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PROJECT PORTFOLIO MANAGEMENT AND PROJECT SUCCESS IN NIGERIA: A STUDY OF AQUA - RAPHA INVESTMENT NIGERIA LIMITED

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Abstract
The aim of this study was to determine the effect of project portfolio management on project success, using Aqua Rapha Investment Nigeria Limited as a case study. The specific objectives of the study were to determine the effect of project portfolio management on product quality of Aqua Rapha Investment Nigeria Limited, ascertain the effect of project portfolio management on project costing in Aqua Rapha Investment Nigeria Limited and assess the effect of project portfolio management on stakeholder satisfaction with the products of Aqua Rapha Investment Nigeria Limited, The study adopted a descriptive survey method to generate primary data through the use of questionnaire among 23 distributed to and collected from the management staff and major distributors of the company. The hypotheses of the study were tested with analysis of variance using the Statistical Package for Social Sciences version 24. The result of the study revealed that project portfolio management affects the product quality and product costing in Aqua Rapha Investment Nigeria Limited positively and significantly. The result also indicated that project portfolio management has a positive and significant effect on the stakeholder satisfaction with the products of Aqua Rapha Investment Nigeria Limited. The study recommends that the organizational capability should form and govern a project portfolio management such that the portfolio not only aligns with the organization's strategic direction but also addresses risks and opportunities. It suggests that future studies on this subject-matter should endeavor to gather evidence in many more companies.
Keywords: Project Portfolio management, Project Success, Nigeria.

1.1 Introduction
Business outfits are increasingly realizing that corporate strategy is delivered through projects. Selecting the right projects is key to their ability to deliver their strategic intent. This is required for strategic alignment (Meskendahl (2010). According to Hadjinicolaou and Dumrak (2017), managers have to decide on how best to use available resources, manage the level of project and portfolio risk and other considerations. The decision-making processes for project portfolio selection, tools and capability to select the chosen projects carefully to achieve the desired

benefits will affect project success (Crawford, Hobbs, & Turner, 2006). The Project Management Institute (PMI), a leading global project management association, reported that project failure rates remain high and would continue to be a global problem (PMI,2013).

Portfolio management practices support organizations in prioritizing and selecting the right projects to meet strategic objectives and improve project success rates. A seminal paper written in 1952 by Harry Markowitz on Modern Portfolio Theory (MPT) posits that the goal of MPT is to optimize a portfolio to generate the highest level of return for given levels of risk. According to (Markowitz,1952), MPT distinguishes between efficient and inefficient portfolios while calculating the risk and return as a whole .

Management has changed because of technology progress, because customers are demanding more, and because globalization has increased. This change has left executives struggling to find new management practices (Itegi, 2015). In today's competitive global market, it is imperative that enterprises not only compete with local businesses but with the worldwide competition as well. The global market is shaped by customers' need for better, cheaper products and services. The use of ISO 9000: International standards for quality management and assurance is one such example (Itegi, 2015). Additionally, when more projects are created as a way to save money, employees are designated tasks with set budgets and deadlines that they must meet or face repercussions. Project management method is effective and versatile and is thus used to efficiently get things done (Itegi, 2015).

Project portfolio management is a process of putting together all the tasks and projects in a company in order to meet strategic and personal objectives (Hyväri, 2014). Effective and efficient project landscapes are managed in terms of applying portfolio management methods, which are a management innovation (Koh, 2011). Project portfolio management looks at the complete portfolio of new product development initiatives; therefore, it's more comprehensive than simply focusing on one project (Lichtenthaler, 2014).

Increasing corporate adoption of projects and programs has made project portfolio management a need for understanding company strategy (Koh, 2011). Project portfolio management has become more relevant as businesses seek to enhance performance while also cutting costs (Müller, 2008). Organizational results are better when project management methods are used more strategically, making numerous projects run more efficiently and successfully (Itegi, 2015). Even while some in the industry still say that project management deals only with numbers and cannot address other difficult management challenges, project portfolio management manages to transfer knowledge, change behavior, and improve financial management (Itegi, 2015).

Modern corporations have been compelled to take on more creative methods of ensuring their longevity. It is hard to argue that traditional methods of treatment that focus primarily on efficacy can be depended on (Itegi, 2015). Without a clear strategy, and due to the lack of follow-up, the outcomes have been poor. The Project Portfolio Management method offers solutions to keep projects in accordance with their budgets, deadlines, and designs to provide results on time (Itegi, 2015). Even while institutional investors expect exceptional returns, many don't have enough understanding of current investment management methods, such as the Capital Asset Pricing Model and Modern Portfolio Theory, even in the local environment. Customers want better quality at reduced costs even if the production time is shorter. In the competitive global business climate, companies have to fight for market dominance, even when

their rivalry involves identical items, since they invest in the ambiguous alternatives that are decided arbitrarily.

Product innovation is very risky, and companies respond to this risk by focusing heavily on generating new ideas (Lichtenthaler, 2014). Thus, contemporary company operations have necessitated planners to rethink their methods of planning and executing business management, to create sustainability (Itegi, 2015). Managers may assist their company in raising the new product performance by having well-organized methods for managing innovation (Lichtenthaler, 2014).

Projects have to be managed more methodically when a company deals with numerous of them at once. Project portfolio management (PPM) has become essential for implementing plans, and thus it's never looked down upon (Killen, Hunt & Kleinschmidt, 2008; Martinsuo & Lehtonen, 2007). A research on Aqua Rapha Investment Nigeria Limited wants to explore the influence of project portfolio management on Nigerian business organizations and their interests.

1.2 Statement of the Problem

Project portfolio management has received a stable and central position both in project management research, product development management research, as well as companies' management practices during the past decade **(**Sadiq, Salisu&Yuting ,2018**).** While project management proponents contend that it is merely a financial management tool and cannot resolve complex managerial issues like how to manage an organization, project portfolio management has been shown to create, obtain, and share knowledge, and modify behaviors in accordance with the latest information in financial management. However, even with a better understanding of the more complex financial asset investment management approaches such as modern portfolio theory, capital asset pricing model, and other methods that make investments safer in a domestic context, the extraordinary returns that institutional investors are hoping for remain elusive,

In addition, despite the variety of instructions on how projects should be selected to the portfolio, how resources should be allocated across projects, how to align the entire portfolio with strategy, and how to assess the success of the portfolio, companies still struggle with the resource sharing problem across projects as well as constant changes in their portfolios (Englund and Graham, 1999; Elonen and Artto, 2003 cited in Sadiq, Salisu&Yuting ,2018**).**

Furthermore, even as the project portfolio management frameworks and their well-intended portfolio analyses and investment optimizations during portfolio planning, project portfolio management models are critiqued the attention managers give to portfolio activities is inadequate and working with multiple projects overloads the employees (Elonen and Artto, 2003). The alignment between project portfolios and customer relationship portfolios is a missing link between the increasing importance of PPM and the growing importance of the customer which is implicitly reflected in the objectives of single projects because their results should satisfy a certain hierarchy of their needs and satisfactions. PPM can be understood as the hub of an intra-company system that connects projects and operations. These requires different decision situations and different decision making approaches, which some authors asserted that combining decision-making approaches that were based on different logics might be difficult and it might lead to conflicts within the organization In addition, the dilemma in resource sharing

is poorly understood and hardly solved in project portfolios and is just one among others. Many other deviations from the companies' PPM frameworks appear in the day-to-day practice (Blichfeldt and Eskerod, 2008). Several practices are carried out in the management of projects but not recognized as project management practices. The need to obtain successful projects also necessitates undertaking optimum practices. In addition, while project portfolio management has increased its significance in various business contexts, research on the effectiveness of PPM is still limited. PPM effectiveness has not been clearly defined, and the factors contributing to PPM effectiveness have not been thoroughly investigated. The lack of such research has made practitioners to continue with a PPM approach which has not been measured as to its effectiveness and impact on business results((Patanakul, Curtis & Koppel ,2012)

In Nigeria, most organizations belong to a category of industry by virtue of the products or services they offered. This is normally affected by their peculiar business environments, some business factors and its related dynamics based on where they operate as mentioned earlier. However, the rate at which many branches, warehouses and subsidiaries were opened and operated by the transportation companies, petrol and gas stations, shopping malls, manufacturing companies, banking sector, insurance companies, bottling companies, projects consultancy firms, bagging companies etc. and abandoned or fold within one or two decades in Nigeria remains worrisome. These may be traced to how the portfolios of these companies are managed. Organizations in Nigeria appear to be facing increasing demand and constant changing taste of consumers. Customers today are experiencing dynamic changing taste, while looking for high quality products at cheaper prices.

