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Assesment of Project Management Teechniques on Telecommunication Industry in Nigeria

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Abstract

The creative concept of project management is universal and generic. The perceived inherited challenges that still persist in Telecommunication Industry are weak infrastructure base, huge demand for service due to inefficiencies of the past, which hindered the performance of interconnectivity, monitoring and compliance in managing consumer expectations. This raises the concern to assess the adoption of project management techniques in telecommunication industry. The population of this study comprised of one hundred and twenty (120) middle management and senior staff of both Mtn and Glo telecommunication in Lagos State. Convenient and simple random sampling techniques were used to select Eighty (80) respondent from the population of the study. Survey research design was adopted for this study with aids of a structured questionnaire. Content validity was used to validate the questionnaire, while the reliability was determined using test-retest method. The data collected were analysed using mean and standard deviation and one way ANOVA. The findings of the study shows that there is no significance difference between brainstorming techniques adoption of both MTN and Globacom telecommunication industry ($p < 0.05$). The further reveal that there is no significant difference among the response of both the staff of MTN and Globacom telecommunication industry on the adoption of Network analysis. Conclusively, it could be explained that telecommunication activities can be treated as telecommunication projects, provided that resources allocated for these projects are kept in tight control through a project management office to ensure successful service delivery of the organization.

Keywords: Project Management Techniques, Brainstorming Techniques, Network Analysis and Telecommunication

Introduction

The creative concept of project management is universal and generic. This cuts across all cultural, national and linguistic barriers. Some corporate cultures are much more supportive of project techniques than others. Top managers who plan to introduce the project management discipline, or wish to improve existing project performance, must pay attention to cultural, structural, practical and personal elements (Olateju, 2011).

The application of project management techniques in the Telecommunication industry has evolved in the last few decades. Project management technique is embraced in the industry to proactively and professionally manage telecommunication projects such that expected outcomes (products or services) will fulfill the purpose upon which they are embarked upon. Several organisations in the industry do face challenges as they implement these projects even with secure standard operating procedures and practices to ensure success. However, more efforts have been made in identifying and applying procedures, practices, standards, structures and methodologies towards achieving success in ICT project implementation management in the Telecommunication industry (Ogunberu et al., 2016).

Ogunberu et al (2018) substantiates that the major project management practices employed by telecommunication firms were, define project scope, create work breakdown structure, verify scope, and control scope. A project scope statement is critical for obtaining support because it gives sponsors confidence that the project objectives are well understood and will achieve its set aims, goals and objectives. Project scope definition and management involves understanding, documenting and implementing requirements that are needed to fulfill project goals and objectives.

The Telecommunication Revolution in Nigeria remains a vital engine for development of any economy. It is an essential infrastructural component that promotes the development of other sectors including agriculture, education, industries, health sector, banking and other financial institutions, defense, transportation and tourism etc. It is indispensable in day-to-day interactions and indispensable in times of national emergency or natural disasters management. It also reduces the risks and rigors of travel. Therefore, the availability of a functional and efficient telecommunications infrastructure is a sine-qua-non for any country that wants to compete in today's global economy (Oluseye & Fatai, 2015).

Based on information from the Nigerian Communications Commission (NCC), there are over 140 million active subscribers riding on the GSM technology in Nigeria, each of which subscribes for voice or data services and contribute to the over N1.9 trillion revenues jointly reported by the GSM operators in this industry. This is not a coincidence. Revenue is alleged to emanate mainly from voice services, a service line which has slowed down (per user) in the last decade. This means that to remain relevant it would appear that operators in this sector must to focus on providing other services apart from voice. Simply there is now a steady shift from communication via the traditional platform of the telecommunication operators to communication via the internet and dynamics of these changes. There is a need to understand the dynamics of the market place and adjust regulations, policies and practices as applicable (Oluseye & Fatai, 2015; Akintelu, 2018).

This study emphasizes project scope as a major success factor particularly when it applies to the project management literatures in the context of mobile telecommunication operators in an emerging market such as Nigeria. Moreover, despite the great achievements in the Nigeria telecommunication sector, there still remain some big challenges.

