.52)	
	Who takes decisions on the hiring and promotion of staff (0.59)	
Factor 3	Centralization	
	Who takes decisions on the collaboration with other firms (0.58)	
	Degree of centralization (-0.52)	
Factor 4	Formalization of communications with others outside the firm	
	Formalization of communications with other professionals ((0.66)	
	Formalization of communications with clients (0.71)	
Factor 5	Core task specialization and centralization	
	Specialization of the task of working drawing (0.55)	
	Who takes decisions on fees to be charged for projects (0.50)	

Appendix 73

Categorical **principal component analysis of the variables of information technology and tasks characteristics of architectural firms**

Model Summary

Factors	Cronbach’s Alpha	Variance Accounted For	
		Total (Eigenvalue)	% of Variance
1	0.83	5.27	15.99
2	0.69	3.09	9.36
3	0.66	2.80	8.49
4	0.60	2.40	7.27
5	0.56	2.23	6.76
6	0.48	1.87	5.69
Total	0.97(a)	17.68	53.59

a Total Cronbach's Alpha is based on the total Eigenvalue.

Component Loadings of factors of information technology and task characteristics of architectural firms

Variables	Factors					
	1	2	3	4	5	6
how widespread are computers in your firm?	0.65	0.04	-0.30	0.27	-0.14	0.09
how widespread is intranet in your firm?	0.71	-0.09	-0.36	0.12	-0.35	0.01
how widespread is internet in your firm?	0.81	-0.09	-0.15	-0.09	-0.06	-0.00
do you carry out designing and drafting through the internet/ email?	0.67	-0.06	-.22	-0.11	0.46	0.08
do you carry out project management through the internet/ email?	0.64	-0.07	-0.04	0.01	0.37	0.03
do you carry out correspondence with staff in the office through the internet / email?	0.68	-0.20	-0.16	0.02	0.07	0.15
do you carry out correspondences with clients through the internet/ email?	0.42	-0.21	0.71	-0.13	-0.05	0.19
do you carry out correspondences with other professional through the internet/ email?	0.41	-0.40	0.62	-0.26	-0.10	-0.13
Variables	Factors					
	1	2	3	4	5	6
do you carry out graphic presentation through the internet/ email?	0.82	-0.12	0.06	-0.19	0.16	0.11
do you source information for design through the internet/ email?	0.39	-0.13	0.62	-0.10	-0.06	-0.13
does your firm have a website?	-0.40	-0.41	0.01	-0.04	0.32	0.18
does your firm have e-mail address?	-0.09	-0.04	-0.17	0.38	0.17	0.48
how often does your firm offer architectural design and supervision?	0.03	-0.11	0.11	0.01	0.47	-0.11
how often does your firm offer construction?	0.05	0.63	-0.14	-0.16	0.22	0.02
how often does your firm offer landscape design?	0.11	0.31	0.23	0.49	0.50	-0.19
how often does your firm offer feasibility studies?	0.21	0.04	0.13	0.46	0.36	-0.29
how often does your firm offer valuation?	0.44	0.20	-0.24	0.16	-0.21	0.02
how often does your firm offer urban design?	-0.04	0.35	0.45	-0.09	0.00	0.38
how often does your firm offer interior/ furniture design?	0.07	0.12	0.51	0.21	-0.14	0.23
how often does your firm offer renovation/ restoration?	0.08	0.21	0.38	0.47	0.23	0.06
how often does your firm offer litigation and arbitration?	-0.05	0.14	-0.00	0.33	0.17	0.69
how often does your firm offer sales of building materials?	0.31	0.49	0.01	-0.29	-0.23	0.11
how often does your firm offer structural design?	0.12	0.60	-0.00	-0.10	-0.03	-0.28
how often does your firm offer	0.04	0.63	0.14	0.14	-0.42	-0.04

