

Pathway To Strengthen Nigerian Engineering Firms In Consulting, Contracting And Manufacturing For Competitiveness

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Abstract—Sustainable competition is very paramount in the diversification of Engineering industry and economy for the benefit of mankind. This study examined the pathway to strengthen Nigerian Engineering firms in consulting, contracting and manufacturing for competitiveness. This paper is to aim at providing viable pathway to strengthen Nigerian Engineering firms in consulting, contracting and manufacturing for competitiveness though they are unique in various ways. Three information services namely, library services; Internet Services; and communications services were considered in this study. This was enriched with personal communication and field observations assessment of indigenous engineering firms and other engineering firms in Ado-Ekiti. It was done with a view to making appropriate strategic recommendations to enhance engineering firms 'innovativeness and competitiveness so as to increase indigenous participation in the sub-sector. The technological factors that accounted for the innovation performance included the educational qualifications, training and prior work experience of the heads of technical department, number of research and development staff and training, innovation and investments. It has been discovered that engineers need to be more innovative and dynamic in the planning and execution of projects. Also, it has been observed that there are unhealthy competition in most of firms consulted due to selfish gain and unethical behaviour. Unless preconditions for competition are locally met and standardized, international competitiveness would remain a mirage.

Keywords—Competitiveness, Engineering, Firms, Manufacturing, Sustainable

1.0 INTRODUCTION

As globalization continues, transition and developing countries and their enterprises face major challenges in strengthening their human and institutional capacities to take advantage of trade, investment and engineering opportunities. This has become a top priority on the global development agenda and features prominently in the final statements of key international meetings over the past

few years. Engineering is not only applying scientific laws and principles to technical problems. It is focused on improving the lot of society, and as such, it brings engineers into the mainstream of business and industry.

There is worldwide consensus that high rates of economic growth contribute to economic and social development and poverty reduction.

According to Isa et al (2013), the Nigerian government and policy makers have come up with various strategies over the years on how the nation's social and economic potentials can be harnessed. Nigeria has been growing at an average of 7.4%, over the last 2 years, owing to strong agricultural output despite the chronic infrastructure problems affecting manufacturing and other real sector. Nigerian physical infrastructure gap, especially in transportation – road, rail, airports and sea ports - is the strongest investment case for our optimism of growth in the construction industry. Infrastructure investments, such as those in transport, telecommunications, energy, water and sanitation, can enhance Small and Medium Scale Enterprise /private sector activity and ability to access local, regional and global markets.

This calls for adequate competition for better delivery of engineering works.

The term competitiveness remains a concept that is not well understood, despite its widespread acceptance and use of it. The important thing for us is to put into perspective, those issues that help improve firm level competitiveness in Nigeria.

Firm/industry level competitiveness focuses on the capacity of a company to increase profit and grow on a sustainable basis. This is understandable for two reasons: effect of policy on industry and firm based factors in competitiveness. It also draws attention to the issues of trade policy, investment and business environment as well as government policies and their impact on industry competitiveness. The emphasis on sustainability underscores concern for competitive edge based on strategic values and a vision that enables a company to remain consistently more competitive than the other. There is also an issue of

national competitiveness as correlated with firm competitiveness.

1.1 Objective of Competitiveness among Engineering Firm

The Objective of the competitiveness includes:

- i. Ensuring that the cost of the project is reasonable and consistent with existing conditions in industry.
- ii. Adequate funding of government projects
- iii. Private projects – owner may also consider the bidders' qualifications, experience, financial condition, and performance history.
- iv. To avoid cost overrun and time extension of projects.
- v. To maintain standards and adequate delivery of Engineering projects

1.2 Industrial Development in Nigeria

Industrial development is one of the best training grounds for skill development, and it can increase the flexibility of the economy and reduce dependence on external forces. Industrial development provides employment, foreign exchange, and domestic earnings.

Innovation is defined as the application of the knowledge acquired through initial investment to achieve production. It must be noted that this knowledge might be acquired through learning, research, or experience, but until it is applied in the production of goods or services and translated to development, it cannot be considered as innovation.