Thus, the indispensable role of complex business organizations in the stabilization of Nigerian economy through business organizations has made it imperative to study the effect of project portfolio management on project performance success in Nigeria with focus on Aqua Rapha Nigeria Limited.Thus, it's essential to ascertain the influence of project portfolio management on business success in Nigeria with particular reference to Aqua Rapha Nigeria Limited.

1.3. Objectives of the Study

The main objective of this study is to determine the effect of portfolio management on project performance success, using Aqua Rapha Investment Nigeria Limited as a case study. The specific objectives were:

(i)To determine the effect of project portfolio management on the product quality of Aqua Rapha Investment Nigeria Limited,

(ii)To ascertain the effect of project portfolio management on project costing in Aqua Rapha Investment Nigeria Limited and

(iii)To assess the effect of project portfolio management on stakeholder satisfaction with the products of Aqua Rapha Investment Nigeria Limited.

1.4 Research Questions

The study seeks to provide answers to the following research questions:

(i)How significant is the effect of project portfolio management on the product quality of Aqua Rapha Investment Nigeria Limited?

(ii)To what extent does project portfolio management affect project costing in Aqua Rapha Investment Nigeria Limited?

(iii)Does project portfolio management affect stakeholder satisfaction with the products of Aqua Rapha Investment Nigeria Limited significantly?

1.5 Research Hypotheses

(i)Project portfolio management does not have a significant effect on the product quality of Aqua Rapha Investment Nigeria Limited

(ii)The effect of project portfolio management on project costing in Aqua Rapha Investment Nigeria Limited is non-significant.

(iii)Project portfolio management does not affect stakeholder satisfaction with the products of Aqua Rapha Investment Nigeria Limited significantly.

2.Review of Related Literature

2.1 Conceptual framework

Concept of Project Portfolio Management

Project portfolio management (PPM) has been definrd as as a process employed by project managers and project management organizations (PMOs) to analyze the potential return on undertaking a project. By organizing and consolidating every piece of data concerning some proposed and current projects, project portfolio managers provide forecasting and business analysis for companies intending to invest in new projects. Project Portfolio Management (PPM) is another name for the centralized management of project processes, methods, and technologies employed by project managers and PMOs. To Lichtenthaler (2014), it represents innovative portfolio management and includes a dynamic decision process that constantly updates a list of ongoing projects and their resource allocations. Lichtenthaler (2014) asserts that PPM includes prioritizing and selecting new initiatives as well as shortening and ending the ones already happening. In order to make these kind of significant choices, you need identify the major issues early on in the innovation process. It follows that, in an effort to "*manage the proper new product development projects,"* innovation portfolio management would focus on "project management." (Lichtenthaler, 2014).

According to Okechukwu and Egbo(2017),a lot of successful organizations today attest to the idea that the management of multiple projects increases efficiency and effectiveness thereby improving organizational performance. While practitioners still claim that project management is a financial measure that cannot address complex issues associated with managing organizations, project portfolio management approach performs creditably in creating, acquiring and transferring knowledge as well as modifying behaviors to reflect new knowledge on financial management. Companies need project portfolio management nowadays to manage their projects in a better way (Okechukwu and Egbo (2017). Blomquist & Müller (2004) note that project portfolio management involves differentiating initiatives by the degree to which they are connected. This is said to increase a company's profits across a portfolio of projects by getting the most out of their limited resources.

Blomquist & Müller, (2004) define a portfolio as an organization (temporary or permanent) where projects are managed together to coordinate interfaces, prioritize resources between projects, and thereby reduce uncertainty. Blomquist & Müller (2004) opine that portfolio management is concerned with the groupings of projects along the interrelatedness of their

management requirements. This they say is done to maximize an organization's overall business results through economic use of resources across a group of projects. Dye and Pennypacker (2002), in Jonas (2010), sees project portfolio as a group of projects that compete for scarce resources and are conducted under the sponsorship or management of a particular organization.
However, several scholars have submitted varying definitions of project portfolio management considered it as a dynamic decision process where a list of active projects is constantly updated and revised (Müller, Martinsuo & Blomquist, 2008). It has been simply described as an approach or method that helps organizations to achieve their business goals and objectives. In a similar vein, Hyväri (2014) defined project portfolio management as the coordinated management of one or more portfolios to achieve organizational strategies and objectives. It is a new field for companies to manage a large number of projects at a time. It is also seen as a holistic activity, dependent on the organization's strategy (Hyväri, 2014). Project Portfolio Management (PPM) can also be seen as the centralized management of the processes, methods, and technologies used by project managers and project management offices (PMOs) to analyze and collectively manage current or proposed projects based on numerous key characteristics.
Project portfolio management offers organizations and managers the ability to see the big picture. While PPM enables the executives to know what project managers to reach, provides project managers easy access to team members and team members improved communication with leadership and other teammates, it ensures that stakeholders are kept in the loop with reliable and consistent feedback. The project portfolio management process helps companies to predict the outcomes and plan for projects that will offer the best results. It highlights questions such as:

- "***Do I have the resources/budgets available to take on this new project?***
- ***Is there a similar project in my portfolio I can use to model after this one?***
- ***What current projects might act as a barrier to completing this project?***
- ***Are the stakeholder's expectations realistic? Where can we compromise?***
- ***Does this project help reach our overall objectives as an organization?" (Lynn,2011).***

By using PPM, project managers and PMOs have a global view of each project. It enables them to predict problems before they ever occur as soon as every element of a project is presented.
The portfolio management process avails organizations the foresight to identify potential risks and put the necessary measures in place. This assists a company to manage risks proactively and allows teams to realistically estimate potential delays and put into place measures to prevent or mitigate those risks, assuming that they prove to be unavoidable. Risk mitigation could entail (i) aligning each proposed project with overall organizational goals, (ii)providing measurable data employed to weigh risks against rewards. (iii)finding out potential bottlenecks and design flaws at more than one level and(iv) reconciling team band width with the amount of work to be done.
At the most basic level, PPM and project management (PM) by number of projects. While Project management focuses on an individual project's road to completion, project portfolio management takes into consideration every project or potential project and its viability to meeting overall business goals.

2.1.2 Security of Investment

One of the most critical aims of project portfolio management is reducing investment risk or investing more securely. A project portfolio management manages money; it keeps investments in place while adding to their purchasing power over time (Akrani, 2011). In addition to security, project portfolio management includes components such as security analysis, which include areas such as portfolio analysis and selection, fundamental and technical analysis, and industry analysis (Akiode, 1991; Ani, 1991; Mennis, 1974; Osipitan, 2009 cited in Balogun, 2001). A portfolio analysis examines future return and risk chances (Balogun, 2001).