modeling?						
how often does your firm offer project/ construction management?	0.26	0.58	0.05	0.14	0.33	-0.34
how often does your firm offer other services?	-0.18	-0.00	0.09	0.00	-0.01	0.18
Variables	Factors					
	1	2	3	4	5	6
how are design projects carried out in the office?	-0.56	0.05	-0.19	-0.09	0.22	-0.19
is modeling done outside the firm?	0.16	0.56	-0.19	-0.27	-0.04	0.38
is presentation of projects done by others outside the firm?	0.28	0.02	-0.07	-0.02	-0.06	-0.41
is sketch design done by others outside the firm?	-0.06	-0.22	-0.13	0.45	-0.30	-0.08
are working drawings done by others outside the firm?	0.13	-0.02	0.20	0.41	-0.37	-0.19
is supervision of your projects done by others outside the firm?	0.12	-0.31	-0.25	0.59	-0.17	0.00
are there other services provided for your projects by others outside your firm?	0.16	-0.18	-0.33	-0.35	0.25	-0.02

Variable Principal Normalization

Factor Description

Factor 1	Availability and use of information technology facilities for office activities
	Availability of computers in the firm (0.65)
	Availability of intranet facilities (0.71)
	Availability of internet facilities (0.81)
	Conduct of design and drafting through internet (0.67)
	Conduct of project management through the internet (0.64)
	Conduct of correspondence with staff through the internet (0.68)
	Conduct of graphic presentation through the internet (0.82)
	How are design projects carried out in the office? (-0.56)
Factor 2	Offer of variety of services
	How often does your firm offer construction services? (0.63)
	How often does your firm offer structural design services? (0.60)
	How often does your firm offer modeling services? (0.63)
	How often does your firm offer project/ construction management services? (0.58)
	Is modeling services carried out by other outside the firm? (0.56)
Factor 3	Offer of interior/furniture design and communication with other professionals
	Conduct of correspondence with other professionals through the internet (0.62)
	Sourcing for information through the internet (0.62)
	How often does your firm offer interior/ furniture design (0.51)
Factor 4	Supervision subletting (0.59)
	Is supervision carried out by others outside the firm? (0.59)
Factor 5	Offer of landscape design (0.50)
	How often does your firm offer landscape design services? (0.50)
Factor 6	Offer of arbitration services (0.69)
	How often are litigations and arbitration services offered by

	the firm? (0.69)						

Appendix 74

Multivariate Analysis of Variance Results

Multivariate **Tests (b)**

Effect	Multivariate Tests	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	Pillai's Trace	0.59	1.52(a)	25.00	26.00	0.14	0.59
	Wilks' Lambda	0.40	1.52(a)	25.00	26.00	0.14	0.59
	Hotelling's Trace	1.46	1.52(a)	25.00	26.00	0.14	0.59
	Roy's Largest Root	1.46	1.52(a)	25.00	26.00	0.14	0.59
strength of external influences	Pillai's Trace	0.68	2.29(a)	25.00	26.00	0.02	0.68
	Wilks' Lambda	0.31	2.29(a)	25.00	26.00	0.02	0.68
	Hotelling's Trace	2.20	2.29(a)	25.00	26.00	0.02	0.68
	Roy's Largest Root	2.20	2.29(a)	25.00	26.00	0.02	0.68

a Exact statistic

b Design: Intercept+ strength of external influence

Levene's Test of Equality of Error Variances (a)

	F	df1	df2	Sig.
1- Size (branch network, cost of projects, number of staff, gender ratio)	0.07	1	50	0.78
Culture of firms and qualification of Principal	8.97	1	50	0.00
Number of professional	0.29	1	50	0.59
Age and experience of Principal and firm	0.65	1	50	0.42
Religious clients	0.00	1	50	0.94
Number of non-professional staff, and bank clients	0.43	1	50	0.51
business related training	0.00	1	50	0.96
Collaboration locally: type and reason	1.67	1	50	0.20
Goals of the firm	7.07	1	50	0.01
International collaboration	0.00	1	50	0.94
Staffing mode / other sources of projects	15.74	1	50	0.00
Projects through family and friends	0.13	1	50	0.72
Design competence and gender-based hiring of staff and other procurement methods adopted	0.11	1	50	0.73
sub-commissions and other client groups	8.63	1	50	0.00
Specialization of duties	0.16	1	50	0.68
Formalization of office activities	0.84	1	50	0.36
Centralization	0.68	1	50	0.41
Formalization of communication with others outside the	0.42	1	50	0.52

firm					
Core task specialization and centralization	0.97	1	50	0.32	
Availability and use of information technology	0.20	1	50	0.65	
facilities for office activities					
Offer of variety of services	7.19	1	50	0.01	
Offer of interior/furniture design and communication	0.03	1	50	0.86	
with other professionals					
Supervision subletting	0.66	1	50	0.41	
Offer of landscape design	0.16	1	50	0.68	
Offer of arbitration	0.02	1	50	0.88	