The structure of the Nigerian economy is typical of an underdeveloped country. The primary sector, in particular, the oil and gas sector, dominates the gross domestic product, accounting for over 95 per cent of export earnings and about 85 per cent of government revenue between 2011 and 2012. The industrial sector accounts for 6 per cent of economic activity while the manufacturing sector contributed only 4 per cent to GDP in 2011 (Chete et al, 2016). The economic transformation agenda, otherwise known as Nigeria Vision 20: 2020, sets the direction for the current industrial policy in Nigeria. The industrialization strategy was aimed at achieving greater global competitiveness in the production of processed and manufactured goods by linking industrial activity with primary sector activity, domestic and foreign trade, and service activity.

1.3 Openness and Productivity

'Openness of an economy' ordinarily stimulates competition. Globalisation and the impact of developments in the information and communication technology impose it in a subtle way. Unfortunately, firms in Nigeria have often times depended on government patronage and protection. As earlier indicated Nigeria's economy has become increasingly

liberalised- government policy has allowed increasing participation in international trade and removed several foreign exchange restrictions. However manufacturing activities in Nigeria are severely constrained by a set of factors that have led to high transaction costs and generally cost of doing business and therefore cost of production.

1.4 What is competitiveness?

Competitiveness is the set of institutions, policies and factors that determine the level of productivity of a country. It is possession of a strong desire to be more successful than others.

We need to understand the right strategies for improving firm/country level competitiveness in Nigeria. Competitiveness has two basic colourations: national/global and firm level. Put differently you could look at firm level competitiveness from the point of view of factors extraneous to the firm and those that are endogenous. National competitiveness can translate to firm level competitiveness and vice versa. Competitiveness describes the degree of superiority by which a firm or a nation produces goods, services and related functions when compared to peers. The defining thrust here is the ability of company 'X' to perform better than company 'Y' based on certain perhaps identifiable advantages. Therefore the notion of a continuum linking a series of component parts is assumed. Competitive industrialization refers basically to the degree to which, under open market conditions, a country can produce goods and services that competes internationally while simultaneously sustaining and expanding domestic real income. The choice of these three information services is also based on the justification that they are some of the information services required majorly at institutional and individual levels of use of scientists in RDIs (Bamiro (1994) and Oyeyinka-Oyelaran (2002).

2.0 CONSULTING, CONTRACTING AND MANUFACTURING FIRMS

There are five main differences between service and manufacturing organizations: the tangibility of their output; production on demand or for inventory; customer-specific production; labour-intensive or automated operations; and the need for a physical production location. However, in practice, service and manufacturing organizations share many characteristics. Many manufacturers offer their own service operations and both require skilled people to create a profitable business. The key difference between service firms and manufacturers are the tangibility of their output. The output of a service firm, such as consultancy, training or maintenance, for example, is intangible. Manufacturers produce physical goods that customers can see and touch.

A contractor generally, bill based on time spent performing services. Invoices detail the number of hours worked multiplied by the set fee per hour. Contractors generally work onsite under direct

supervision. They often work through agencies and don't find their own work.

A consultant most often bills by project, charging for designing and implementing the solutions offered. Consultants rarely work through agencies, and they are often responsible for drumming up their own work, either by networking or marketing. A consultant sets pricing based on the quality of the solution and the demand for it, not just on time. As a consultant, you can bill by project and increase your hourly rate breakdown by working faster and more efficiently. In addition, many clients like this approach because they know what they will end up paying for the project, and they know there's no incentive for you to drag out the work.

2.1 Productivity Performance of Firms

Construction, consulting, contracting and manufacturing companies must be productive in all ramifications. Improving productivity performance is critical for rapid industrialization and economic growth in any economy. As a result, several policy measures in Nigeria have placed emphasis on productivity enhancement with greater emphasis since the adoption of the economic reform programme which marked the move towards a market economy. These reform efforts explicitly emphasize the need to improve the competitive performance of industry.