According to Adeoye and Ibiyinka (2015), the inherited challenges that still persist are weak infrastructure base, unusually huge demand for service due to inefficiencies of the past, spectrum planning and allocation problems, enabling laws and regulations limitations, and unreliable electric supply. Other challenges comprise interconnectivity, tariff regulations, effective competition, monitoring and compliance, managing consumer expectations, consumer education and institutional strengthening. Inadequate power supply leading to high cost of operations and maintenance of generators remain a big problem facing telecommunication operators in Nigeria. Unstable power supply costs the three major GSM operators in the country about 24 billion naira annually. It could be argued that the operators are charging high tariffs because self-electricity generation constitutes their highest cost of production. This study aims to explore and compare project management techniques in two leading mobile telecommunication firms in Nigeria. Specifically, this attempts to find out project management techniques formulation, implementation and evaluation practice that are important to the firms based on employee's perception.

Literature Review

Different school of thought viewed project from different dimensions. According to Nokes, (2007) a project is a temporary activity with a starting date, specific goals and conditions, defined responsibilities, a budget, a planning, a fixed end date and multiple parties involved. Lewis (2008), viewed project as an undertaking requiring concentrated efforts. Albert (2004), defined project as a sequence of tasks planned from beginning to end bounded by time, resources and required result. Project usually includes constraints and risk regarding cost, schedule or performance outcome. Cusworth (1983), sees project as a series of activities in which cost, time schedule and resources (personnel/ labour, equipment, material) are consumed. Morris (1988) in his own, viewed project as a set of activities that has a defined starting and finishing time. In the words of David (2006), project is a temporary endeavor having a defined beginning and end (usually constraint by date but can be funded or deliverables) undertaken to meet unique goals and objectives.

According to Baum (1978), a project is the investment of capital in a time- bound intervention to create productive asset, from all the different schools of thoughts, it was clear that fundamentally a project is a "temporary endeavor undertaken to create a unique product, service, or result. It could also be deduced from the different definitions that projects are different from operations. All the different schools of thoughts agreed that, to be temporary signifies that there is a discrete and definable commencement and conclusion; the management of a project requires tailored activities to support this characteristic, as such, a key indicator of project success is how it performs against its schedule of start and end on time.

According to Turner and Muller (2005), project management is the closer link between project teams and downstream. Harvey (2002), in his own view sees project management as planning, organizing, directing and controlling of activities. Generally, from different schools of thought, it is believed that Project management is the discipline of planning, organizing and managing resources to bring about the successful completion of specific project goals and objectives. It sometimes combines with programs, group of related projects or interdependent projects.

Project Constraints

Project constraints are anything that can either restrict the actions of project team or dictates their actions (Heldman, 2009). The project triple constraints are primarily scope, time and cost while the enhanced constraints include time, cost, risk, scope, quality, resources, customer satisfaction (Malcathy, 2009). The triple constraints work in tandem with each other implying that a change in one directly affects the other two. Time constraint is usually presented in the form of enforced deadline from senior management within which the project is expected to be completed. Budget or cost constraint limits the project's ability to utilize funds on the project. It has a potential of restricting the project scope. Scope elements define the deliverables and the boundary within which the project will be implemented. Quality constraints are restricted by the specifications of the product or service and also the expected standards required. Resource constraint deals with availability of resources (both internally to the project team and externally to other supports required for project execution) for project execution in terms of required skills, quantity, experience and so on (Heldman, 2009).

Importance of Project Management to Telecommunication

The implementation of information and communication technology projects especially for development in the telecommunication sector had been on the increase over the years. However, these projects have been recording high failure rates, possibly, due to poor project scope, design and management. Project sponsors, project managers and project team members must understand the processes and methods involved in managing projects in order to improve upon success rates (United Nations, 2010).