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a Design: Intercept + strength of external influences

Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1- Size (branch network, cost of projects, number of staff, gender ratio)	0.223(a)	1	0.22	0.18	0.67	0.004
	Culture of firms and qualification of Principal	0.309(b)	1	6.30	4.35	0.04	0.08
	Number of professional	0.098(c)	1	0.09	0.08	0.77	0.00
	Age and experience of Principal and firm	0.384(d)	1	0.38	0.38	0.53	0.00
	Religious clients	1.655(e)	1	1.65	1.59	0.21	0.03
	Number of non-professional staff, and bank clients	1.033(f)	1	1.03	1.16	0.28	0.02
	business related training	0.278(g)	1	0.27	0.24	0.62	0.00
	Collaboration locally: type and reason	0.812(h)	1	0.81	1.12	0.29	0.02
	Goals of the firm	9.367(i)	1	9.36	9.98	0.00	0.16
	International collaboration	0.001(j)	1	0.00	0.00	0.97	0.00
	Staffing mode / other sources of projects	1.312(k)	1	1.31	1.30	0.26	0.02
	Projects through family and friends	2.88E-005(j)	1	2.88E-05	0.00	0.99	0.00
	Design competence and gender-based hiring of staff and other procurement methods adopted	3.129(l)	1	3.12	2.22	0.14	0.04
	sub-commissions and other client groups	1.617(m)	1	1.61	1.35	0.25	0.02
	Specialization of duties	0.001(j)	1	0.00	0.00	0.98	0.00
Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
corrected	Formalization of office	1.030(n)	1	1.03	1.01	0.31	0.02

model (contd.)	activities							
	Centralization	1.921(o)	1	1.92	2.13	0.15	0.04	
	Formalization of communication with others outside the firm	0.708(p)	1	0.70	1.38	0.24	0.02	
	Core task specialization and centralization	2.244(q)	1	2.24	2.30	0.13	0.04	
	Availability and use of information technology facilities for office activities	.302(r)	1	0.30	0.22	0.63	0.00	
	Offer of variety of services	2.697(s)	1	2.69	2.92	0.09	0.05	
	Offer of interior/furniture design and communication with other professionals	.704(t)	1	0.70	0.46	0.50	0.00	
	Supervision subletting	.262(a)	1	0.26	0.19	0.65	0.00	
	Offer of landscape design	.028(u)	1	0.02	0.03	0.85	0.00	
	Offer of arbitration	.008(j)	1	0.00	0.01	0.91	0.00	
Strength of external influence	1- Size (branch network, cost of projects, number of staff, gender ratio)	0.223	1	0.22	0.18	0.67	0.00	
	Culture of firms and qualification of Principal	6.309	1	6.30	4.35	0.04	0.08	
	Number of professional	0.098	1	0.09	0.08	0.77	0.00	
	Age and experience of Principal and firm	0.384	1	0.38	0.38	0.53	0.00	
	Religious clients	1.655	1	1.65	1.59	0.21	0.03	
	non-professional staff and bank clients	1.033	1	1.03	1.16	0.28	0.02	
Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	
Strength of external influence (contd.)	business related training	0.27	1	0.27	0.24	0.62	0.00	
	Collaboration locally: type and reason	0.81	1	0.81	1.12	0.29	0.02	
	Goals of the firm	9.36	1	9.36	9.98	0.00	0.16	
	International collaboration	0.00	1	0.00	0.00	0.97	0.00	
	Staffing mode / other sources of projects	1.31	1	1.31	1.30	0.26	0.02	
	Projects through family and friends	2.88E-005	1	2.88E-05	0.00	0.99	0.00	
	Design competence and gender-based hiring of	3.12	1	3.12	2.22	0.14	0.04	