In Nigeria the institutions involved in product development and marketing of industrial products are mainly regulatory agencies and professional associations. There are major regulatory agencies that have had a profound impact on industrial policy implementation. These are Council for Regulation of Engineering practice in Nigeria (COREN), the National Agency for Food and Drug Administration and Control (NAFDAC), and the Standards Organization of Nigeria (SON).

Manufacturing Companies with turnover of less than N1 million are taxed at a low rate of 20 per cent for the first five years of operation if they are in the manufacturing sector; Dividends from companies in the manufacturing sector with a turnover of less than NGN1 million are tax-free for the first five years of operation; Dividends derived from manufacturing companies in the petrochemical, and liquefied natural gas sub-sector are exempted from tax.

The incentives in Oil and gas industry are granted to joint ventures with the Nigerian National Petroleum Corporation (NNPC) that have signed a memorandum of understanding (MOU). For the petroleum industry development, the incentives are:

- Guaranteed minimum margin of US\$2.50 billion;
- Accelerated capital allowances that can be carried forward indefinitely;
- Graduate royalty rates approved for oil companies;

- Onshore production in territorial waters and continental shelf areas beyond 100 meters;

- Investment tax allowances are granted to a company on a graduated basis in respect of any asset for the accounting period.

2.2 Policy Management and Co-ordination

At the apex of Nigeria's economic policy-making architecture is the National Economic Council (NEC) which has a constitutional responsibility for managing and co-ordinating national economic development matters. NEC has the Vice-President of the country as Chairman and the National Planning Commission as its Secretariat. Membership of this body includes the Governors of Nigeria's 36 states, the Governor of the Central Bank of Nigeria, the Minister of National Planning, the Minister of Finance, the Attorney General of the Federation and Minister of Justice, and the Chief Economic Adviser to the President.

2.3 Project Management

Project Management is very vital in the competitiveness of engineering firms. It is the application of knowledge, skills, tools and techniques to project activities to meet specific project requirements. It is the complete set of tasks, techniques, and tools applied during project execution. It involves the managing and directing of resources such as people, money, time for a predetermined finite period to achieve project goals and objectives. It is not an operation per se but it involves bringing about the structures and strategies that will bring about the operation.

- i. Similar to construction management but also includes coordination of the design and planning stages of the project

- ii. Large projects overseas have been successful using this

- iii. Projects involving multiple structures and extensive site improvements often require this type of supervision; complex projects such as industrial & process engineering plants use this type of contract

The members of a profession are involved in an intellectual effort that requires special training that benefits its society. The research design for the study was an opinion survey research, is that which questionnaire is administered face to face to the subject by either researcher or his assistant for on-going projects in Ado-Ekiti.

The first project is the construction of Oja Oba Market and the second project is the Ado-Ekiti- Fajuyi Fly-over. It was discovered that pathway to strengthen competition in consultancy firm and manufacturing industry includemanagerial skills, previous experience, continuous professional development, periodical training, protection of intellectual property and educational development. Figure 1 indicates overall framework that can enhance engineering employment in industry.

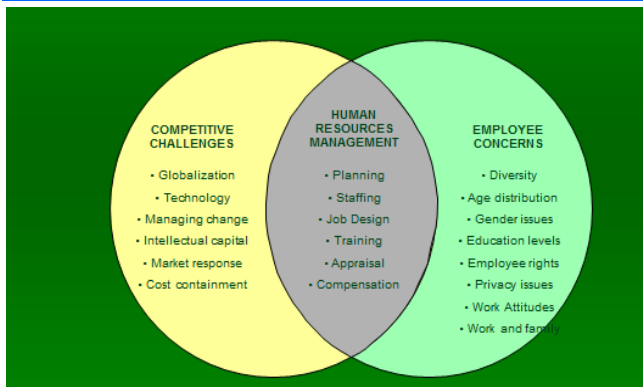


Figure 1: Overall Framework of Engineering Employment in Industry (Oyebode, 2016)

