ROLE OF SINGLE-PROJECT MANAGEMENT ON THE EFFICIENCY OF PORTFOLIO MANAGEMENT IN GEOTHERMAL DEVELOPMENT COMPANY IN NAIROBI COUNTY, KENYA

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ABSTRACT

Most companies in the modern times struggle with the sub-optimization and modifications in their projects, even though good practices have already been unveiled for project portfolio management (PPM). PPM is increasingly adopted by most project based organization such as geothermal development company in order to optimize investment by utilizing a project portfolio management governance structure to address constant change and focus on accomplishment of organization strategy. The enhanced usage of sole projects as a way to deliver products and services has resulted in adoption of PPM as the governance method. Nevertheless, there are many managerial problems associated with single projects in efficiency of PPM which has been identified as limited resources, insufficient project activities, absence of management support, competencies and methods, delayed government funding, ambiguous roles and responsibilities, limited portfolio activities, inadequate management of project orientation as well as inadequate communication management regarding projects. The main aim of the study was to examine the role of single-project management on efficiency of portfolio management in geothermal development company Nairobi. The specific objectives were to determine the level in which projects clearly specified goals for single projects affect success of portfolio management, to establish how availability of information of single projects for decision makers affect success of portfolio management. In addition, to assess the effect of systematic decision making of single projects management on portfolio management success, as well as to determine how project management efficiency affect success of portfolio management at GDC Nairobi branch. The study used descriptive research design to determine the role of single project management in efficiency of portfolio management at GDC Nairobi branch. The study targeted population was 124 persons working in GDC Nairobi branch. The targeted population was project management team, comprising of top, middle level management and operational staff excluding the lower cadre employees who could not give relevant information regarding the topic of study. Stratified random sampling was used to draw a sample size of 74 respondents. The researcher administered questionnaires to selected respondents, which was on 5-point Likert scale addressing the objectives of the study. Statistical Package for Social Science (SPSS) was used for analyses of the collected data where frequency tables, charts, and bar graphs were developed. The regression and correlation analysis proved that there was significant relationship between single projects management factors with portfolio management efficiency at GDC Nairobi. Inferential statistics were done using Pearson correlation coefficient to show correlation between dependent and independent variables and results of the computation revealed that: Project clearly specified goals availability of information and project management efficiency was Significant at 0.05 significance level. However it was found that there isn't a significant relationship between systematic decision making and portfolio management efficiency. The findings implied that understanding of portfolio level issues needs to be considered as part

of project managers' capabilities and not only a top management concern. The study concluded that the more active the single-project management, the stronger the positive relationship with portfolio management efficiency and vice versa. The study recommends that management of GDC needs to pay more attention to how they build linkages between single-project management capabilities and portfolio management efficiency in practice. Strong governance improves efficiency of portfolio project management and aligns communications and strategies across business units. Further research is needed to be explored on other areas other than GDC in order to generalize the results and make it more applicable in the Kenyan sector. Further study to be done to find out other factors that explain the variance and to determine whether portfolio management practices will explain the remaining variance in portfolio management efficiency.

Key Words: *project management, implementation, public projects, technical, industrial, vocational, entrepreneurship, training institutes, Nairobi County, Kenya*

INTRODUCTION

Globally, companies are struggling to find a way to stay ahead in embracing project management to give consistently business results (PWC, 2010). Previously, project management mainly emphasized on provision of resource data and schedule to top management in a couple of industries like the construction and military industries (Krahn, 2006). Project management requires far more than this task. In most industries, projects are managed by incorporating new technologies as key business factor, in addition to usage of global and interdisciplinary work teams, which has substantially transformed the work environment (PMI, 2012)

Virtually all establishments encounter dynamic environment characterized by reducing product life cycle, globalization and rapid technological change (Lale and Arzu, 2007). Organizations particularly those that are technologically driven, have to be more innovative and creative than ever before to grow, compete, survive, and to lead in current global recession (Keith, 2003). The ingenuity in resource allocation, prioritizing, as well as having the all right criteria for project selection, is a vital aspect in the existing projectized organizations.

The struggle for many businesses gearing up for growth has imposed challenges as inadequate portfolio management (PM) practices and resources hobble many. Project portfolio is a list of projects executed by the management or sponsorship of an organization that tend not only to share but also to compete for similar resources (Archer and Ghasemzadeh 1999; Krahn 2006; PMI, 2007 and PWC, 2012). Portfolio management is considered the key to disciplined single project management where strategic vision drives initial investments and where measures are established (Cooper et al., 1997; Wong 2008; PWC, 2012). It is considered a dynamic decision process where a list of active projects is constantly updated and revised.