	staff and other procurement methods adopted						
	sub-commissions and other client groups	1.61	1	1.61	1.35	0.25	0.02
	Specialization of duties	0.00	1	0.00	0.00	0.98	0.00
	Formalization of office activities	1.03	1	1.03	1.01	0.31	0.02
	Centralization	1.92	1	1.92	2.13	0.15	0.04
	Formalization of communication with others outside the firm	0.70	1	0.70	1.38	0.24	0.02
	Core task specialization and centralization	2.24	1	2.24	2.30	0.13	0.04
	Availability and use of information technology facilities for office activities	0.30	1	0.30	0.22	0.63	0.00
	Offer of variety of services	2.69	1	2.69	2.92	0.09	0.05
Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Strength of external influence (contd.)	Offer of interior/furniture design and communication with other professionals	0.70	1	0.70	0.46	0.50	0.00
	Supervision subletting	0.26	1	0.26	0.19	0.65	0.00
	Offer of landscape design	0.02	1	0.02	0.03	0.85	0.00
	Offer of arbitration	0.00	1	0.00	0.01	0.91	0.00

a R Squared = 0.004 (Adjusted R Squared = -0.016)
b R Squared = 0.080 (Adjusted R Squared =0 .062)
c R Squared = 0.002 (Adjusted R Squared = -0.018)
d R Squared = 0.008 (Adjusted R Squared = -0.012)
e R Squared = 0.031 (Adjusted R Squared = 0.012)
f R Squared = 0.023 (Adjusted R Squared = 0.003)
g R Squared = 0.005 (Adjusted R Squared = -0.015)
h R Squared = 0.022 (Adjusted R Squared = 0.002)
i R Squared =0 .166 (Adjusted R Squared = 0.150)
j R Squared = 0.000 (Adjusted R Squared = -0.020)
k R Squared = 0.025 (Adjusted R Squared = 0.006)
l R Squared =0 .043 (Adjusted R Squared = 0.024)
m R Squared =0 .026 (Adjusted R Squared = 0.007)
n R Squared =0 .020 (Adjusted R Squared = 0.000)
o R Squared = 0.041 (Adjusted R Squared = 0.022)
p R Squared = 0.027 (Adjusted R Squared = 0.007)
q R Squared = 0.044 (Adjusted R Squared = 0.025)
r R Squared = 0.004 (Adjusted R Squared = -0.015)
s R Squared =0 .055 (Adjusted R Squared = 0.036)

t R Squared =0 .009 (Adjusted R Squared = -0.011)
u R Squared =0.001 (Adjusted R Squared = -0.019)

Estimated marginal means

Strength of External Influences

Dependent Variable	Strength of External Influences	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Size (branch network, cost of projects, number of staff, gender ratio)	Weak external influence	0.15	0.33	-0.52	0.82
	Severe external influence	-0.00	0.17	-0.35	0.34
Culture of firms and qualification of Principals	Weak external influence	0.73	0.36	0.00	1.46
	Severe external influence	-0.11	0.18	-0.49	0.26
Number of professional	Weak external influence	-0.00	0.32	-0.66	0.64
	Severe external influence	0.10	0.16	-0.23	0.43
Age and experience of Principal and firm	Weak external influence	0.08	0.30	-0.51	0.68
	Severe external influence	-0.12	0.15	-0.43	0.18
Religious clients	Weak external influence	-0.30	0.30	-0.92	0.31
	Severe external influence	0.13	0.15	-0.18	0.45
Number of non-professional staff, and bank clients	Weak external influence	-0.24	0.28	-0.81	0.32
	Severe external influence	0.09	0.14	-0.19	0.39
business related training	Weak external influence	-0.07	0.32	-0.72	0.56
	Severe external influence	0.10	0.16	-0.23	0.43
Collaboration locally: type and reason	Weak external influence	-0.33	0.25	-0.85	0.17
	Severe external	-0.03	0.13	-0.29	0.23