2.4 The Nigerian Construction Industry

Organized construction contracting in Nigeria began in the 1940s with few foreign companies coming into operation (Olowo-Okere, 1985). Nigeria's Independence in 1960 bolstered by the "oil boom" of the 1970s brought an upward trend in the construction activities and up to the end of the second Republic in 1983, the construction industry in Nigeria has witnessed an overwhelming upsurge in construction contracting dominated by expatriate companies with few indigenous companies (Idoro, 2009). Unfortunately, the period also exposed the country's indigenous companies low level of human resources development required for; planning, designing, constructing and maintaining the magnitude (in size and number) of projects conceived by the government. However, with improved training institutions, engagement of expatriates, collaborations between indigenous and foreign entrepreneurs, political stability and improved government policies, the apparent resources gap needed for successful completion of complex projects between indigenous companies and their foreign counterparts are now closer compared to the pre-independence era (Mbamali and Okotie, 2012).

Evaluation of firm level competitiveness in Nigeria will help us ascertain the problems facing growth of these firms in Nigeria by thrashing out three key points which can be used to judge the level of competition in these firms. As already stated and agreed the level of competition among these firms will only lead to economic growth which is basically almost non-existent in Nigeria

2.4.1 Openness of an economy

'Openness of an economy' ordinarily stimulates competition. Globalisation and the impact of developments in the information and communication technology impose it in a subtle way. Openness of an economy, Nigeria's example is proving, can become problematic. The truth is that unless preconditions for competition are met locally, international competitiveness would remain a mirage. Unfortunately, firms in Nigeria have often times depended on government patronage and protection

Nigeria's economy has become increasingly liberalised- government policy has allowed increasing participation in international trade and removed several foreign exchange restrictions. This is confirmed by the legislative reforms, exchange rate policy since 1985, the pattern of growth of imports in the last decade or so and especially food imports, the just expired tariff structure and the series of incentives to export. However manufacturing activities in Nigeria are severely constrained by a set of factors that have led to high transaction costs and generally cost of doing business and therefore cost of production. Thus local manufacturers are not competitive.

A recent experience in the textile manufacturing industry in Nigeria led government to place a ban on imported finished textiles. A local manufacturer with a strong brand of fabric, recently found out that it was unable to sell its product due to large scale importation of the same product with the same brand name (purportedly produced by it) from an Asian country.

Nigeria's manufacturing experience is replete with such instances. Recently the National Agency for Food and Drug Administration (NAFDAC) showed that the food and drugs sector has been the worst hit, going by the value/volume of substandard and fake drugs it has confiscated in recent times.

Understandably, Nigeria's tariff structure is still on the high side (and there are ongoing efforts at a modest review, to improve competitiveness), including the port charges and other levies.

2.4.2 Infrastructure

By infrastructure we refer to things like power, roads, ports, air travel, telecommunication and even railways. Perhaps the most important determinant of firm level competitiveness in Nigeria today is infrastructure, especially power. In the late 1990's, and this has not changed significantly, only about 30% of roads in Nigeria are paved, and of the close to 200,000km road network 67% is under the States and Local government which (except a few) depend largely on allocations from the Federation account. As we have seen earlier on, given the pattern of public expenditure, very little is available for rehabilitation, maintenance and construction of new roads.

2.4.3 Labour

The issue about labour is basically threefold: over the years, the quality of education has gradually declined. Companies now have to arrange for special training programmes to refine university graduates. In one particular case in the brewing industry, a graduate engineers' training programme for about nine months was extended to about eighteen months and is now a standard training programme for new engineer-recruits in the company.

Strategic management is the process of making decision, planning, coordinating and taking some actions by the top managers of a company in order to

achieve set goals and objectives. Decisions are of little use unless they are acted upon. Firms must take the necessary actions to implement their strategies.

Strategy implementation, which is sometimes referred to as operational, planning, is a process by which strategies and policies are put into action through the development of programs, budgets and procedures. This aspect is typically conducted by middle and lower level managers with review by top management. A program is a statement of the activities or steps needed to accomplish a single-use plan, a budget lists the detailed cost of each program, and procedures are sequential steps or techniques that describe in detail how a particular task or job is to be done.