Portfolio Management

PWC (2012) indicates that single project program and portfolio management strategy features the entire organization, dictating project execution at each stage, seeking to provide values at every phase along the way. Project portfolio management has been developed into practical tool books (Cooper et al., 2001; Benko and McFarlan, 2003) as well as global standards (PMI, 2008), which are anticipated to support companies in organizing and implementing their own project portfolio management. Organizations have implemented project portfolio management guidelines such as project evaluation and control programs (Mulleret al., 2008), project evaluation and decision criteria (Martinsuo and Poskela, 2011), alongside other ways to formalize their project portfolio management (Teller et al., 2012).

In Kenya, study by PMI (2010) observed that organizations that succeed at portfolio management usually have timely execution of projects and within budget, resulting in a higher Return on Investment (ROI). In fact, according to Aberdeen, companies with an effective portfolio management program can realize as much as 25 percent growth in revenue from new products as compared to their less effective rivals. These effective companies usually improve project return on investment by up to 28 % (PWC, 2012).

Project management usually refers to project, program, and portfolio management. The truth is, more organizations are evidently realizing the benefit of investing time, resources and money to develop organizational project management expertise: greater competitive edge increased efficiencies, lower costs, and improved stakeholder and customer satisfaction. Project portfolio management literature promotes evaluation, prioritization, and selection of projects based on strategy (Hall and Nauda, 1990; Hansen et al 1999; Spradlin and Kutoloski, 1999). As per the principles of portfolio management, company resources need to be assigned to projects in line with the strategy (Cooper and Edgett, 2003). In addition, the development processes should consider the existence of various projects as well as their distinct requirements (Loch, 2000). Furthermore, portfolio (or multi-project) management calls for sharing of platforms, resources, or components among several projects during execution (Bloomquist and Muller, 2006). Most of the portfolio management studies are generally prospective, i.e. they propose strategies for project portfolio management. However, the effectiveness of the proposed project portfolio management has, at this point, been a rare topic of study.

Single Project Management

A project is a short-term undertaking aimed at creating a distinct result, service, or product (PMI, 2008). Conversely, project management entails the application of skills, knowledge, techniques, and tools to project activities to fulfill the project specifications (PMI, 2012). Project managers should strive to meet specified scope, cost, time, and quality requirements of projects, in addition to facilitating the whole process to satisfy the expectations and needs of the people affected or involved in by project activities.

Many organizations and individuals nowadays have a new or renewed interest in project management. Previously, project management principally centered on offering schedule and resource data to high level management in only a couple of industries, for example the construction industries and military. Modern day project management entails a lot more, and individuals in every industry and country manage projects. New technologies have grown to be an important factor in many organizations, and the use of interdisciplinary and global work teams has substantially transformed the work environment (PWC, 2004).

Geothermal Development Company

The hunt for geothermal energy is not new in Kenya, it started way back in 1957. But this has up to now produced 210 MW against an enormous potential projected at 10,000MW. Apparently, the pace of harnessing geothermal power was very slow necessitating the creation of GDC to fast track harnessing of geothermal energy so as to achieve the country's development agenda, more so industrialization which requires a reliable power supply. In Kenya, the pursuit of reliable, clean and most importantly affordable energy has for decades been elusive. Due to slow pace at which geothermal resources were being harnessed, Geothermal Development Company (GDC) was created as a way to Fast track the development of this reliable, indigenous, and clean source of energy. GDC was created in December and commenced its operations in 2009 following the recruitment of management staff.

Kenya's gross domestic product is projected to grow by around 7 % from 2012. According to Vision 2030 economic blueprint, Kenya aims at becoming a middle-income economy. To achieve this, reliable energy is a key pillar where the government aims at generating 5000MW from geothermal resources. Currently, Kenya has a total effective installed capacity of 2300 MW. With enormous potential for geothermal energy that still remains untapped, the government has recognized its suitability as a source of electricity. Consequently, GDC is expected to drill over 1,400 steam wells to generate of 5,000MW of geothermal power by year 2030.

A study by Martinsuo and Lehtonen (2007) showed that effective single project management is essential, although not an adequate condition for effective project portfolio management. Cooper et al. (2002) proposed that the assessment of a single project and portfolio efficiency can be categorised into the following distinct dimensions: the mean single project success of the portfolio in connection with fulfillment of budget, time, customer satisfaction objectives, and quality, in addition to the use of synergies between projects within the portfolio, which covers the interdependences between projects and portfolio's overall fit with the firm's business strategy, and finally the portfolio's balance which is considered to be the major dimension on project portfolio success.