2.1.3Marketability of Product

Product marketability refers to the ability of a product to sell well in the market (Morello, 2017). New goods that lack the proper mix of both features and uniqueness will fail to generate attention and will not find a following among customers. To reach the target audience, pricing is crucial; to be appealing, you have to charge appropriate amounts. Morello (2017) thought that something that's going to sell must have good characteristics, fulfill a demand, have a fair price, and be something people haven't seen before. Thus, a product portfolio management system is required.

The capacity to find maximum value in product portfolios using portfolio management approaches (Planview, 2012 in Doorasamy, 2015). A project's continued assessment helps firms figure out if they can meet their goals and aid with their choices (Doorasamy, 2015)

It is an important aspect of overall product development since it both specifies the projects of new products and controls revisions, updates, and choices to drop projects (Jujend & Silva, 2013).

Project portfolio management and profitability

When carefully performed, project portfolio management is expected to increase the ability of companies to achieve superior performance and higher success rates as all projects and portfolios would be aligned with their overall goals. An increase in profitability from portfolio management comes as a result of improvement in the planning process, provision of clarity of goals and increases in overall productivity. The organizations using Key Performance Indicators can(i)make available objective evidence of progress towards achieving a desired result, (ii)measure what is intended to be measured so as project to help inform better decision making, (iii)offer a comparison that gauges the degree of performance change over time,(iv)track performance measures and(v)work most effectively when balanced between leading and lagging indicators.

KPIs and other metrics such as Objectives and Key Results (OKRs) are important tools that can provide project and portfolio managers with an immediate understanding of how an organization’s project portfolio is performing.

Depending on the organization, the KPIs for project portfolio could be based on typical project concerns, such as timelines quality and effectiveness. They could be financially oriented, such as budget variance, planned value and cost performance index KPIs can also be built on customer measures such as customer satisfaction, customer loyalty and net promoter score. The following KPIs and metrics should be part of an organization’s comprehensive project reporting.

(i) Operational Efficiency KPIs. These metrics and KPIs measure resource utilization and team performance

- **Resource Allocation:** Measures percentage of time spent by a single resource (or group of resources) over the project duration. Shows tasks completed by resource in certain time span. Resource productivity is measured and should be evaluated by the manager in charge of a project.
- **Project Effort:** Measures time devoted to working on a project.
- **Project Churn:** Measures projects that are on stand-by or have been forfeited over a period of time. Conveys changes in a project and how it will adjust and keep up with these changes. Eliminates excessive projects that might otherwise disrupt the balance of the project portfolio causing project churn.

(ii) Execution KPIs

These metrics show project implementation and impact once projects are deployed for assessment. They reveal whether projects are successful and indicate the costs accumulated during the project operation. These KPIs are usually presented through a report.

- **Budget Variance:** Estimates costs included in the planning stage of the project. Computes or estimates via budgeted task cost, actual task cost and earned value.

(iii)Business Value Delivered KPIs

Business value metrics are used for measuring the expected value of projects. Projects depend on return value to determine if they are successful or not. The business value delivered indicators include customer satisfaction, business value realized and project success.

2.1.4 Project Success

Project success has been historically defined as a project that meets its objectives under budget and under schedule. This evaluation criterion has remained as the most common measure in many industries. However, for a development project, success goes beyond meeting schedule and budget goals. Project success includes delivering the benefits and meeting expectations of beneficiaries, stakeholders, donors or funding agencies.

There are several ways and criteria to assess the development and success of projects. The most outdated among them is based on the so-called "iron triangle". These comprise the principles of cost, time and quality (Meredith & Mantel, 2000). This means that a project that would not overly move away from the primary budget, meet the timeline as well as fulfill the requirements established by stakeholders would be regarded as successful (Ogohi,2019). When project management success are contemplated about, it is likely to find and use many different approaches. According toOgohi(2019), one of the best traditional ones is the iron triangle method which confirms that three main aspects that must be achieved together, namely scope, cost and time.

At various points during project execution, a business organization would seek to evaluate five project success indicators: schedule, quality, cost, stakeholder satisfaction and performance against the business case(Westland,2015). These indicators are explained as follows:

(i) Schedule

The success of project management is often determined by whether or not the original timeline has been adhered to. This is a hard task but it's a little bit easier if the project is continually evaluated as it progresses

(ii) Quality

The appropriate time to review the project quality is at the end of a project phase. Both the quality of one's project and management practices can be reviewed at the same time. A quality review can evaluate whether what one is doing meets the standards set out in your quality plans.

(iii)Cost

Several executives would rate cost management as one of their highest priorities on a project. Consequently, evaluating how the project is performing financially is important. It is advisable forb one to compare ones current actual expenditure to what one had budgeted at this point. Variances, if any, should be explained If there are variances, look to explain them.

(iv) Stakeholder Satisfaction

The organization's wider team – stakeholders – are essential in getting much of the work done. Hence, it is advisable to check in with them. Effort should be made to find out how they are feeling about the project right now and what the organization could be doing differently. This is a difficult measure to document statistically, although there's nothing to stop one asking them for a rating out of 10.

(v) Performance to Business Case

Finally, one should go back to the business case and see what was originally agreed upon. How is your project shaping up? It is important to confirm that the benefits are still realistic and that the business problem this project was designed to solve does still exist.

2.1.5 Brief Profile of Aqua-Rapha investment Nigeria company Limited

Aqua Rapha Investment Nigeria Limited is located in 9th mile corner opposite Ama Breweries Plc in Enugu State at Ngwo town. Ngwo town is located in the South eastern state of Enugu, Nigeria with a population of about 50,000 people and 10 villages. The factory is located in this area because of it's proximity to the source of the raw materials for the productions. The Aqua Rapha (God's Healing Water) was established by it's sole owner Rev. Father Ejike Mbaka. His ability to generate money out of little or nothing and his interest in business as whole made him engage in small business partnership dealing on the distribution of household goods. Aqua Rapha Investment Nigeria company Limited was incorporated on 7th November 2003 (RC498461) as a private limited liability company. The name Aqua Rapha was coined from two words. Aqua is a Latin word for water while Rapha is a Hebrew word for healing. The implication is that 'Aqua Rapha' means 'Healing Water' The main objective of the company is to provide quality drinking water and other beverages at affordable prices for the populace. Similarly, the need to provide employment for the unemployed youths in the Nigerian society as well as assistance to the less privileged also informed the decision to establish the company. In pursuit of her objectives, the company set up a plant for packaging table water with three sachet water filling machines in February 2005 which commenced production that same year. The number of sachet water filling machines increased to 70 in 2009 with the help of effective and efficient project portfolio management. Later, the company expanded into the production of yoghurt, plastics and poly bags, through the recycling of water cellophane bags into pelletized raw materials. The

Plant has an annual installed capacity of 25,000,000 (twenty-five million) bags of sachet water, 500000 (five hundred thousand) crates of bottled water, 560,000 (five hundred and sixty thousand crates of Yoghurt and 292 (two hundred and ninety two) tons of Poly Bags. The product capacity of Aqua Rapha Investment Company is at minimum of Eight hundred and fifty (850) bags that contains (20) sachets, per day. Given an effective annual working period of 240 days the output is modestly placed at 203, 760 (Two hundred and three thousand, seven hundred and sixty) bags per year. The products recorded an instant success and attained production and sales of over 80% of the plant's installed capacity. The major raw materials employed in the production of sachet/packaged water are obtained locally.