Among telecommunication firms, managers of projects (sponsors, project managers, team members and other stakeholders) must see project management as a method, discipline and a

process that has a set of tools for planning, implementing, maintaining, monitoring and evaluating the progress of project tasks and activities in order to accomplish organizational goals and objectives. Top managers who plan to introduce the project management discipline in telecommunication projects, or who wish to improve existing project performance, must pay attention to socio-cultural background of team members, organizational structures in place, experience and so on. Project management demands quality information, discipline and goal-orientation and requires team-working skills, rather than rigid functional divisions (Ogunberu et al., 2018). In summary, given the rapid changes in the Nigerian information and telecommunications industry, with many companies going under, and others struggling to survive in a newly competitive field over recent years, it is critical that all projects be as successful as possible to further the business of the company. At the same time, the industry has recognized that the business models must change, and the products as well as the services they offer must reflect the new technologies, the new industry players, and a new approach. Successful development in this environment depends on very strong project management along with strong technical, business and marketing skills. This can happen only if standard Project Management techniques are applied within the sectors' projects, and also if the teams maintain their focus on the environment in which the project is being performed (United Nations, 2010).

The use of proper project management is rapidly becoming a requirement in many telecommunications-oriented companies and environments. Use of Project Management tools and techniques can make the difference between meeting or not meeting project scope, budgetary and time requirements. Meeting these constraints is becoming more and more

critical and the competition escalates, and companies compete for shares of the market. Sometimes an even more significant problem is the customer satisfaction which is closely related to producing what the customer wants, within the required cost and time. Or more accurately, producing what the customer really wants (Avison and Torkzadeh, 2009).

Project Success in the Telecommunication Sector

Achieving project success among telecommunication firms implies meeting up with the long-term goals and objective for which the project is set to achieve. Important parameters for these goals and objectives include return on investment (ROI), profitability, competitive advantage and improved market share. To achieve project success based on these expectations, variables such as realistic goals, competition, project objectives and deliverables, customer satisfaction, human factors, commitment from management, perceived usefulness to content developers, staff members with responsibility to project, profitability, third parties, market availability, project management, the nature of how ICT projects are implemented and the techniques to be used on various factors and features including the existing knowledge and ongoing organizational learning, the existence of appropriate management of project information and good project leadership, complexity of the project and technology being employed. Other factors could include project timescales, funding available and risk (Ogunberu et al., 2016).

Project Management Techniques

The Project Agency (2019) discussed various examples and explanations of commonly used techniques in project planning and management, namely: Brainstorming, Critical Path Analysis and PERT, Gantt Charts etc. The tools stated here have their strengths and particular purposes, summarized as a basic guide below.

Brainstorming

Brainstorming is usually the first crucial creative stage of the project management and project planning process. The brainstorming method in detail and explained separately is important, because it is also a useful application outside of project management. Unlike most project management skills and techniques, the first stages of the brainstorming process are ideally a free-thinking and random technique. Consequently, it can be overlooked or under-utilized because it not a natural approach for people whose mains strengths are in systems and processes. Consequently, this stage of the planning process can benefit from being facilitated by a team member able to lead such a session, specifically to help very organized people to think randomly and creatively.

Project Critical Path Analysis and PERT

Project critical path analysis and PERT sounds very complicated, but it's a very logical and effective method for planning and managing complex projects. A critical path analysis is normally shown as a flow diagram, whose format is linear (organized in a line), and specifically a time-line. Critical Path Analysis is also called Critical Path Method - it's the same thing - and the terms are commonly abbreviated, to CPA and CPM. A commonly used tool within Critical Path Analysis is PERT (Project Evaluation and Review Technique) which is a specialized method for identifying related and interdependent activities and events, especially where a big venture may contain hundreds or thousands of connected elements. PERT is normally not

relevant when the project is simple, but when it is of considerable size and complexity, particularly when timings and interdependency issues are crucial, they can benefit from the detailed analysis enabled by PERT methods. PERT analysis commonly feeds into Critical Path Analysis and to other broader management systems, such as those mentioned here. Critical Path Analysis flow diagrams are very good for showing interdependent factors whose timings overlap or coincide. They also enable a plan to be scheduled according to a timescale. Critical Path Analysis flow diagrams also enable costing and budgeting, although not quite as easily as Gantt charts below, and they also help planners to identify causal elements, although not quite so easily as fishbone diagrams.