A significant correlation between portfolio management efficiency and single project management has been proposed. Holistically, strategy and practices dependent on portfolio strategies show that portfolio-level decisions ought to be implemented either through the development process or at a single-project level. Similarly, study by Bloomquist and Muller

(2006), sort to determined factors in single project - multi-project interface relevant to the success of a portfolio. Cooper and Edgett, (2003), carried out a study associating the single-project to portfolio management strategies, to organization performance indicators, such as financial yield, knowledge of priorities, realization of strategy, and perceived efficiency. Therefore, the current research looks into the role of single project management on portfolio management efficiency at GDC company in Nairobi, Kenya.

STATEMENT OF THE PROBLEM

As majority of business gear up for growth and development, inadequate portfolio management practices and resources become a great threat and challenge. While some companies make huge investments on portfolios and programs that are not directly aligned to the strategic corporate objectives, others find it hard to balance risk with the opportunities necessary to accomplish the set goals (Ugwa and Haupt, 2007). In fact, majority struggle to effectively examine their portfolio's performance, but still have to continuously rationalize funding requests for both the existing and new projects (Martinsuo and Lehtonen, 2007). At GDC, projects are allocated funds and report shows that their asset growth is worth Kshs 64 Billion. In order for GDC to reach an optimum level of income they have to drill 69 wells that generate instant income of Kshs 3 billion per month (Musa, 2012, GDC report, 2013). This has not been achieved, in the financial year 2014/2015 the company was only able to drill 40 wells, which was below the expectations with low income of Kshs 1.5 billion per month (GDC AGM report, 2015). In the year 2014, the national treasury allocated GDC Kshs 28.6 billion to accelerate geothermal power generation. However, the wells drilled did not contribute power to the national grid even after spending the Kshs 28.6 billion (GDC annual report 2014). Although GDC expects to achieve GDP of 70 percent by drilling 100 wells for Kengen by year 2017, their Project Portfolio management still has several inefficiencies. The inefficiencies can be seen through delay in government fund which derails implementation of single projects, logistical challenges such as importation of rig machinery and too much reliance on consultants that have affected portfolio success (Igoki 2015). For the past few months, GDC has only been able to achieve 40 percent of revenue due to portfolio inefficiencies compared to the set target of 65 percent revenue should the portfolio management be effective (GDC report,2015).Technical delays such as profile and nature of soil are always unpredictable especially when drilling wells and has led to project uncertainties. It is clear that the failure of any project is mainly related to the problems and failure in portfolio efficiency (PWC, 2014). Despite the various studies done, there has been limited focus specifically on the role of single project management on efficiency of portfolio management. It is against this backdrop that the study aimed at evaluating the role of single-project management on efficiency of Portfolio management at Geothermal Development Company Nairobi County. From the financial reports it is clear that the government through treasury had committed a lot of resources in terms of finances to geothermal development company but despite the financial commitment full returns was not realized. The study therefore sought to establish the inefficiencies at the portfolio level within GDC.

GENERAL OBJECTIVE

Generally, this study examined the role of single project management on the efficiency of portfolio management in GDC Nairobi County, Kenya.

SPECIFIC OBJECTIVES

1. To determine the extent to which projects specified goals for single projects affect success of portfolio management at GDC Nairobi, Kenya.
2. To establish how availability of information on single projects for decision makers affect success of portfolio management at GDC Nairobi, Kenya.
3. To assess the effect of systematic decision making of single projects management on success of portfolio management efficiency at GDC Nairobi, Kenya.
4. To determine how project management efficiency affect success of portfolio management at GDC Nairobi, Kenya.

THEORETICAL REVIEW

Transaction Cost Theory

The study explains the linkage between project transactions and governance practices using the transaction cost theory (TCT). Portfolio management presents structures implemented to reduce the entire costs in converting "input" to "output" through projects. As reported by William (1985), the balance necessary in organizational governance system towards cutting down the cost to the organization is through economizing existing resources and scales e.g. portfolio management. Therefore, the link between Transaction costs economics (TCE) and corporate governance is portfolio management. Williamson's TCE states that distinct governance structures are crucial in different transaction forms. Therefore, extent at which an organization applies portfolio management as governance practices differ with the project type.

TCT / TCE has progressively turned into an key anchor for evaluation of a broad selection of organizational as well as strategic issues of substantial value to corporations (Madhok, 2002; Jones, 1998; Williamson, 1996; Ghoshal & Moran, 1996; Williamson, 1994). More specifically, the transaction cost theory is an important tool for assessing firms' boundaries, the rationale behind an acquisition, vertical integration decisions, the networks and other hybrid governance forms. This theory has widened its scope to international business and strategic management in explaining the way corporations internationalize, as well as the structural arrangements necessary to boost the likelihood of success. Essentially, it has been noted that transaction cost theory is the most predominant concept in organizational studies.