As at 2013, Aqua Rapha Investment Nigeria Limited had a total of 75 employees. By 2015, the number of employees had increased to 4500.The manufacturer uses the services of different professionals in manufacturing of the packaged water. These professionals that are from different field/department work together to ensure the success of desired quantities that will ensure the company's targets, objectives and goals. The purchasing department plays their roles by getting all the necessary requirements for the production. The factory men organize the raw materials and use it in production of complete products. After production, they will communicate stores and stores will pack those products and communicate purchasing for sales -there by realizing funds which the finance department will keep.

2.2 Theoretical Framework

2.2.1 Naturalistic decision-making Theory

Studies of decision making in realistic situations have increased after Brunswick launched an investigation into the natural theory of decision-making in 1943.

According to Akinwale and Abiola (2007) the first researchers to apply the naturalistic decision-making technique and study its effect on project portfolio management were Peterson and Beach in 1967.

Naturalistic decision-making aims at looking at how people make decisions in everyday contexts, as is defined by Akinwale and Abiola (2007). Klein and Zsambok (1997) show the vast range of work being done on natural decision-making contexts. Naturalistic decision-making is explained by Klein and Zambock (1997) as figuring out what people should do and when to do so while operating alone or with others in a highly complex and frequently fast-paced setting. It refers to how people analyze their situations, make decisions, and choose the outcomes that are most significant to themselves and the company to which they belong (Klein & Zsambok, 1997.) Traditional models of decision-making place undue emphasis on the "gambling metaphor" instead of really describing the decision-making process. Managers prioritize making and developing plans and objectives instead of narrowing down pre-existing options. Managers are viewed as decision-makers who make decisions to safeguard and promote the company's values and goals instead of aiming for maximum benefits (Donaldson & Lorsch1983). Managers are more likely to make subjective choices than use computer models. Decisions that are focused on making accurate predictions of the future are in contrast to most management decision-making, which is made for the present. As reported by Akinwale and Abiola (2007), researchers have raised doubts about the models of rational decision-making. Naturalistic decision theory necessitates exploring the decision-making process in real-world settings. It contradicts the claim that there are no explanations outside positivist laboratory study in existence for how people and

organizations make decisions. The authors claim that high stake implications, fluctuating aims, insufficient knowledge, time pressure, and uncertainty are all the factors that call for a more realistic case study methodology, say the authors. In addition, social interactions may be better portrayed and assessed using this method.

2.2.2 Modern Portfolio Theory

The Modern Portfolio Theory was introduced by Harry Markowitz (1952) in his paper entitled "Portfolio Selection." Before the advent of this theory, investors were focusing their attention on accessing the threats as well as the benefits of individual securities (Rajeshwar, 2018). The investment analysts used to identify those securities that could provide the most promising opportunities with the least amounts of risk. It is from those securities that they could then construct a portfolio. Markowitz's theory suggests that investors need to base the selection of their portfolios on the overall risk-reward characteristics instead of compiling the portfolios based on the securities that have attractive risk rewards characteristics. Markowitz contends that if one should treat the various securities as random variables, the securities can be assigned correlations, standard deviations, and expected values.

The modern portfolio theory provides the enablement to calculate the desired return on the volatility of the portfolios constructed using those securities. The theory connects investments with linear programming whereby the expected result is a higher return whereas the cost being minimized is the volatility of the return. Constructing that model requires the examination of the expected returns of each component of the portfolio, including the expected correlation of the return for each component, and the components' correlation with other components. The theory also suggests the usage of values for the past periods (Fabozzi, Gupta, & Markowitz, 2002). It identifies various components that can produce the best trade-offs between the volatility of a portfolio and the portfolio's return. Some portfolios do optimally balance the risks as well as the rewards. This is what Markowitz referred to as "efficient frontier of portfolios." The theory requires that the investor chooses a portfolio that is within the efficient frontier because under that condition each portfolio will provide a maximum possible desired return for some level of risk. It is the portfolio theory of Markowitz that formed the basis for the development of the portfolio management. The concept of liquidity is an important assumption for the application of the modern portfolio theory.

There are many other relevant theories such as organization theory (Waldo,1978)., system theory (Skyttnev,1996), complexity theory (Cooke-Davies, Cicmil, Crawford, & Richardson, 2007).), and multi-criteria utility theory (Stewart and Mohamed,2002). However this work was anchored on the modern portfolio theory. Modern portfolio theory is most especially relevant to this research as it offers a financial investment metaphor that applies to the PPM. Operational initiatives, projects, and programs can be conceived as investments which have to be aligned to the organizational goals and objectives. The project portfolio mix needs to be balanced in the light of risk exposure as well as investment returns

2.3 Empirical Review

Fubara & Agundu (2001) carried out a study on strategic portfolio management model. They surveyed 44 quoted and unquoted companies in Nigeria. The study revealed that the companies' basis of portfolio selection is traditional. Companies indiscriminately take risk by investing in

subjectively determined options. Investment risk is taken for granted. Also, the study found that the homogeneity of portfolio components, though attractive in the short-run, adversely affect investment returns in the long-run. Hyväria (2014) studied project portfolio management in a company strategy implementation. The study focused on medium sized business company. The study was carried between March 2011 and December 2012. Interviews, participant-observation, researcher's own familiarity with the company, and written documents (triangulation) were adopted. The study found that the purpose of project portfolio management is to maximize the return on investment of the portfolio and projects.

Müller, Martinsuo & Blomquist (2008) conducted a study on the nature and relationship of project portfolio control techniques and portfolio management. A questionnaire with 242 responses was used, out of which, 136 responses were filtered out for quantitative analysis. Three portfolio control factors were identified: portfolio selection, portfolio reporting, and decision-making style. Two measures for portfolio management performance were identified: achievement of desired portfolio results and achievement of project and program purpose. The results showed that different portfolio control mechanisms are associated with different performance measures. Hemanta(2013) sought to analyze the impact of applying project portfolio management on project success rate. Based on a clear survey, the impact of applying project portfolio management on project success rate was evaluated in different levels of project portfolio management maturity levels. The result of the study showed that there is a strong coefficient correlation between project success and project portfolio management maturity levels. The implication is that increasing the maturity level of project portfolio management leads to improving project success rate

Patanakul, Curtis and Koppel (2012) investigated PPM effectiveness from a real-life business setting in order to propose a definition of PPM effectiveness. The intention was to use the results of the research to provide a foundation for future studies and provide practitioners with a guideline for creating organizational conditions that promote PPM.Tn a similar study, Doloi and Baradari (2013) investigated the impact of applying project portfolio management on project success. The project success criteria were defined and different project portfolio management processes and functions were identified. Based on a clear survey, the impact of applying project portfolio management on project success rate was evaluated in different levels of project portfolio management maturity levels. The findings show that, there is a strong coefficient correlation between project success and project portfolio management maturity levels. In other words, increasing the maturity level of project portfolio management leads in improving project success rate.

Furthermore, Killen, Hunt and Kleinschmidt (2008) conducted a study on project portfolio management for product innovation. A questionnaire was developed to gather data to compare the PPM methods used, PPM performance, PPM challenges, and resulting new product success measures in 60 Australian organizations in a diverse range of service and manufacturing industries. The study found that PPM practices are shown to be very similar for service product development project portfolios and tangible product development project portfolios. New product success rates showed strong correlation with measures of PPM performance and the use of some PPM methods is correlated with specific PPM performance outcomes.