	influence				
Goals of the firm	Weak external influence	-0.78	0.29	-1.37	-0.20
	Severe external influence	0.25	0.15	-0.05	0.55
International collaboration	Weak external influence	0.07	0.30	-0.53	0.68
	Severe external influence	0.08	0.15	-0.22	0.40
Staffing mode / other sources of projects	Weak external influence	0.28	0.30	-0.32	0.89
	Severe external influence	-0.10	0.15	-0.42	0.21
Projects through family and friends	Weak external influence	0.14	0.31	-0.48	0.78
	Severe external influence	0.14	0.16	-0.18	0.47
Dependent Variable	Strength of External Influences	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Design competence and gender-based hiring of staff	Weak external influence	0.53	0.35	-0.18	1.25
	Severe external influence	-0.06	0.18	-0.43	0.30
sub-commissions and other client groups	Weak external influence	-0.41	0.32	-1.07	0.24
	Severe external influence	0.01	0.17	-0.32	0.35
Specialization of duties	Weak external influence	-0.12	0.32	-0.76	0.52
	Severe external influence	-0.12	0.16	-.46	0.20
Formalization of office activities	Weak external influence	0.36	0.30	-0.97	0.24
	Severe external influence	-0.02	0.15	-0.33	0.29
Centralization	Weak external influence	0.35	0.28	-0.22	0.92
	Severe external influence	-0.11	0.14	-0.41	0.18
Formalization of communication with others	Weak external influence	0.30	0.21	-0.12	0.74
	Severe external influence	0.02	0.11	-0.20	0.24
Core task specialization and centralization	Weak external influence	-0.37	0.29	-0.97	0.22
	Severe external influence	0.13	0.15	-0.17	0.44
Availability and use of information technology facilities for office activities	Weak external influence	-0.25	0.35	-0.95	0.45
	Severe external	-0.06	0.18	-0.43	0.30

	influence					
Offer of variety of services	Weak external influence	-0.21	0.28	-0.79	0.36	
	Severe external influence	0.34	0.15	0.03	0.64	
Offer of interior/furniture design and communication with other professionals	Weak external influence	-0.34	0.37	-1.08	0.40	
	Severe external influence	-0.05	0.19	-0.44	0.33	
Supervision subletting	Weak external influence	-0.20	0.34	-0.89	0.49	
	Severe external influence	-0.02	0.18	-0.38	0.33	
Offer of landscape design	Weak external influence	0.22	0.26	-0.31	0.75	
	Severe external influence	0.16	0.13	-0.11	0.43	
Offer of arbitration services	Weak external influence	-0.08	0.24	-0.57	0.41	
	Severe external influence	-0.11	0.12	-0.37	0.14	

Appendix 75

Discriminant Analysis- Organizational characteristics and the success of the firm

Log Determinants

perception of success	Rank	Log Determinant
Successful	5	-0.37
Unsuccessful	5	-4.89
Pooled within-groups	5	-0.52

The ranks and natural logarithms of determinants printed are those of the group covariance matrices.

Eigenvalues

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	0.92(a)	100.0	100.0	0.69

a First 1 canonical discriminant functions were used in the analysis.

Wilks' Lambda

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1	0.52	55.30	5	0.00

Standardized Canonical Discriminant Function Coefficients

	Function
	1
Business-related training of architects	0.41
Availability and use of information technology facilities	0.80
Offer of variety of services	0.41

Offer of interior/furniture design and communication with other professionals	-0.62
Supervision subletting	0.40

Structure Matrix

	Function
	1
Availability and use of information technology facilities	0.54
Offer of interior/furniture design and communication with other professionals	-0.40
Business-related training of architects	0.28
Supervision subletting	0.24
Offer of variety of services	0.23

Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions
Variables ordered by absolute size of correlation within function.

Appendix 76
Discriminant Analysis- Organizational characteristics and the success of the firm severely influenced by the external environment

Log Determinants

perception of success	Rank	Log Determinant
Successful	2	-0.49
Unsuccessful	2	-0.58
Pooled within-groups	2	-0.51

The ranks and natural logarithms of determinants printed are those of the group covariance matrices.

Eigenvalues

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	0.82(a)	100.0	100.0	0.673

a First 1 canonical discriminant functions were used in the analysis.