According to Joskow (1988), transaction cost economics mainly focuses on the definition of the determinants of coordination of the transactions through hierarchies or markets. Therefore, the boundaries of an organization are definitely a function of the governance

structure, particularly where this structure is considered an assurance of the optimal versatility of the organization to changes in demand and supply (Williamson, 2002, 2005; Holmström & Roberts, 1998). Besides the two extremes of transaction governance, which are markets vs hierarchies, TCE also emphasizes long-term contracts and other hybrid forms.

Governance structures can also vary with the level of complexity or uncertainty of a firm. Simon (1957), in his rationality argument, suggests that if transactions are carried out under complex or uncertain conditions, which is quite costly, perhaps one thing that becomes necessary is efficiency respects and alternative organizational modes (Crawford and Jane 2009). This theory is very relevant to the study in that the study also aims at evaluating how project clearly specified goal affect portfolio efficiency; this is more so elaborated in terms of resource allocation to projects. Portfolio efficiency can also be explained in terms of output that is in form of financial gain.

Resource Based Theory

The resource-based view (RBV) is probably the most cited and influential management theory. This appertains to the fundamental concept of the resource-based view, where the strategic value creation results if the organization ex ante develops or acquires a resource having ex post strategic value. The theory is designed to describe the internal sources of an organization's sustained competitive advantage (SCA) over other firms. The key idea behind this theory is the believe that for an organization is to attain a state of sustained competitive advantage, it needs not only to acquire but also control valuable, rare, inimitable, and non-substitutable (VRIN) resources. Other related analyses such as dynamic capabilities (Teece et al., 1997; Helfat & Peteraf, 2003), the knowledge-based view (KBV) (Grant, 1996b) and core competences (Hamel & Prahalad, 1994), have all shared this proposition.

The resource-based view is designed as a complementary to the industrial organization view (IOV), as advocated by Bain (1968) and Porter (1979, 1980, 1985). With more emphasis on the structure conduct-performance paradigm, the structure of industrial organization view places the factors of organization performance outside the organization. Contrary to this perspective, the resource based view primarily seeks for the internal sources of the sustained competitive advantage, with an aim to explain the performance difference among companies in similar industry. Consequently, the RBV is complimentary to IOV and not a replacement (Peteraf & Barney, 2003; Barney, 2002; Mahoney & Pandian, 1992). According to Kay, (2005), the RBV is a dominant business strategy since its founded on the idea of economic rent as well as its perspective of an organization as a collection of capabilities. In addition, it has a coherence and integrative role that puts it on top of other strategies.

According to Barney (1995), the RBV theory provides crucial and requisite information that explains the reasons behind superior performance by organizations with valuable, rare, inimitable, and well-organized resources. Its dominance is mirrored in numerous academic journals, as well as in its inclusion in prominent strategic texts, that justifies the conclusion that it is extensively covered by practitioners and students in executive, masters' or undergraduate programs. Building on the resource based view, Hoopes et al. (2003) proposes

an in-depth debate on sustained disparities among organizations and came up with the theory of competitive heterogeneity. The resource based view tends to assume that which it attempts to justify. Consequently, this waters down its explanatory power. For instance, it can be argued that the resource based view defines instead of hypothesizes, that consistent performance disparities are a consequence of variation in resources and capabilities across organizations. The distinction is subtle, nonetheless it frustrates comprehension of the RBV likely contributions (Hoopes et al., 2003). The RBV theory lacks clarity about its central concept as well as a clear boundary, impeding effective debate. Consequently, one can use the hypothesis-based or definition-based argument. Additionally, it can be argued that resources/ capabilities is just one probable source of competitive heterogeneity (Hoopes et al. 2003).

Competitive heterogeneity is a phrase used to describe systematic and enduring differences in performance among close competing firms. The resource based view employs internal organization characteristics to describe the firms' heterogeneity in performance and strategy. The resource based veiw concept cites capabilities and resources as two linked sources of advantages. Resources refers to the total accumulated assets in a firm, that is, anything that can be used to produce, offer, and/or create its products for a market. Resources meet the criteria pertaining to legal protection, thus the organization can run independently of organization members (Camisón, 2005); can exercise property rights over them (Amit and Schoemaker, 1993); as well as intervene as factors in the production process by converting input into output to meet needs (Grant, 1991).

According to this theory Geothermal Development Company utilizes a resource that is scares yet unique. The resource is scares in the sense that it is only available are some parts of the word and not others in Kenya the availability and exploitation is limited to the rift valley. According to Barney geothermal development companies should not be straggling in giving out desirable output since there is limited completion of resource. This theory will help in guiding the study in evaluating how project management efficiency based on right focus will lead to realization of the strategic goals and efficiency at the portfolio level.