Evaluation and control is a process in which corporate activities and performance results are monitored so that actual performance can be compared with desired performance. Managers at all levels use the resulting information to take corrective action and resolve problems. For effective evaluation and control measures, managers must obtain clear, prompt, and unbiased information from their subordinates. Evaluation and control also has the ability to pinpoint weaknesses in previously implemented strategic plans and makes the entire process to begin all over. For effective strategic management process, these four basic elements must work together in order to boost performance in any organisation. Relationship between strategic management process and firm performance is shown in figure 2.

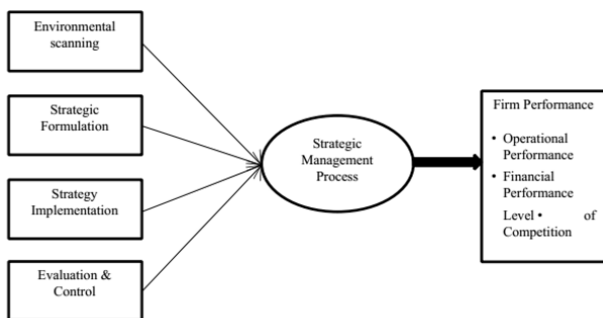


Figure 2: Relationship between strategic management process and firm performance (Thompson and Martins, 2010)

3.0 METHODOLOGY

Three information services namely, library services; Internet Services; and communications services were considered in this study. Data collected from this research were primarily obtained from personal interview method and technical input of professionals in selected engineering firms in Ado-Ekiti. Some Clients and contractors asked us not to disclose the name of their company. The major focus was on the on-going Ultra-modern Market and Fly-over bridge projects in Ado-Ekiti. These have been selected for the following reasons:

- i. Random answer will be avoided, as the person being interviewed knows he can be asked to explain.
- ii. Time will be saved and more information can be obtained.
- iii. The participants will take personal interest and try to make the research a success for the activities required. These participants will be in the best position to answer questions. They will be grouped in a total of three groups. Each group will be asked to arrive at a consensus regarding the type of activities and its immediate predecessor.
- iv. The bills of quantities were the major source for getting the exact activities for each project.

3.1 Construction Industry and its Characteristics

The construction industry is a sector of economic activities which erect, alter, repair, and demolish a building, civil engineering works, and other similar structures. More specifically, it involves constructing, altering, erecting, repairing, and demolishing building, civil engineering works, and other similar structure. It also contains assembly and installation on site of prefabricated component and building engineering services. Construction industry is capital goods industry. It also requires other industries to support them and contributes significantly to the gross domestic product of the country. In Nigeria, the construction industry contributes an average of 5% to the annual gross domestic product and an average of about one-third of the total fixed capital investment.

3.2 Final cost differentials in construction project in Nigeria

The process leading to the final cost differentials in construction project in Nigeria are:

- **Dispute on site:** Dispute on site has very severe effect on the final cost of construction projects in Nigeria.
- **Previous Experience:** This has a very severe effect on the final cost of construction projects.
- **Lack of Co-ordination:** It has a very severe effect on the final cost of construction projects.
- **Extra work and shift:** This has very severe effects on the final cost of construction projects.
- **Educational level:** It has very severe effect on the final cost of construction project.

Plate 1, plate 2 and plate 3 indicate the construction work at Ultra-modern Market and Fajuyi Flyover project.



• **Plate 1: Mobile crane used in the lifting of reinforcements on Market Site**



Plate 2: Mixing of Concrete for Adequate Quality



Plate 3: Construction of Fly-over at Fajuyi Ado-Ekiti

4.0 What are the Competitive Challenges?

A technological capability goes beyond scientific, engineering and technological knowledge to include organizational knowledge, knowledge of behavioural patterns of workers, suppliers and customers. Thus knowledge and skills come from interactive trial-and-error, cumulative learning by doing, by using and by interacting within the firm and between the firm and its customers, and suppliers. Competitive challenges include Globalization, Technology, Change, Human Capital, Market Forces, Worldwide Demographics and Workforce Partnerships.