Gantt Charts: These are extremely useful project management tools. The Gantt Chart is named after US engineer and consultant Henry Gantt (1861-1919) who devised the technique in the 1910s. Gantt charts are excellent models for scheduling and for budgeting, and for reporting and presenting and communicating project plans and progress easily and quickly. But as a rule, Gantt Charts are not as good as a Critical Path Analysis Flow Diagram for identifying and showing interdependent factors, or for 'mapping' a plan from or into all of its detailed causal or contributing elements. It can be constructed using MS Excel or a similar spreadsheet. Every activity has a separate line. Create a timeline for the duration of the project (the breakdown example shows minutes, but normally you would use weeks, or for other bigger projects, months will be required). The time blocks can be colored code to denote the type of activity. A Gantt chart can be used to keep track of progress for each activity and how the costs are running. Gantt Charts are probably the most flexible and useful of all project management tools, but they do not obviously show the importance and interdependence of related parallel activities, and they won't obviously show the necessity to complete one task before another can begin as a Critical Path Analysis does. Both tools could be used together, especially at the planning stage, and almost certainly for large complex projects. Project management tools naturally become useful, also for subsequent project reporting, presentations, etc., and make life easier for everyone while using formats that people recognize and find familiar.

Research Methods

The population of this study comprised of one hundred and twenty (120) middle management and senior staff of both Mtn and Glo telecommunication in Lagos State. Convenient and simple random sampling techniques were used to select Eighty (80) respondent from the population of the study, The two-telecommunication industry were chosen because they were considered to be the two largest telecommunication industries in Nigeria. Survey research design was adopted for this study with the aids of structured questionnaire using a modified 5-point Likert type rating scale of Strongly Agree (SA) = 5- points, agree (A) = 4- points, Undecided (U) = 3 Strongly Disagree (SD) = 2-points and Disagree (D) = 1-point. Content validity was used to validate the research instrument, while Cronbach Alpha was used to determine the reliability of the instrument. The data was analysed using mean and standard deviation and one way ANOVA, with aids of SPSS package.

Data Analysis and Interpretation

Table1

Descriptive Statistics for Brainstorming Techniques

| | N | Mean | Std. Deviation |
|--|----|--------|----------------|
| Project review meeting and redistribution of risk are adequately carried out | 80 | 4.2500 | .94802 |
| Trade-off between scope, schedule and budgeting are formally recognized as options to problem resolution | 80 | 4.3250 | .75933 |
| Milestone are identified and written | 80 | 4.3000 | .87728 |
| Roles are defined, agreed to and published | 80 | 4.1125 | .84184 |
| Lesson learned are communicated to customer and suppliers | 80 | 4.1375 | 1.06431 |
| Valid N (listwise) | 80 | | |

Table 2

One-way ANOVA for Brainstorming Techniques

| | Sum of Squares | Df | Mean Square | F | Sig. |
|--|----------------|----|-------------|-------|------|
| Project review meeting and redistribution of risk are adequately carried out | 21.203 | 4 | 5.301 | 7.984 | .089 |
| Between Groups | | | | | |
| Within Groups | 49.797 | 75 | .664 | | |
| Total | 71.000 | 79 | | | |
| Trade-off between scope, schedule and budgeting are formally recognised as options to problem resolution | 10.667 | 4 | 2.667 | 5.734 | .415 |
| Between Groups | | | | | |
| Within Groups | 34.883 | 75 | .465 | | |
| Total | 45.550 | 79 | | | |
| Milestone identified and written | 18.821 | 4 | 4.705 | 8.406 | .485 |
| Between Groups | | | | | |
| Within Groups | 41.979 | 75 | .560 | | |
| Total | 60.800 | 79 | | | |
| Roles are defined, agreed to and published | 17.112 | 4 | 4.278 | 8.253 | .543 |
| Between Groups | | | | | |
| Within Groups | 38.876 | 75 | .518 | | |
| Total | 55.988 | 79 | | | |
| Lesson learned are communicated to customer and suppliers | 28.046 | 4 | 7.011 | 8.559 | .985 |
| Between Groups | | | | | |
| Within Groups | 61.442 | 75 | .819 | | |
| Total | 89.488 | 79 | | | |