Bannerman (2008) sought to contribute to the development of the field of project management by synthesizing the seminal literature into a multilevel framework of project success that has wide application in practice. The proposal was supported and illustrated by reference to information systems (IS) development projects. The paper offered three main contributions. First, it formalized two additional success criteria, one conceptually closer to the project action and the other further away (Levels 1 and 5). Second, it structured these and other extant criteria into a multilevel framework and assessment approach that has practical utility for determining project success. Third, it provided a rationale for using the framework that contributes to overcoming the problems associated with defining project success by aligning success determination to a common reference framework Ogohi (2019) investigated the effect of project management on the performance of selected construction firms in Nigeria. The specific objective of the study was to analyze the effect of project management practices on organizational performance and examine the significant relationship between quality project management and technical success. The survey research design was adopted and copies of questionnaire were administered on 272 employees in project and engineering department of the selected construction companies, using disproportionate stratified sampling technique. The data collected were analyzed with descriptive statistics, linear regression model, and Pearson product moment correlation. The questionnaire was validated using content validity. The reliability of the questionnaire was confirmed by determining the correlation coefficient of the data collected at two different periods. The result of the study showed that project management practices were carried out by the construction firms to boost performance.

Udechukwu, Yacoub, Alasdaire and Terrry (2021) examined not only the extent to which project portfolio management (PPM) practices impact orchestrations of organizational ambidexterity, but also whether these orchestrated PPM practices impact further lead to superior project performance. Data were obtained from one hundred and sixty PPM stakeholders spread across eight countries in the Middle East between November 2016 and January 2017. The results of the study showed that portfolios performance is strongly and highly correlated with organizational ambidexterity. In addition, the results revealed that the more organizations exhibited efficient project-portfolio-management practice, the more they were found to develop ambidextrous capabilities.

3.Research Method

3.1 Research Design

In alignment with Patanakul, Curtis and Koppel (2012) whose interest was focused on PPM effectiveness, and like was done in Yin (1984) and Eisenhardt (1989)., case study was used as a methodology for this work. This study sought to determine the effect of project portfolio management on project success, using Aqua Rapha Investment Nigeria Limited as a case study. It adopted a descriptive survey research design as was done in Ogohi (2019).

3.2 Data and Method

Primary data were collected from 13 executives of Aqua Rapha Investment Company Ltd. who have experienced project portfolio management practices. They were gathered with a structured questionnaire survey, using the five-point Likert scale. The questionnaire was designed with

closed and open questions. The closed questions were to obtain definite and concrete responses, while the open questions were packaged to elicit the respondent's opinion outside the options provided. The analysis of the collected data was conducted using three means, namely Descriptive statistics, Spearman Rank Order Correlation (rho) and Analysis of Variance (ANOVA). The descriptive was employed to generate some overview results of the respondents. In alignment with Hadjinicolaou and Dumrak(2017),the process of data analysis followed the four steps modified from Creswell and Plano(2011) including (i) preparing the data for analysis, (ii) exploring the data, (iii) analyzing the collected data, and (iv) representing the data analysis. The statistical tool employed for the analysis was the 24th version of Statistical Package for Social Sciences (SPSS).In addition, the analysis of this research employed non-parametric test which is commonly used when small sample size and categorical data are obtained(Pallant,2013).

Stratified and purposeful sampling technique was adopted while administering the questionnaire. Copies of the questionnaire were distributed to the relevant management staff and major distributors of Aqua Rapha Investment Company Ltd who completed same and returned them accordingly.

3.3 Respondent Information

The results of the questionnaire survey obtained from 23 research participants consisted of 5% general manager's office, 9% marketing manager's office, 13% cost accountant's office, 34% project manager's office, 13% purchasing officer's office, 13% quality
control manager's office, and 13% major distributors. The respondents in this research were senior project managers (34%). Amongst the research participants, the positions were 34% project managers and 5% general managers. Forty per cent of the respondents reported their experience in the addressed positions from 15 to 20 years whereas 17% was found in the groups of experience less than 15 years, from 4 to 6 years and from 7 to 14 years. Ten percent of the respondents reported their experience of greater than 15 years.

In order to measure internal consistency of the instrument, Cronbach alpha was applied, which gave a reliability coefficient of α = 0.882. This indicates that the instrument was 88.2% reliable. Data collected from the questionnaire administrated were edited and checked severally for eligibility, accuracy, completeness and in uniformity with the purpose of the study. The results of the study were presented in tables. The hypotheses of the study were tested using inferential statistic of one-way ANOVA and correlation matrix at 5% significant level.

3.4 Model Specification

This study adopted the one-way, or single factor ANOVA.Under this method, the *F-test* was used for comparing the factors of the total deviation. The statistical significance was tested for by comparing the F test statistic thus:

$$F=\frac{Variance\ between\ treatments}{Variance\ within\ treatments}=\frac{MStreatment}{MSerror} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\_(1)$$

$$=\frac{SStreatment\ (I-1)}{\frac{SSerror}{nt-1}} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots....(2)$$

where

MS = mean square,

I = number of treatments and n_t= total number of cases to the F-distribution with I-1, n_t , degrees of freedom. Using the *F*-distribution is a natural candidate as the test statistic is the ratio of two scaled sums of squares. Each of them follows a scaled chi-squared distribution. The expected value of F is I + σ^2treatment/σ^2 error (where n is the treatment sample size) which is 1 for no treatment effect. As the values of F increase beyond 1, the evidence is increasingly inconsistent with the null hypothesis. F is increased by increasing the sample size and reducing the error variance by tight experimental controls.

This research employed one of the two methods of concluding the ANOVA hypothesis test-the computer method. The computer method calculates the probability (p-value) of a value of F greater than or equal to the observed value. The null hypothesis is rejected if this probability is less than or equal to the significance level. The ANOVA *F*-test is considered to be nearly optimal for the fact that it minimizes false negative errors for a fixed rate of false positive errors (i.e. maximizing power for a fixed significance level). According to Hinkelmann and Kempthorne (2008), the approximation is particularly close when the design is balanced.

4. Results and discussion

4.1Descriptive Analysis

This section deals with the presentation of results obtained from the field study. The results were presented based on the specific objectives of the study.

Objective (i): To determine the effect of project portfolio management on the product quality of Aqua Rapha Investment Nigeria Limited

Table 1:

Options	SA Freq(%)	A Freq(%)	U Freq(%)	D Freq(%)	SD Freq(%)	Mean	Std
Management have always invested on products that are highly qualitative as a result of their practice of PPM.	12(42.9)	9(32.1)	3(10.7)	3(10.7)	1(3.6)	4.0	1.15
The practice of PPM has compelled Management to always direct production on fast consumable products	10(35.7)	12(42.9)	2(7.1)	1(3.6)	3(10.7)	3.89	1.26
Management have always directed production on products that competes favorably with its imported substitutes in terms of quality and affordability.	15(53.6)	4(14.3)	3(10.7)	3(10.7)	3(10.7)	3.89	1.47

Source: Field survey, 2020

Table 1 shows the participants' responses towards determining the effect of portfolio management on the quality of the products of Aqua Rapha Investment Enugu. The result revealed that 12(42.9%) of the participants strongly agree that management have always invested

on products that are qualitative as a result of their practice of PPM. 9(32.1%) agreed while 3(10.7%) are undecided. However, 3(10.7%) disagreed and also 1(3.6%) strongly disagree. The inference that management have always invested on products that are highly qualitative as a result of their practice of PPM is therefore accepted with a mean and standard deviation of 4.0 and ± 1.15 respectively. Also 10(35.7%) strongly agreed that the practice of PPM has compelled Management of Aqua Rapha investment Company Ltd to always direct production on fast consumable products and 12(42.9%) agreed. Meanwhile, 2(7.1%) of the participants are undecided; 1(3.6%) disagreed while 3(10.7%) of the respondents strongly disagreed. The practice of PPM has compelled Management to always direct production on fast consumable products is accepted with a mean and standard deviation score of 3.89 and ± 1.26 respectively. Similarly, 15(53.6%) of the participants and 4(14.3%) strongly agreed and agreed respectively that. the management have always directed production on products that compete favorably with its imported substitutes while only 3(10.7%) were undecided. 3(10.7%) of the respondents and 3(10.7%) disagreed and strongly disagreed respectively that the Management have always directed production on products that competes favorably with its imported substitutes. With a mean and standard deviation score of 3.89 and ± 1.47 respectively, the assertion that the Management have always directed production on products that competes favorably with its imported substitutes is accepted.