4.1 Three main approaches to professional regulation:

Licensing: In this approach, an area of engineering work is linked to those persons who have demonstrated competence to perform such work. Licensing on a statutory basis prohibits unlicensed persons from performing such work. Non-statutory licensing provides the public with lists of persons competent to perform work within an area of

engineering, which may also be undertaken by non-licensed persons. **Registration:** In this approach, those persons who demonstrate their competence against a standard and undertake to abide by a code of conduct, are awarded titles and are admitted to a register. Such registration may be governed by the laws of a country (statutory register) or the regulations or the rules set by the governing body of the profession, which oversees the registration process and maintains the register (non-statutory register). **Specialist lists:** In this approach, a professional or trade body administers a non-statutory voluntary listing of professionals who have met a defined standard of competence in a specialist area.

4.2 Marketing strategies adopted by construction professionals

Marketing strategy is a managerial process of analysing market opportunities and choosing marketing position that serves the company's purpose and objectives. It is the company's response to external environment and consistent set of principles through which company hopes to achieve its long run customer and profit objectives in a competitive environment. Marketing strategies are means by which professional firms sell their services to their intending clients. Plate 1 shows that mobile crane can be used for speedy delivery of work. Mobile cranes used for lifting heavy things and transporting them. Other marketing strategies include location of firms, business promotion and marketing mix.

4.3 Competitive Advantage of Engineering Firms

Competitive advantage is defined as the "capability of an organization to create a defensible position over its competitors" (Li et al.). Table 1 describes the constraints to growth by various firms. Labour intensity, research and development, external dependency and intangible intensity were indicated. Other constraints include Electricity outages, transport bottlenecks, crime and corruption are the key factors constituting impediments to firm growth. Electricity outages and voltage fluctuations are commonplace, causing damage to machinery and equipment. Consequently, most firms rely on self-supply of electricity by using generators, which escalates their costs of production and erodes their competitiveness relative to foreign firms.

4.4 What can strengthen competitiveness?

Factors that can strengthen engineering firm competitiveness are:

- Effective Planning and Purpose of Work
- Rapid Decision Making
- Nigerian engineering firm must embrace quality and better service delivery to surpass non Nigerian engineering company.
- Consistent Decisions and Reliability of Service

- Adequate Control of Process
- Feedback and Re-evaluation
- Maintain the highest standards of professional and personal conduct.
- Striving for personal growth in the field of human resource management.
- Support the society's goals and objectives for developing the human resource management profession. Encouragement between employer and employee to make the fair and equitable treatment of all employees a primary concern
- Employee must strive to make employer profitable both in monetary terms and through the

support and encouragement of effective employment practices.

- Sustained loyalty and confidence between firms and client to pursue its objectives in ways that are consistent with the public interest.

- Uphold all laws and regulations relating to employer's activities.

- Refrain from using my official positions, either regular or volunteer, to secure special privilege, gain or benefit for myself.

Engineers must maintain the confidentiality of privileged information for better competitiveness.

Table 1 indicates Constraints to Engineering Firm Growth

Table 1: Constraints to Engineering Firm Growth

Industry	Labor Intensity	R&D Intensity	External Dependence	Intangible Intensity
Food and Kindred Products	0.30	0.31	0.13	0.75
Tobacco Products	0.19	0.31	-0.45	0.49
Textile Mill Products	0.45	0.35	0.24	0.21
Apparel and Other Textile Products	0.56	0.35	0.03	0.53
Lumber and Wood Products	0.44	0.18	0.28	1.2
Furniture and Fixtures	0.48	0.18	0.24	0.49
Paper and Allied Products	0.36	0.44	0.17	0.2
Printing and Publishing	0.44	0.44	0.2	4.54
Chemical and Allied Products	0.30	4.00	0.43	0.96
Petroleum and Coal Products	0.22	0.60	0.07	0.02
Rubber and Miscellaneous Plastic Products	0.41	0.86	0.82	0.46
Leather and Leather Products	0.46	0.35	-0.1	0.33
Stone, Clay and Glass Products	0.43	0.65	0.18	0.05
Primary Metal Industries	0.35	0.68	0.06	0.11
Fabricated Metal Products	0.41	0.50	0.24	0.31
Industrial Machinery and Equipment	0.47	1.88	0.54	0.25
Electronic and Other Electric Equipment	0.40	6.43	0.87	0.77
Transportation Equipment	0.45	2.82	0.34	0.24
Instruments and Related Products	0.46	5.05	0.96	0.9
Miscellaneous Manufacturing Industries	0.44	0.49	0.47	2.29