EMPIRICAL REVIEW

Project Portfolio Efficiency

The key aspect of project portfolio management (PPM) is the coordination and control of various projects with similar strategic goals, that compete for the same resources. Consequently, the management need to prioritize amongst the competing projects to realize strategic benefits (Cooper et al., 1997a). Over the past decade, PPM has attained a stable and core position in companies' management practices, product development research, and project management research. Additionally, PPM has progressed to be the global standards (PMI, 2008), and also valuable tool books (Cooper et al., 2001; Benko and McFarlan, 2003), which are intended to support firms in organizing and implementing their own project portfolio management. Firms have incorporated PPM frameworks, for example project evaluation and

control routines (Müller et al., 2008), project evaluation and decision criteria (Martinsuo and Poskela, 2011), as well as other ways to formalize their PPM (Teller et al., 2012).

There is limited literature on Portfolio management efficiency. Having said so, indications of its concepts and relevance are apparent in both single-project management studies as well as in portfolio management studies. Portfolio management studies are in reference to the goals of the portfolio, in addition to the importance of aligning the projects with the set objectives (Dye and Pennypacker, 1999; Englund and Graham, 1999). Cooper et al. (1997) conducted an interview study on 35 firms established that the goal of PPM was either to optimize the portifolio value in respect to the firm's objectives, to attain a balance of projects with regards to strategically significant parameters, or to ensure the projects are in the right strategic direction. Therefore, the effectiveness of PPM can be assessed by determining the degree to which the portfolio meets its goals, that is, value maximization, balance across projects and strategic alignment (Meskendahl, 2010).

Numerous studies at single-project management perspective have revealed that expectations on project objectives and benefit are expanding towards the portfolio level. Similarly, project management studies have revealed an increasing link between single projects as well as to the wider business context (Artto et al., 2008; Artto and Dietrich, 2004; Englund and Graham, 1999). The important success criteria in projects as identified in various empirical studies include benefits to stakeholders and customer, performing organization and future, in addition to attaining of the dominantly used scope- cost-time goals (Munns and Bjeirmi, 1996; Dvir et al, 1998). Most of these expected benefits can be achieved on condition that multiple mutually supportive projects attain their objectives.

Despite the fact that numerous research on relationship between single-project and multi-project level performance has been conducted, all lack a holistic examination in the context of different types of projects and sectors. Although a multiple-case study by Fricke and Shenhar's (2000), illustrates the contribution of single-project level success factors at the portfolio level, this study is qualitative in nature, as well as restricted to engineering projects in manufacturing support environment. A Study by Cooper et al. (2004) was generally restricted to product development, and didn't particularly take into account single-project management. In fact, none of the identified single-project management studies have looked into how and whether the benefits had been achieved at the portfolio level. Prior research recommended further studies for a large sample size of diverse projects and companies (So¨derlund, 2004; Engwall, 2003; Artto and Wikstro¨m 2005), in effort to investigate the connection between portfolio management efficiency to single-project management.

Project Clearly Specified Goals and Portfolio Efficiency

Different authors have reviewed the need for stating clear goals at the beginning of the project. Zou et al. (2007) categorized the preliminary phase of project management as comprising of a feasibility decision. The key question to be addressed is: how clear are the objectives and what are the chances of success? A six-step execution process by Polat and Arditi (2005) starts with recommendations to state the plan as well as its goals. Therefore,

project mission refers to the situation where the project objectives are not only clear, but also well understood, by both the project team concerned as well as by other divisions in the firm. Fundamental themes of responses categorized into this factor include statements relating to clarification of objectives in addition to belief in the probability of project success.

The likelihood of success or failure of a project is highly dependent on Management support for projects or implementation. Jarkas, (2005) views project management as dependent not just on the top management for direction, support, and authority, but also undoubtedly on the avenue for implementing top management's targets or strategies, for the firm. A contingency model was developed by Ugwu and Haupt (2007), for an implementation approach that features personnel as the situational variable whose personalities, skills, goals, and knowledge have to be taken into account in determining the environment of the firm. Following such a analysis, then the project management team can confidently commence to set goals and design the execution strategy. In this model, Personnel, as a factor, is involved in setting up a project team having the required compitencies to accomplish their function. Additional, it is necessary to ascertain if the project management is committed toward the success of the project on the part of team members.