Table 1 presents the findings relative to brainstorming techniques in telecommunication industry in Nigeria. The top attributes of brainstorming techniques used in Nigeria telecommunication industry when arranged in order of priority based on the mean value are Project review meeting and redistribution of risk are adequately carried out (4.2500), Trade-off between scope, schedule and budgeting are formally recognized as options to problem resolution (4.3250), Milestone are identified and written (4.3000), Roles are defined, agreed to and published (4.1125), Lesson learned are communicated to customer and suppliers (4.1375).

The most important attribute of brainstorming techniques used in telecommunication industry is Project review meeting and redistribution of risk are adequately carried out, with the is value of standard deviation of. (94802 This suggests the closeness on response of the participating staff to the mean. This implies that this attribute is commonly used as a major brainstorming technique of the selected telecommunication. The next most important attributes brainstorming technique is Trade-off between scope, schedule and budgeting are formally recognized as options to problem resolution, with is standard deviation of. (75933).

This shows that the responses of the participating staff of the telecommunication industry are closer to the mean. The next most important attribute of perspective of staff of the telecommunication industry on brainstorming is Milestone are identified and written, with a standard deviation value of (0.87728). This shows that the responses of the respondents are close to the mean. This implies that this is also very important to the success of telecommunication industry. The two attributes with the least rating on the priority order were: Roles are defined, agreed to and published (4.1125) and Lesson learned are communicated to customer and suppliers (4.1375). Although these attributes had lowest means in order of priority, they are also important attributes of brainstorming techniques in telecommunication industry.

The output from SPSS for the one-way ANOVA provided the parameters used for determining the significance levels. These parameters included *df*, *mean square*, *F* and *Sig.*, where, *df* represents the degree of freedom used to obtain the observed significance level. *Mean square* is the sum of squares divided by *df*. *F* is the ratio of two mean squares and *Sig.* represents the significance level. An ANOVA significance level (*Sig.*) or *p* value of 0.05 was used.

Table:2 presents results of the one-way ANOVA for brainstorming techniques in telecommunication industry, the table shows that there's no significant differences among the groups in the rating of project management technique. In addition, the participating staffs of the selected telecommunication industries groups agreed with the extent of use of brainstorming

Table 3

Descriptive Statistics for Network Analysis Techniques

| | N | Mean | Std. Deviation |
|--|----|--------|----------------|
| Vertically and horizontally unbiased and unfiltered tracking variance adequately done. | 80 | 4.2750 | .88554 |
| Effective budget control is always in place | 80 | 4.3125 | 1.06252 |
| Project schedule issues are promptly addressed. | 80 | 4.2000 | .95996 |
| Project schedule and integration are adequately done. | 80 | 4.2000 | .93321 |
| Miles stone are identified and written | 80 | 4.1750 | .96489 |
| Valid N (listwise) | 80 | | |

Table 4

One way ANOVA for Network Analysis Technique

| | Sum of Squares | df | Mean Square | F | Sig. |
|--|----------------|----|-------------|--------|-------|
| Vertically and horizontally unbiased and unfiltered tracking variance are adequately done. | 24.014 | 4 | 6.004 | 11.869 | .626 |
| | 37.936 | 75 | .506 | | |
| | 61.950 | 79 | | | |
| Effective budget control is always in place | 33.146 | 4 | 8.286 | 11.090 | .0005 |
| | 56.042 | 75 | .747 | | |
| | 89.188 | 79 | | | |
| Project schedule issues are promptly addressed. | 32.676 | 4 | 8.169 | 15.269 | .856 |
| | 40.124 | 75 | .535 | | |
| | 72.800 | 79 | | | |
| Project schedule and integration are adequately done. | 45.267 | 4 | 11.317 | 36.066 | .100 |
| | 23.533 | 75 | .314 | | |
| | 68.800 | 79 | | | |
| Mile stone are identified and written | 36.383 | 4 | 9.096 | 18.355 | .253 |
| | 37.167 | 75 | .496 | | |
| | 73.550 | 79 | | | |