Wilks' Lambda

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1	0.54	22.33	2	0.00

Standardized Canonical Discriminant Function Coefficients

	Function
	1
Formalization of office activities	0.67
Core task specialization and centralization	0.95

Structure Matrix

	Function
	1
Core task specialization and centralization	0.76
Formalization of office activities	0.39

Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions
Variables ordered by absolute size of correlation within function.

Appendix 77

Categorical Principal component analysis of the Factors of the external Environment

Component Loadings

Variables	Dimension		
	1	2	3
Influence of NIA/ ARCON	0.23	0.38	0.68
Influence of advances in information technology	0.29	0.84	-0.17
Influence of national economy	0.52	-0.43	-0.15
Influence of political climate of the country	0.82	-0.41	-0.08
Influence of current privatization programmes	0.82	-0.37	0.10
Influence of government policies	0.67	-0.29	0.14
Influence of infrastructure	0.63	0.41	-0.46
Influence of increasing concern about sustainable environment	0.48	0.31	0.46
Influence of other professional	0.229	0.60	0.52
Influence of clients	0.300	0.64	-0.63

Variable Principal Normalization.

Appendix 78

Discriminant Analysis to test the Validity of Clusters of types of architectural firms

Two-Step Cluster Number		Predicted Group Membership					Total
		1	2	3	4	5	
Count	1	25	0	0	0	0	25
	2	0	36	0	0	0	36
	3	0	0	9	0	0	9
	4	0	0	0	15	0	15
	5	0	0	0	0	7	7
%	1	100.0	.0	.0	.0	.0	100.0
	2	.0	100.0	.0	.0	.0	100.0
	3	.0	.0	100.0	.0	.0	100.0
	4	.0	.0	.0	100.0	.0	100.0
	5	.0	.0	.0	.0	100.0	100.0

a 100.0% of original grouped cases correctly classified.

Appendix 79

Determinants of differences between architectural firms

ANOVA (f)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	60.40	1	60.40	65.27	0.00(a)

	Residual	83.28	90	0.92			
	Total	143.68	91				
2	Regression	78.50	2	39.25	53.60	0.00(b)	
	Residual	65.17	89	0.73			
	Total	143.68	91				
3	Regression	96.64	3	32.21	60.27	0.00(c)	
	Residual	47.03	88	0.53			
	Total	143.68	91				
4	Regression	101.99	4	25.49	53.20	0.00(d)	
	Residual	41.69	87	0.47			
	Total	143.68	91				
5	Regression	105.30	5	21.06	47.19	0.000(e)	
	Residual	38.38	86	0.44			
	Total	143.68	91				

Regression model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.38	0.10		23.73	0.00
	Specialization of office duties	0.81	0.10	0.648	8.07	0.00
2	(Constant)	2.38	0.08		26.68	0.00
	Specialization of office duties	0.65	0.09	0.521	6.86	0.00
	Offer of variety of services	-0.47	0.09	-0.377	-4.97	0.00
3	(Constant)	2.38	0.07		31.23	0.00
	Specialization of office duties	0.54	0.08	0.434	6.52	0.00
	Offer of variety of services	-0.54	0.08	-0.436	-6.65	0.00
	International collaborations	0.45	0.07	0.366	5.82	0.00
4	(Constant)	2.38	0.07		32.98	0.00
	Specialization of office duties	0.59	0.08	0.47	7.39	0.00
	Offer of variety of services	-0.52	0.07	-0.41	-6.68	0.00
	International collaborations	0.37	0.07	0.29	4.72	0.00
	Availability and use of information technology facilities for office duties	0.25	0.07	0.20	3.33	0.00
5	(Constant)	2.38	0.07		34.17	0.00
	Specialization of office duties	0.48	0.08	0.39	5.62	0.00
	Offer of variety of services	-0.47	0.07	-0.37	-6.13	0.00
	International collaborations	0.31	0.07	0.24	3.93	0.00
	Availability and use of information technology	0.34	0.08	0.27	4.25	0.00

	facilities for office duties					
	Size of firm (in terms of branch network, cost of projects carried out, number of staff, and gender ratio)	-0.25	0.09	-0.20	-2.72	0.01

a Dependent Variable: Type of architectural firm

Appendix 80
Categorical Principal Component analysis of the culture of architectural firms
Model Summary