Makulsawatudom, and Sinthawanarong, (2004) asserts that prior to seeking top management support, it is necessary to first set the objectives or specify the mission along with advantages of the project. Moreover, it can be urged that unless discussion with the project's clientele has taken place at the beginning of the process, probability of future client approval and use, denoting successful execution, is going to be adversely impacted. Nevertheless, it is critical to keep in mind that in actual practice, substantial overlap and reversals may happen in the ordering of the various factors, and the sequencing as proposed in the framework is not absolute. Towards the termination phase of a project, the project tactics and strategy are of almost equal significance. It seems like through the entire project, initial goals and strategies keep "driving" the project tactics. This means that the strategy continually influences and shapes tactics (Iyer, and Jha, 2005). At no stage does strategy get insignificant to project success, whilst tactics increase in efforts to operationalize strategic demands. Actually, it's crucial at the initial stage that the project team members and the project team manager own the objectives of the project as well as the ways to accomplish those objectives. Increased awareness of the project targets by more project team members results in higher chances of their active participation in the monitoring and troubleshooting of the project, hence, the better the quality of those activities for the project implementation (Zou, Zhang, and Wang, 2007).

Availability of Information on Single Projects and Portfolio Efficiency

The available information Infrastructure offers valuable assistance to an organization towards implementation of new initiatives, procedures, and policies. Employ information technology to improve as well as maintain accountability and communication amongst the operational employees and managers during the entire change process, in addition to monitoring the execution and performance targets and their success. Technology plays a critical role on human development as well as in the execution of strategies. It is usually viewed as

procedures, products, instruments, processes, systems and knowledge, that aids in production of products and services (Petrovic, Kittl and Teksen 2001). It's the core of the programs created for understanding the customers' preferences and satisfaction. Technology can also be referred to as a set of methodologies, processes, or tools (such as programming/ coding, systems control, data conversion, storage and retrieval, systems analysis and design, data communications) and related tools used in information gathering, processing, and presentation.

Generally, information technology incorporates telecommunications, multimedia, and automation. Effective implementing of strategies requires integration and synchronization of personnel, financing, marketing, production processes and innovations. This way, the set objectives are accomplished. Business processes can be transformed by information technology through; boosting operational performance, cutting down costs, in addition to reshaping functionality of establishments in an online setting. Although having the appropriate software is a huge contributor to online success, it's also primarily dependent on strategic execution. It differentiates between a successful and unsuccessful launch, with a great impact on the final outcome with regards to functionality, usability and impact (Ochieng', 2011).

Strategic execution has the likelihood of reinventing business operations, allowing the company to operate more effectively and efficiently, as well as increasing revenues. According to Nigel and Slack (2003), execution could as well have an effect on the bottom line. The authors suggested that strategic implementation if well managed, could be a lead to enormous gains, arguing that an organization that is better in implementation than its competitors obtains new technology at what equates to a price cut. On the other hand, lousy execution could lead to considerably higher costs, such as training and support, rework, in addition to the opportunity cost pertaining to the lost time and failed business objectives.

Systematic Decision-Making and Portfolio Efficiency

If managerial levels share with decision making, this can bring about improved productivity of project, which will satisfactory to both the owner and the consultant. Iyer and Jha (2005) concur with this notion since this factor is virtually important for contractors considering that decision-making is dependent primarily on engagement at working levels. According to Ugwu and Haupt (2007), an indepth knowledge and understanding of performance are necessary in achieving managerial objectives like enhancement of institutional changes, and effective decision making in design, specification and construction, at different project-level interfaces, applying suitable decision-support tools. An investigation by Ling et al (2007) on project management (PM) practices used by a construction firms from Singapore attempted to established that the level of performance their contracts in China and to identify the project management practices that contributed to better performance. In addition, the study aimed at making key PM practices suggestions that could be applied by foreign construction companies to boost project performance.

Chan and Kumaraswamy (2005) reported that several unforeseen issues and modifications from the initial project design come up within the construction phase, resulting in difficulties in time schedule and performance. It was determined that weak site management, unexpected ground situations and slow decision-making process are the three key factors leading to slow downs and difficulties in time performance. Similarly, Okuwoga (2008) identified cost and time performance as common challenges in the construction sector globally. Dissanayaka and Kumaraswamy (2005) reported a significant correlation between time performance and client type, project complexity, communication and experience; whilst cost performance was highly correlated to client characteristics, project complexity, in addition to contractor characteristics. Reichelt and Lyneis (1999), noted that a dynamic feedback approach also affects the project time and cost performance.

Project Management Efficiency and Portfolio Management

Project management is very likely to fail if there lacks apparent commitment and support by the management. This commitment and support is usually outlined in two subtopics; life-cycle management and project sponsorship. The function of the project sponsor is to take care of interference existing for the project manager, in addition to constantly emphasizing to the project team that only the optimum performance standards are tolerable. It is vital that organization objectives, goals, as well as principles be fully understood by the entire project team during the project life cycle. Regular and positive management engagement, will indicate the executive's dedication to project management.