Objective (ii): To ascertain the effect of project portfolio management on product costing in Aqua Rapha Investment Nigeria Limited

Table 2

Options	SA Freq(%)	A Freq(%)	U Freq(%)	D Freq(%)	SD Freq(%)	Mean	Std
The practice of the principles of PPM makes the Management to always ensure that the costs of its' products competes favorably with those of their substitutes in the market	13(46.4)	9(32.1)	2(7.1)	-	4(14.3)	3.96	1.37
Management have always ensured that its' products are properly branded	6(21.4)	15(53.6)	3(10.7)	3(10.7)	1(3.6)	3.78	1.03
Management have always ensured that its' products are well packaged	17(60.7)	1(3.6)	3(10.7)	3(10.7)	4(14.3)	3.85	1.58

Source: Field survey, 2020

Table 2 shows the respondents responses towards ascertaining the effect of portfolio management on product costing in Aqua Rapha Investment, Enugu. Above average 13(46.4%) and 9(32.1%) of the respondents strongly agreed and agreed respectively that the practice of the

principles of PPM makes the management to always ensure that the costs of its' products compete favorably with those of their substitutes in the market. However, 2(7.1%) are undecided meanwhile none of the respondents disagreed while 4(14.3%) strongly disagreed. The result of the study shows that the practice of the principles of PPM makes the management to always ensure that the costs of its' products compete favorably with those of their substitutes in the market with a mean score of 3.96 and $\pm$ 1.37. The study also shows that 6(21.4%) and 15(53.6%) strongly agreed and agreed respectively that the Management have always ensured that its' products are properly branded, while 3(10.7%) are undecided. On the contrary, 3(10.7%) and 1(3.6%) of respondents agreed as well as strongly disagreed respectively. This result indicates that the Management have always ensured that their company's products are properly branded with a mean and standard deviation of 3.78 and $\pm$ 1.03 respectively. In addition, the result of the study identified that 17(60.7%) strongly agreed and 1(3.6%) agree that the management have always ensured that its' products are well packaged. Only 3(10.7%) of the respondents were undecided. Meanwhile 3(10.7%) and 4(14.3%) disagreed as well as strongly disagreed. With the mean and standard deviation score of 3.85 and $\pm$ 1.58 respectively, it implies that the management have always ensured that its' products are well packaged. **Objective** (iii):To assess the effect of project portfolio management on stakeholder satisfaction with the products of Aqua Rapha Investment Nigeria Limited.

Table 3

Options	SA Freq(%)	A Freq(%)	U Freq(%)	D Freq(%)	SD Freq(%)	Mean	Std
Aqua Rapha Investment Nigeria Limited. Has been witnessing an increase in stakeholder satisfaction with its products.over the years.	6(21.4)	17(60.7)	3(10.7)	1(3.6)	1(3.6)	3.93	0.89
Aqua Rapha Investment Nigeria Limited.has continued to experience some increase in its volume of sales over the years.	16(57.1)	7(25.0)	1(3.6)	1(3.6)	3(10.7)	4.14	1.32
Aqua Rapha Investment Nigeria Limited. has continued to witness an increase in its' annual profits over the years as a result of the practice of the PPM principles.	10(35.7)	11(39.3)	3(10.7)	3(10.7)	1(3.6)	3.93	1.12

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Source: Field survey, 2020

Table 3 shows the participants responses towards the assessment of the effect of portfolio management on stakeholder satisfaction with the products of Aqua Rapha Investment Nigeria Limited.

About 6(21.4%) of the participants strongly agreed that Aqua Rapha Investment Nigeria Limited has been witnessing an increase in stakeholder satisfaction with its products. over the years,

while 17(60.7%) agreed and 3(10.7%) are undecided. Meanwhile 1(3.6%) disagreed and only 1(3.6%) strongly disagreed. These findings imply that the company has witnessed an increase in stakeholder satisfaction with its products over the years with the mean and standard deviation score of 3.93 and $\pm$ 0.89 respectively.

Similarly the result shows that 16(57.1%) strongly agreed that Aqua Rapha Investment Nigeria Limited has continued to experience some increase in its volume of sales over the years while 7(25.0%) agreed while 1(3.6%) of the participants are undecided with 1(3.6%) disagreeing and 3(10.7%) strongly disagreeing. Going by the findings, Aqua Rapha Investment Nigeria Limited has continued to experience some increase in its volume of sales over the years with the mean and standard deviation score of 4.14 and $\pm$ 1.32 respectively. In addition, the study revealed that 10(35.7%) of the respondents strongly agreed that Aqua Rapha Investment Nigeria Limited. has continued to witness an increase in its' annual profits over the years as a result of the practice of the PPM principles. Also 11(39.3%) agreed and 3(10.7%) are undecided. The result also identified that 3(10.7%) of the participants disagreed and 1(3.6%) strongly disagreed. With a mean and standard deviation of 3.93 and +1.12 respectively, it therefore implies that Aqua-Rapha Investment Nigeria Limited has continued to witness an increase in its' annual profits over the years as a result of the practice of the PPM principles.

4.2 Test of Hypotheses

The three hypotheses of this study were tested with one-way analysis of variance (ANOVA) and some other test statistics, using the software of Statistical Package for Social Sciences (SPSS 24 version). ANOVA is a collection of statistical models and their associated estimation procedures (such as the variation among and between groups) used to analyze the differences among means. Our model involves various parameters: μ, σ, the μi's, and the τi's. Our purpose in doing an experiment is to estimate or compare some of these parameters (and sometimes certain functions of these parameters) using our data. According to Anderson, Sweeney and Williams (1996), the ANOVA has been studied from several approaches. However, this work employed the most common approach that uses a linear model. The linear model relates the response to the treatments and blocks. The analysis of variance was presented here in the form of a linear model which makes the probability distribution of the responses:

(i) Independent of observations – this is an assumption of the model that simplifies the statistical analysis,
(ii) Normality – the distributions of the residuals are normal,
(iii) Equality or "homogeneity" of variances, called homoscedasticity. Homogeneity of variance implies that the variance of the data in groups should remain the same.

These separate assumptions imply that the errors are independently, identically, and normally distributed for fixed effects models.

Decision Rule: The F-statistic calculated here is compared with the F-critical value for making a conclusion. In each case, if the value of the calculated F-statistic is more than the F-critical value (for 5 percent significance level), then we reject the null hypothesis and can say that the effect is significant. Otherwise, we say that the effect is non-significant/weak

H_{01} Project portfolio management has no significant effect on the product quality of Aqua-Rapha Investment Nigeria Limited

Table 4
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.738[a]	.545	.543	.65755	.546

Source: *SPSS Version 24*
a. Predictors: (Constant), Portfolio Management
b. Dependent Variable: Security of Principal Investment

Table 5: ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	134.454	1	134.454	310.967	.000[b]
	Residual	112.417	260	.432		
	Total	246.870	261			

Source: *SPSS Version 24*
a. Dependent Variable: Security of Principal Investment
b. Predictors: (Constant), Portfolio Management

Table 6: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.002	.109		.015	.988
	Portfolio Management	.531	.030	.738	17.634	.000

Source: *SPSS Version 24*
a. Dependent Variable: Security of Principal Investment