Source: World Bank (2006)

4.5 Challenges of Firms

Many of these firms face difficulties in selling their services to the public reducing competition among each other by failing to embrace marketing strategy. Effective marketing strategy had been set up for the purpose of improving growth of professional services in a competitive environment. The application of certain marketing strategies in Nigerian contracting and consulting firms will help improve competitiveness and economic growth will be boosted. Six marketing strategies have been identified for this purpose including; location of firm, promotion, professional-client relationship, professional contract, marketing mix and research.

4.5.1 Location

This is of importance to professional service firms. There are areas where services are regularly in demand especially areas of high concentration of construction activities. It will, therefore, be of benefit to the firms if located in such places to make effective sales. Also, the use of multisite locations to cater for firms which have projects in different locations at the same time is very efficient. However, there is need for caution in terms of proper monitoring of these locations for well representation of the firms.

4.5.2 Professional-client relationship

Good relationship between the client and the professionals makes a good strategy, as courteous service and reliability of the firm's past performance encourage the clients to come back for further services. Managing clients is one of the strategies to solve the problem of inseparability in consulting and contracting services. The need for relationship marketing is a strategy for improved performance in the industries. Client relations is the most important category of marketing strategies because professional services usually involved a high degree of interaction with the client.

4.5.3 Business promotion

This is a method of securing understanding between the client and the professionals for the purpose of bringing about a favourable buying action and at the long run, a long lasting confidence in the firm. This is a specific effort to encourage customers to tell others about their services. It is worth noting that promotional techniques adopted in other sectors may not be applicable in the consulting and contracting industries due to the uniqueness of this sector. However, much attention should not be given to promotion and it should be treated with caution not to go against the professional ethics. Too much attention on promotion might lead to professionals focusing more on sales than the clients

4.5.4 Professional contract

This strategy may involve members of other related professions to form a link with prospective client who needs their services. In other words it is

referred to as partnering. The expected benefits of partnering include improved efficiency, cost-effectiveness, increased opportunity for innovation, and the continuous improvement of quality products and services. Industries shifting toward partnering can lead to adding value to the professional organizations. This can also take the form of a professional recommending another professional colleague to a prospective client.

4.5.5. Marketing mix

The marketing mix is a rational approach based around transaction cost and has dominated marketing concepts and practice over for a long period of time. Companies should create a successful mix of the right product, sold at the right price, in the right place, and using the most suitable promotion when marketing their products or services. It has been established that marketing mix theory has been successful in the manufacturing industry. However, it provides little help to the consulting and contracting industry due to the fact that they are mainly service oriented. Marketing mix is composed of the four P's: product, prices, place (distribution) and promotion. These elements appear as core decision variables in any marketing plan. In construction, place is determined by the project's location, the spread of the offices should be the primary marketing decisions for the professionals to attract clients. Price, in this case the fee is obviously important, yet the significance of the fee is less important than the contribution the product makes to the overall project price. In addition to this, promotion is important in the sense that the professionals in the contracting industry enhance the contract offered to the client through effective communication of the benefits of product.

Research as a marketing strategy

There is an increasing recognition that research has an important role to perform in the enhancement of profession performance. Marketing research is one of the marketing activities and powerful strategy. Potential benefits that can be derived in terms of enhancements in economic, social and political systems are enormous if research is given desired attention as a marketing strategy.