The importance of professional leadership techniques have surfaced with increasing scope and sophistication of projects, strict restrictions and specifications of materials, labour and financial resources, and work quality and performance (Neverauskas, 2008). Leadership via implementation of various project leadership tools and techniques, leads to projects being completed on time and within budget, as well as meeting the set specifications. A leadership capability/ characteristic is an organized strategy for delivering a project, which comprises of a list of processes, with well-defined activities and resources (Turner, 2009). A leadership capability will define the firm's best practices; strengthen inter-organizational communication; and minimize duplication of effort through common training, documentation and resources. Kerzner (2001), emphasized that the easiest way to enhance the probability of a firm having effectively managed projects is by developing in-house leadership capability, which is versatile enough to implement all projects. The time and energy required to build such capability vary with company, based on factors like the nature and size of projects, functional boundaries and competitive pressures.

According to Chan and Suhaiza (2007), successeful project planning and implementation requires a strong leadership style by the project manager. Usually, the project manager carries a huge obligation, though doesn't have the commensurate authority like the line manager, whereas the line manager carries immense authority yet constrained project responsibility. Taking this into consideration, it is necessary for a project manager to hold a leadership style that adapts to each project participant. Additionally, the authors argued that in absence the executive’s commitment and support, its impossible for the project management to succeed.

Continuous and constructive executive participation, in a leadership capacity was exhibiting executive's devotion to project management.

Schaap (2006) observed that the behavior of the top management affects the success of execution of the strategy. Similarly, manager's limited knowledge on firm strategies and potential outlook, along with limited support and attention of executives and the leadership in the firm on the execution of business strategies, impede the effective execution of strategies. Muhammad, Chaudhry, and Abdur (2012), analyzed the impact of leadership on project management and performance. In the study, leadership aspects of human resources planning were implemented based on project characteristics and looked into the effects of these factors on project performance. Correlation between these factors and the project's strategic objectives and goals were investigated in an effort to strengthen project performance. The survey was conducted on 70 personnel from four key consultancy companies sharing a project, in Pakistan. A positive link between leadership and project performance was reported.

Single Project Management and Efficiency of Portfolio Management

Project portfolio management (PPM) has developed into a critical method for firms to deal with their product development effectively and efficiently (Roussel et al., 1991; Cooper et al., 1997b). One of the major issues is that projects tend to be determined and managed in accordance with the strategy, and also resources are usually invested in projects considering the optimisation of the entire portfolio (Englund and Graham, 1999; Archer and Ghasemzadeh, 1999; Artto et al., 2004; Artto and Dietrich, 2004). Past researchers have dealt with portfolio driven product development process management (Artto et al, 2004; Cooper et al, 1997), techniques and tools for portfolio prioritization and analysis (Henriksen and Traynor, 1999; Spradlin and Kutoloski, 1999; Hall and Nauda, 1990). Some researchers (Engwall and Jebrant, 2003; Hansen et al, 1999) developed holistic project portfolio management frameworks, indicating that PPM is possibly viewed as an overarching system and strategy for handling product development.

Previous studies have proposed that a number of single-project level variables are linked to and perhaps play a role in portfolio management performance. Earlier investigation indicates that PPM must be employed properly to each scenario and therefore, it can't be looked at as static. For instance, the findings in a research by Bloomquist and Müller (2006) suggest that project types should be evaluated in picking PPM practices. Even though other research tend not to recognize project type as a valuable intervening variable in the frameworks describing PPM performance (Killen et al., 2008b; Martinsuo and Lehtonen, 2007), it's likely that the contradictory results could be explained using various measures of project type as well as varied research models. Consequently, Blichfeldt and Eskerod (2008) demonstrated that executives acted on the available information and responded accordingly. Similarly, Aaltonen (2010), proposed that executives' objectives fundamental to portfolio decisions need more consideration. Furthermore, Killen et al. (2008) highlighted that capabilities for project portfolio management develop eventually, which impacts on project portfolio management

performance. The case specific data search as well as behavior adaptation is evidently linked to the context in which PPM develops.

In the qualitative, case-based studies (So¨derlund, 2004; Engwall, 2003; Artto and Wikstro¨m 2005), attention is on portfolio management, along with the strategy towards portfolio management efficiency as well as its contributing project-management variables has become very engaging. For instance, the need for well-defined objectives in relation to resources or costs, scope, top management support, information sharing, schedule, in addition to a number of other aspects, are recognized as pertinent contributors to portfolio management efficiency.