Table 3: Presents the findings on the importance of network analysis techniques to telecommunication industry as perceived by the participating staff of the telecommunication industry. The top attributes of network analysis when arranged in order of priority based on the mean value are, Vertically and horizontally unbiased and unfiltered tracking variance are adequately done (4.2750), Effective budget control is always in place (4.3125), Project schedule issues are promptly addressed. (4.2000), Project schedule and integration are adequately done. (4.2000) and Mile stone are identified and written (4.1375).

The most important network work attribute is Vertically and horizontally unbiased and unfiltered tracking variance are adequately done and the standard deviation value of (0.88554) showing how close the respondents' responses on the attribute are to the mean. This implies that this attribute is a major factor to be considered for the successful implementation of network analysis in telecommunication industry.

The next most important network work analysis attribute is Effective budget control is always in place with the standard deviation value of (1.06252) showing how close the respondents' responses on the attribute are to the mean. This suggest that budget control through effective

network analysis is commonly practiced in telecommunication industry. The next most important network analysis attribute is Project schedule issues are promptly addressed with the standard deviation value of (0.95996) showing how close the respondents' responses on the attribute are to the mean. This implies that adequate Project schedule plays a very vital role in the success of telecommunication industry. The next most important attributes of network work analysis is project schedule and integration are adequately done with the standard deviation value of (0.93321) and least is miles stone are identified and written with the least rating on the priority order of (4.1750). Although this attribute had the lowest means in order of priority, taking time to practice it too would more likely improve the performance of telecommunication industry.

The output from SPSS for the one-way ANOVA provided the parameters used for determining the significance levels. These parameters included *df*, *mean square*, *F* and *Sig.*, where, *df* represents the degree of freedom used to obtain the observed significance level. *Mean square* is the sum of squares divided by *df*. *F* is the ratio of two mean squares and *Sig.* represents the significance level. An ANOVA significance level (*Sig.*) or *p* value of 0.05 was used.

Table 4 presents the results of one-way ANOVA for network analysis technique. The results indicated that no statistically significant differences exist among the participating telecommunication industry in ratings or usage of network analysis technique. The only exception was effective budget control is always in place. The significance level for effective budget control is always in place was 0.005, which indicated a highly significant difference.

Summary, Conclusion and Recommendation

Summary

The main focus of this study was to assess the project management techniques adopted by both GLO and MTN telecommunication industry. The study examines the effect of these project management techniques on success of the projects executed by this organization. Brainstorming and network analysis technique were used to measure the project management techniques in telecommunication industries in Nigeria. Projects, in the later decades, have become more complicated and riskier in the telecommunication industry as a result of the multiplicity nature of the activities among telecommunication firms. The feasibility of the elimination of all the uncertainties affiliated with a certain project is unlikely. The best that can be achieved is the proper adoption of these various techniques. Therefore, an integrated mechanism can be established depending on a balanced inducement and sharing technique to contracting alongside a better practice methodology of project management in terms of the entire life cycle of a project.

Conclusion

It can be concluded that telecommunication activities can be treated as telecommunication projects, provided that resources allocated for these projects are kept in tight control (through a PMO) to ensure successful, smooth, and continuity of production. The results of the data analysis demonstrated that the medium and executive level of management is convinced that production schedule and quality of products can be improved when tools and techniques used in project management are used in telecommunication projects. This study provided a conceptual framework that explains how telecommunication industry could benefit from treating telecommunication activities as telecommunication projects and apply on them tools and techniques used in project management.

Recommendations

1. This research project recommends a formal and structured approach for adoption of project management techniques
2. The researcher recommends that project management techniques training be included in the routine training of all telecommunication industry
3. Continuous development seminars on project management techniques for all staff involve in the implementation of these techniques in the organization should be encouraged
4. This research project recommends that major players in telecommunication retain the services of competent consulting project manager and, this consultant should sit at top level decision meetings to advice telecommunication issues

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