5.0 CONCLUSION

Nigeria's effort at improving its competitiveness is laudable but it is based more on isolated cases of appropriate reform efforts based on evidence. Consultancy firms, construction firms and manufacturing firm must be innovative and dynamic to maintain healthy competition. Contract planning is the necessary management process that critically examines, analyses, and plans the course of actions or steps to be taken, including the incidental logistical requirements needed to be put in place, in order to ensure the profitable execution of a project within the units of approved specifications. To improve future policy reform and implementation, support for professionally executed surveys and policy review is

necessary and this would help to address the problem of poverty in a holistic manner. Nigeria needs to concentrate her energies on areas of maximum comparative competitive advantage in order to deliberately transit from a crude material production to a knowledge based one through improved manufacturing industrial output processing and adding more value to production/exports. It is in this respect that institutionalised public private sector dialogue processes would greatly facilitate participation and involvement.

The industrial sector in Nigeria (comprising manufacturing, mining, and utilities) accounts for a tiny proportion of economic activity (6 per cent) while the manufacturing sector contributed only 4 per cent to GDP in 2011. Electricity outages, transport bottlenecks, crime and corruption are the key factors constituting impediments to firm growth. Nigerian manufacturing firms suffer acute shortages of infrastructure such as good roads, portable water, and, in particular, power supply.

The economic transformation agenda, otherwise known as Nigeria Vision 20: 2020, sets the direction for the current industrial policy in Nigeria. The industrialization strategy aims to achieve global competitiveness for specific processed and manufactured goods by linking industrial activity with primary sector activity, domestic and foreign trade, and service activity. Nigeria is also pursuing a cluster development strategy for manufacturing and processing industries and selected export materials. In this regard, the economic transformation document highlights a number of issues to be addressed, including the development of industrial parks, industrial clusters and enterprise zones and incubator facilities.

The pathway to strengthen competitiveness in Nigerian firms is not just limited to just one particular approach as several strategies will have to be implemented in order to achieve this. Application of more marketing strategies among manufacturing firms will only lead to more competitive edge and economic growth in Nigeria. Also, improving indigenous contractor's participation in Research and Development in Nigeria is another approach to strengthen competitiveness in these firms. The Government has a very important role to play as these firms need the backing and support of the support of the Nigerian Government in order to improve in all aspects. Nigeria is dependent on foreign contractors and it is affecting the local contractors. Nigeria's effort at improving its competitiveness is laudable but it is based more on isolated cases of appropriate reform efforts based on evidence. When these and many others have been put in place, competitiveness in Nigerian firms will be strengthened thus leading to economic growth in the country.

5.1 Recommendation

I recommend the following for healthy competition among engineering firms:

i. Government should improve the training of technical people by developing technological and engineering institutes all over the country as a way of improving level of education in Nigeria.

ii. Government should ensure that the standard and policies relating to the contracting, consulting and construction firms are implemented by awarding contracts to firms with previous experience so as to minimize costs associated with poor quality jobs.

iii. Merit awards should be sustained for distinguished firms and engineering personnel by Nigerian Society of Engineers.

iv. Council for Regulation of engineering practice in Nigeria (COREN) must ensure that admission process into engineering fields conform to adequate quality and standards.

v. Money should not be a motivating factor for young engineers rather, passion for the profession. Innovative projects should be celebrated in the country

vi. Employment of lecturers and their promotion as well as their salary should be based on research worth, quality of teaching, community development and professional ethics.

vii. The government should nurture her contractors by promoting the development and use of indigenous technologies and resources so that indigenous contractors can acquire experience and become competent.

viii. Laws and policies must be enforced. The greatest problems with the implementation of laws and policies in Nigeria has been the lack of enforcement in terms of provisions for penalties for violations

ix. Adoption of appropriate marketing strategies by professionals within the Nigerian construction, contracting and manufacturing firms.

x. Excellent supervision of work with ethical standards and integrity

xi. Corrupt practitioners should be reported to COREN, SON and other regulatory body and their licenses revoked. There should be fairness in awarding contracts to prevent over familiarity and bribery.

xii. Efficient techniques for awarding contracts should be used to ensure they are unbiased and honesty must be embraced above money

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