Result Summary

R = .738
R^2 = .545
F = 310.967
T = 17.634
DW = .546

Interpretation of the Result

A linear regression analysis conducted to ascertain the effect of portfolio management on the product quality of Aqua- Rapha Investment Nigeria Limited

(table 4 to 6) shows that there is strong positive relationship between portfolio management and the product quality of Aqua- Rapha Investment Nigeria Limited (R- coefficient = .738). The R squared, the coefficient of determination, shows that 54.5% of the variation in the product quality of Aqua- Rapha Investment Nigeria Limited is explained by project portfolio management with no autocorrelation (Durbin-Watson figure of .546 is less than 2). Given the linear regression model, the error of estimate is low as it has a value of approximately .65755. The regression sum of squares which is 134.454 is more than the residual sum of squares of 112.417, indicating that the variation is due to chance. The F-statistics is 310.967.This shows that the model is significant. The extent to which project portfolio management affects the product quality of Aqua- Rapha Investment Nigeria Limited is .738 value indicates a positive significance of the effect of project portfolio management on the product quality of Aqua- Rapha Investment Nigeria Limited.
which is statistically significant (with t = 17.634) and p = .000 < 0.05. Consequently, the null hypothesis is rejected and the alternate hypothesis accepted .

Hypothesis Two

H_{02}: Project portfolio management has no significant effect on project costing in Aqua Rapha Investment Nigeria Limited.

Table 7: Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.899[a]	.809	.808	.49152	.621

Source: *SPSS Version 24*

a. Predictors: (Constant), Project portfolio management

b. Dependent Variable: Product Marketability

Table 8: ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	265.661	1	265.661	1099.647	.000[b]
	Residual	62.813	260	.242		
	Total	328.473	261			

Source: *SPSS Version 24*

a. Dependent Variable: Product Marketability

b. Predictors: (Constant), Project portfolio management

Table 9: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.025	.070		-.349	.727
	Project portfolio management	.999	.030	.899	33.161	.000

Source: *SPSS Version 24*

a. Dependent Variable: Product Marketability

Result Summary

R = .899

R^2 = .809

F = 1099.647

T = 33.161

DW = .621

Interpretation of the Result

A linear regression analysis conducted to ascertain the effect of project portfolio management on product costing in Aqua Rapha Investment Nigeria Limited

(table 7 to 9) shows that there is strong positive relationship between project portfolio management and product costing (R- coefficient = .899). The R square, the coefficient of determination, shows that 80.9% of the variation product costing can be explained by project portfolio management with no autocorrelation as Durbin-Watson (.621) is less than 2. With the linear regression model, the error of estimate is low, with a value of approximately .49152. The regression sum of the squares of 265.661 is more than the residual sum of the squares of 62.813. This indicates that the variation is due to chance. The F-statistics = 1099.647. This shows that the model is significant. The extent to which project portfolio management affects product costing with .899 value indicates a positive significant effect of project portfolio management on product costing in Aqua Rapha Investment Nigeria Limited. It is statistically significant (with t = 33.161) and p- value = .000 < 0.05. Consequently, the null hypothesis is rejected and the alternate hypothesis is accepted accordingly.

Hypothesis Three

H_{03}: Project portfolio management has no significant effect on stakeholder satisfaction with the products of Aqua Rapha Investment Nigeria Limited.

Table10: Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.730[a]	.533	.531	.33869	.450

Source: *SPSS Version 24*

a. Predictors: (Constant), portfolio management

b. Dependent Variable: capital growth of Aqua Rapha Investment, Enugu

Table 11: ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	33.991	1	33.991	296.311	.000[b]
	Residual	29.826	260	.115		
	Total	63.817	261			

Source: *SPSS Version 24*

a. Dependent Variable: capital growth of Aqua Rapha Investment, Enugu

b. Predictors: (Constant), portfolio management

Table 12:Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.447	.060		7.423	.000
	Portfolio management	.590	.034	.730	17.214	.000

Source: *SPSS Version 24*

a. Dependent Variable: capital growth of Aqua Rapha Investment, Enugu

Result Summary

R = .730

R^2 = .533

F = 296.311

T = 17.214

DW = .450

Interpretation of the Result

A linear regression analysis conducted to ascertain the effect of portfolio management on stakeholder satisfaction with the products of Aqua Rapha Investment Nigeria Limited Enugu (table 10 to 12) shows that there is strong positive relationship between project portfolio management and stakeholder satisfaction with the products of Aqua Rapha Investment Nigeria Limited (R- coefficient = .730). The R squared, the coefficient of determination, shows that 53.3% of the variation in stakeholder satisfaction with the products of Aqua Rapha Investment Nigeria Limited can be explained by project portfolio management with no autocorrelation as Durbin-Watson (.450) is less than 2. With the linear regression model, the error of estimate is low, with a value of about .034. The regression sum of the squares of 33.991 is more than the residual sum of the squares of 29.826, indicating that the variation is due to chance. The F-statistics = 296.311. This shows that the model is significant. The extent to which project portfolio management affects stakeholder satisfaction with the products of Aqua Rapha Investment Nigeria Limited with .730 value indicates a positive significant effect of project portfolio management on stakeholder satisfaction with the products of Aqua Rapha Investment Nigeria Limited. It is statistically significant (with t = 17.214) and p-value = .000 < 0.05. Consequently, the null hypothesis is rejected and the alternate hypothesis is accepted accordingly.

4.3 Discussion of Findings

As a strategic means of dealing with many projects, project portfolio management is known for elevating efficiency and effectiveness. Project portfolio management was discovered to have a substantial effect on the safety of main investment in Aqua Rapha Investment Nigeria Limited in the research. Nowadays, companies are managing many initiatives, including asset purchases and other kinds of investment. The financial abilities of this entity are worrisome, as they imply that the entity will be able to commit financial fraud on the company. However, management will be able to prevent this danger by actively overseeing the project portfolio. The study done by Doloi and Baradari (2013) also discovered that a well-organized project portfolio will have a positive impact on the project's success. Reports showed that better project success rates come with an increase in the maturity level of project portfolio management.

5.Conclusion and Recommendations

The aim of this study was to determine the effect of project portfolio management on project success, using Aqua Rapha Investment Nigeria Limited as a case study. It concludes that project portfolio management affects company success significantly in Nigeria. The rise of diverse management techniques internationally has led to a permanent role for effective administration of projects in all organization management teams. The managers are actively searching for ways to remain successful, and they have developed new items and services to be presented to the end consumers. Also, businesses are busy becoming involved in various investments, some of which need large financial outlay. The investor may be confident knowing that project portfolio management will ensure that their invested cash is safe. Overall, contemporary companies have been pressured to find ways to keep themselves viable. Some experts believe that it is time to give up on traditional strategies that are focused on the outcome alone. This implies that project portfolio management has to be adopted as a way to succeed.

This study recommends that the organizational capability should

(1) form and govern a project portfolio such that the portfolio aligns with the organization's strategic direction, addresses risks and opportunities.

(2) The portfolio should become adaptive to the internal and external changes in order to provide short and long term value or benefits to the organization, and

(3) The projects in the portfolio should be managed to promote transparency, process consistency, visibility and predictability. In addition, the projects ought to be managed to promote integrity, cohesion, and morale of the project management community. A potential limitation of the study is related to the fact that data were collected from only one company. Even though this organization was a market leader in its market and the informants had a high level of expertise and experience in PPM, more benefit are likely to be reaped if future research should gather evidence in many more companies.