Dimension	Cronbach's Alpha	Variance Accounted For	
		Total (Eigenvalue)	% of Variance
1	0.74	3.37	17.74
2	0.54	2.05	10.82
3	0.50	1.91	10.08
4	0.44	1.72	9.06
5	0.32	1.43	7.55
6	0.27	1.35	7.11
Total	0.96(a)	11.85	62.38

a Total Cronbach's Alpha is based on the total Eigenvalue.

Component Loadings

Variables	Dimension					
	1	2	3	4	5	6
innovation	0.58	-0.18	0.04	0.46	0.17	-.01
encouragement of staff to express personal styles and initiatives	0.66	-0.16	-0.15	0.22	-0.16	.00
concern for profits	0.06	0.56	0.04	0.51	-0.38	0.14
teamwork and staff development	0.71	-0.05	0.18	-0.01	0.09	0.13
driving employees to achieve result	0.72	0.12	0.35	0.18	-0.00	0.07
Gender equity in hiring of staff	0.64	0.00	-0.33	-0.09	-0.24	-0.11
new ideas and technology as most important determinants of strategy	0.75	-0.18	-0.03	-0.11	0.14	0.11
aggression in the pursuit of every business opportunity	0.36	0.24	0.46	-0.36	-0.13	0.27
Gender equity in task allocation	0.52	0.27	-0.36	-0.21	0.19	-0.18
caution in risky ventures	-0.08	0.08	0.14	0.76	0.07	-0.14
tradition and consistency	-0.03	0.57	-0.36	0.14	0.52	-0.15
drawings are in the reception area	-0.02	0.31	0.45	0.28	0.32	-0.07
models are in the reception area	-0.07	0.00	-0.43	0.07	-0.01	0.58
artworks/ paintings are in the reception area	0.27	0.49	-0.35	-0.25	-0.33	-0.22
plants are in the reception area	-0.07	0.48	0.24	-0.07	-0.20	0.58
awards, plaques, souvenirs are in the reception area	0.15	0.35	-0.08	-0.22	0.57	0.03
reading materials are in the reception area	-0.11	0.42	0.38	-0.29	0.17	0.00
how are most parts of your office designed?	0.16	-0.18	0.60	-0.25	-0.07	-0.42
how would you describe the principal?	-0.03	0.48	-0.00	0.03	-0.43	-0.46

Variable Principal Normalization.

Appendix 81
Discriminant Analysis- Success of firms when weakly influenced by the external environment

Eigenvalues

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	6.02(a)	100.0	100.0	.92

a First 1 canonical discriminant functions were used in the analysis.

Wilks' Lambda

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1	.14	14.62	3	.00

Structure Matrix

	Function
	1
Age of Principal and firm	.37
religious clientele	.26
Specialization of duties	.03

Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions

Variables ordered by absolute size of correlation within function.