References

Akinwale, S. O. & Abiola, R. O. (2007). A conceptual model of asset portfolio decision making: a case study in a developing economy. *African Journal of Business Management 1* (7), 192-200. Available at http://www.academicjournals.org/ajbm

Akrani, G. (2011). What is portfolio management? meaning and objectives. Kalyan City Life. Accessed from

http://kalyancity.blogspot.com.ng/2011/10/whatisportfoliomanagementmeaninghtml on 4/4/2017. Available online at www.sciencedirect.com

Balogun, I. O. (2013). Portfolio Management: An appraisal of insurance industry's investment profile under interest rate deregulation in Nigeria (1985 – 2007). *International Journal of Business and Social Science Vol. 4,* No. 11. Available at www.ijbssnet.com

Bannerman, P. L. (2008). Defining project success: a multilevel framework. Paper presented at PMI Research Conference: Defining the Future of Project Management, Warsaw, Poland. Newtown Square, PA: Project Management Institute.

Blichfeldt, B.S., Eskerod, P. (2008). Project Portfolio Management. There's more to it than what management enacts. *International Journal of Project Management*, (26), 357-365.

Blomquist, T., & Müller, R. (2006). Practices, roles, and responsibilities of middle managers in program and portfolio management. *Project Management Journal*, *37*(1), 52–66.

Cooke-Davies, T., Cicmil, S., Crawford, L., & Richardson, K. (2007). We're not in Kansas anymore, Toto: Mapping the strange landscape of complexity theory, and its relationship to project management. *Project Management Journal*, *38*(2), 50–

Crawford, L., Hobbs, J.B.& Turner, J.R. (2006). Aligning capability with strategy: categorizing projects to do the right projects and to do them right. *Project Management Journal; 37*:38–50.

Creswell, J.W., & Plano, V.L. (2011). *Designing and conducting mixed methods research*, 2nd ed. Thousand Oaks. California: Sage.

Doorasamy, M. (2015). Product portfolio management: an important business strategy. *Foundations of Management, Vol. 7*. DOI: 10.1515/fman-2015-0023

Dye, L & Pennypacker, J. (2000). Project portfolio management and managing multiple projects: two sides of the same coin? *In Proceedings of the Project Management Institute Annual Seminars & Symposium. Project Management Institute, Houston, Texas, 2000.*

Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of Management Review, 14*(4), 532–550.

Elonen, S., & Artto, K. A. (2003). Problems in managing internal development projects in multi-project environments. *International Journal of Project Management*, *21*(6), 395-402.

Hemanta,D.(2013).Impact Of Applying Project Portfolio Management On Project Success Retrievedfromhttps://www.researchgate.net/publication/257946479_Impact_Of_Applying_Project_Portfolio_Management_On_Project_Success

Hadjinicolaou,N. & Dumrak,J.(2017).Investigating Association of Benefits and Barriers in Project Portfolio Management to Project Success. *Procedia Engineering 182, 274 – 281* 7th International Conference on Engineering, Project, and Production Management, Global Project Management, Torrens University Australia, Wakefield Street, Adelaide, South Australia 5000, Australia.

Hinkelmann and Kempthorne (2008), Volume 1, Section 6.7: Completely randomized design; CRD with unequal numbers of replications)

Hyväri, I. (2014). Project portfolio management in a company strategy implementation, a case study. *Procedia - Social and Behavioral Sciences 119*, pp. 229 – 236.

Itegi, F. M. (2015). Improving organization performance: Project management approach sustainable development in face of globalization. *Journal of Entrepreneurship & Organization Management.* DOI:10.4172/2169-026X.1000155

Jonas, D. (2010). Empowering project portfolio managers: How management involvement impacts project portfolio management performance. *International Journal of Project Management 28,* pp. 818–831

Jugend, D and Sérgio Luis da Silva, S. L. (2013). Product portfolio management: A framework based on methods, organization, and strategy. *Concurrent Engineering.* Available at http://journals.sagepub.com/doi/pdf/10.1177/1063293X13508660

Killen, C. P., Hunt, R. A., Kleinschmidt, E. J. (2008). Project portfolio management for product innovation. *International Journal of Quality & Reliability Management, Vol. 25*, Issue 1, pp. 24-38.DOI:10.1108/02656710810843559http://dx.doi.org/10.1108/02656710810843559

Klein M (2006). Powerful Project Management: A Balanced Blend of Art

Kohi, A. (2011). Portfolio management: roles, responsibilities and practices - A qualitative study. 8th Annual Project Management Australia conference (PMOz): Project management at the speed of light. Sydney, Australia. Available at http://epublications.bond.edu.au/sustainable_development/121

Lichtenthaler, U. (2014). Innovation portfolio management: enhancing new product performance. *Performance, Volume 6,* Issue 4. Available at ey.com/performance

Likert, R. (1961). *New patterns of management.* New York, NY: McGraw-Hill.

Markowitz, H. M. (1991). Foundations of portfolio theory. *The journal of finance*, *46*(2), 469-477.

Martinsuo, M., & Lehtonen, P. (2007). Role of single-project management in achieving portfolio management efficiency. *International Journal of Project Management*, *25*(1), 56–65.

Meredith, J.R, & Mantel, S.J. (1995). Project management-A managerial

Meskendahl, S. (2010). The influence of business strategy on project portfolio management and its success—a conceptual framework. *International Journal of Project Management*, *28*(8), 807-817.

Morello, R. (2017). What is product marketability? *Business & Entrepreneurship.* Available at http://yourbusiness.azcentral.com/productmarketability13088.html

Müller, R., Martinsuo, M., and Blomquist, T. (2008). Project portfolio control and portfolio management performance in different contexts. *Project Management journal.* Available at http: //www. pmi . org/l earni ng/l i brary?topi cs=Portfol i o+Management

Ogohi,C. D.(2019). Effect of Project Management on the Performance of Selected Construction Firms in Nigeria, *Journal of Research in Business and Management 7 (*2), 08-13ISSN(Online): 2347-3002www.questjournals.org

Okechukwu, E. U., & Egbo, D. E. (2017). Effect of Project Portfolio Management on the Performance of Business Organizations in Enugu Nigeria. *International Journal of Academic Research in Business and Social Sciences*, *7*(9), 591–604.

Pallant J. (2013). *SPSS survival manual*. 5th ed. Crows Nest. New South Wales: Allen & Unwin

Patanakul, P., Curtis, A., & Koppel, B. (2012). What is effectiveness in project portfolio management? Paper presented at PMI® Research and Education Conference, Limerick, Munster, Ireland. Newtown Square, PA: Project Management Institute.

PMI (2013). PMI's pulse of the profession in-depth report: the impact of PMOs on strategy implementation. Newtown Square, Pennsylvania: Project Management Institute;

Rajeshwar, V. (2018). An Intelligent Project Portfolio Management System Approach to Enhance Project Maturity, Performance and Success Rate California Intercontinental University

Sadiq, G, A., Salisu, G. D.&Yuting,W. (2018). Factors shaping project portfolio management in the Nigeria's built environment, International *Journal of Economics, Commerce and Management*, 6 (3), 513-533

Skyttner, L. (1996). General systems theory: Origin and hallmarks. *Kybernetes Academic Research Library*, *25*(6), 16.

Stewart, R., & Mohamed, S. (2002). IT/IS projects selection using multi-criteria utility theory. *Logistics Information Management*, *15*(4), 254-270.

Udechukwu, O.,Yacoub,P., Alasdaire, M.&Terrry, W. (2021).The impact of project portfolio management practices on the relationship between organizational ambidexterity and project performance success, 26 Apr Retrieved fromhttps://www.tandfonline.com/doi/abs/10.1080/09537287.2021.1909168?journalCode=tppc20

Waldo, D. (1978). Organization Theory: Revisiting the Elephant. *Public Administration Review* 38(November/December). p. 597

Yin, R. (1984). *Case study research: Design and methods.* Thousand Oaks, CA: Sage Publications.