Appendix 82

Critical Values for Chi Square Distribution

df	**0.995**	**0.99**	**0.975**	**0.95**	**0.90**	**0.10**	**0.05**	**0.025**	**0.01**	**0.005**
1	0.00	0.00	0.01	2.70	3.84	5.02	6.63	7.87
2	0.01	0.02	0.05	0.10	0.21	4.60	5.99	7.37	9.21	10.59
3	0.07	0.11	0.21	0.35	0.58	6.25	7.81	9.34	11.34	12.83
4	0.20	0.29	0.48	0.71	1.06	7.77	9.48	11.14	13.27	14.86
5	0.41	0.55	0.83	1.14	1.61	9.23	11.07	12.83	15.08	16.75
6	0.67	0.87	1.23	1.63	2.20	10.64	12.59	14.44	16.81	18.54
7	0.98	1.23	1.69	2.16	2.83	12.01	14.06	16.01	18.47	20.27
8	1.34	1.64	2.18	2.73	3.49	13.36	15.50	17.53	20.09	21.95
9	1.73	2.08	2.70	3.32	4.16	14.68	16.91	19.02	21.66	23.58
10	2.15	2.55	3.24	3.94	4.86	15.98	18.30	20.48	23.20	25.18
11	2.60	3.05	3.81	4.57	5.57	17.27	19.67	21.92	24.72	26.75
12	3.07	3.57	4.40	5.22	6.30	18.54	21.02	23.33	26.21	28.30
13	3.56	4.10	5.00	5.89	7.04	19.81	22.36	24.73	27.68	29.81
14	4.07	4.66	5.62	6.57	7.79	21.06	23.68	26.11	29.14	31.31
15	4.60	5.22	6.26	7.26	8.54	22.30	24.99	27.48	30.57	32.80
16	5.14	5.81	6.90	7.96	9.31	23.54	26.29	28.84	32.00	34.26
17	5.69	6.40	7.56	8.67	10.08	24.76	27.58	30.19	33.40	35.71
18	6.26	7.01	8.23	9.39	10.86	25.98	28.86	31.52	34.80	37.15
19	6.84	7.63	8.90	10.11	11.65	27.20	30.14	32.85	36.19	38.58
20	7.43	8.26	9.59	10.85	12.44	28.41	31.41	34.17	37.56	39.99
21	8.03	8.89	10.28	11.59	13.24	29.61	32.67	35.47	38.93	41.40
22	8.64	9.54	10.98	12.33	14.04	30.81	33.92	36.78	40.28	42.79
23	9.26	10.19	11.68	13.09	14.84	32.00	35.17	38.07	41.63	44.18
24	9.88	10.85	12.40	13.84	15.65	33.19	36.41	39.36	42.98	45.55
25	10.50	11.52	13.12	14.61	16.47	34.38	37.65	40.64	44.31	46.92
26	11.60	12.19	13.84	15.37	17.29	35.56	38.88	41.92	45.64	48.29
27	11.80	12.87	14.57	16.15	18.11	36.74	40.11	43.19	46.96	49.64
28	12.46	13.56	15.30	16.92	18.93	37.91	41.33	44.46	48.27	50.99
29	13.12	14.25	16.04	17.70	19.76	39.08	42.55	45.72	49.58	52.33
30	13.78	14.95	16.79	18.49	20.59	40.25	43.77	46.97	50.89	53.67
40	20.70	22.16	24.43	26.50	29.05	51.80	55.75	59.34	63.69	66.76
50	27.99	29.70	32.35	34.76	37.68	63.16	67.50	71.42	76.15	79.49
60	35.53	37.48	40.48	43.18	46.45	74.39	79.08	83.29	88.37	91.95
70	43.27	45.44	48.75	51.73	55.32	85.52	90.53	95.02	100.42	104.21
80	51.17	53.54	57.15	60.39	64.27	96.57	101.87	106.62	112.32	116.32
90	59.19	61.75	65.64	69.12	73.29	107.56	113.14	118.13	124.11	128.29
100	67.32	70.06	74.22	77.92	82.35	118.49	124.34	129.56	135.80	140.16

Goals and Value Subsystem

- Culture
- Philosophy
- Overall goals
- Group goals individual goals

Technical Subsystem

- Knowledge
- Technique
- Layout of facilities
- Equipments

Managerial Subsystem

- Goal Setting
- Planning
- Assembly of resources
- Organizing
- Implementing
- Controlling

Psychosocial subsystem
- Human resources
- Attitudes
- Perception
- Motivation
- Group dynamics
- Leadership
- Communication
- Interpersonal relations

Structural subsystem
- Tasks
- Workflow
- Workgroup
- Authority
- Information flow
- Procedures
- Rules

External environment of organization

Repeat

Referral

Others

Businesses from scratch

ARCHITECTURAL FIRMS

General Profile and cultural characteristics

Internal physical Environment

Technological characteristics

Task and information technology characteristics

Managerial characteristics (structural, strategic)

Legal/ Political

Cultural

Social

Economic

EXTERNAL ENVIRONMENT

Task environment

10.23%

89.77%

Female

Male

What is the sex of

the Principal ?

For official use only Questionnaire no: …….
City …….