RESEARCH METHODOLOGY

Research Design

The methodological approach in this particular research was descriptive research design and it attempted to find out and discuss variables existing in a particular scenario to explain the connection that exist between these variables in an effort to describe a specific phenomenon, but not to ferret out cause-effect relationships. Descriptive research design provides opinions and feelings from the participants relating to aspects that would influence the study, (Mugenda and Mugenda, 2010). In this case descriptive research design was used to find out the role of single project management on success of portfolio management efificiency at Geothermal Development Company Nairobi County.

Target Population

Mugenda and Mugenda, (2010), explained that the target population should have some observable characteristics, to which the researcher intends to generalize the results of the study. GDC has project management department, which does not work in isolation of other departments such as planning, infrastructure, procurement, human resource and finance department. The target population of the study was 124 employees which included the project management; top management officers and middle level managers, planning officers, infrastructure, procurement and finance department top and middle level officers. The population did exclude some operation staff such as cleaners, clerks, and messengers because they were deemed not to have relevant information for the study.

Sampling Procedure

In this study, 60 percent of the sample was a good representative. Statistically for generalization to take place a sample size of at least 60 percent of the elements which was selected for this study. According to Saunders et al (2007) a well selected sample size of approximately 10 % of a population usually gives good reliability.

Data Sources and Instruments

The study used primary data which was collected from the chief project officer, officers of projects in various ranks, projects assistant officers and other interrelated departments such as planning, infrastructure development, finance, human resource and procurement staff. Data

collection was conducted through self-administered questionnaires. This questionnaires tool was in inform of both closed and open-ended questions in nature, where the respondents were allowed to fill the questionnaires according to their opinions. This tool was used because it is cheap, has minimal errors and high degree of confidentiality. A 5-point likert scale was used in structuring the questionnaire items. The questionnaires were administered and collected after two weeks in order to give sufficient time for respondents to answer the questions.

Data Collection Procedures

In collecting data, an introductory letter was first obtained from Kenyatta University. Using the introduction letter permission was sought from the GDC general manager as well as research permit from the National Commission for Science, technology and Innovation (NACCOSTI), an approval letter was sent by GDC management and an officer from GDC was assigned to work as a research assistant throughout the entire data collection period to help in linking up with the employees. A research permit was also issued by the national commission for science, technology and Innovation. Then a visit to the research site was done by the researcher together with a research assistant. Sampling was then done and questionnaires administered to the selected respondents.

Data Analysis and Presentation

Data analysis is the process of examining, cleaning, modifying and modeling data with an objective of discovering valuable details, making conclusions and assisting in making decisions. Statistical package for social sciences (SPSS) was employed in the management and analysis of data where frequencies, percentages, means and standard deviations were obtained and used to answer the research questions. After data collection, the questionnaires were coded, edited to detect errors and omission to enhance precision and accuracy. Editing entailed sorting of the obtained data to obtain information which is pertinent to the study parameters. Here, the researcher coded the responses and looked through all of them. The data was then analyzed by the use of descriptive Statistical tools that did involve developing frequency tables, graphs, and pie charts. Inferential statistics using regression and correlation was then conducted to determine the extent in which single project management affects the entire portfolio management efficiency. Having said so, the qualitative data was analyzed using the following regression formula:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where: Y = Portfolio management efficiency; β_0 = a constant; β_1, β_2, β_3 and $\beta 4$ = regression coefficients; X_1 = clarity of specified goals; X_2 = availability of information; X_3 = systematic decision making; X_4= Project management efficiency; ε = Error term

RESEARCH RESULTS

The main aim of the study was to establish the role of single project management on success of portfolio management efficiency at Geothermal Development Company (GDC, Nairobi). The specific objectives were to find out the role of project clearly specified goals, availability

of information, systematic decision making and project management efficiency on success of portfolio management efficiency. The study used descriptive research design that sought to realize and asses the objectives of the study. The target populations were employees of Geothermal Development Company which included the top management, middle level managers and operations staff in exclusion of cleaners, clerks and messengers whose information deemed not relevant in this study. The target population was identified through the stratified random sampling method. The information and views of respondents were obtained using structured questionnaires. Descriptive and inferential statistics such as Pearson correlations and regression analysis, and also ANOVA tests were used to present and interpret the findings of the study.

Project Clearly Specified Goals and Efficiency of Portfolio Management

The first objective was to determine the role of project clearly specified goals on success of portfolio management efficiency. From the findings it was clear that project clearly specified goals had a significant role and was related to portfolio management efficiency. This was evident from the correlation analysis that indicated that Portfolio efficiency management was correlated with project clearly specified goals (PCSG). The project clearly specified goals were related to portfolio management efficiency indirectly through perceived project management efficiency and also through reaching project goals. The study focused mainly on the defined goals on project costs or budgets, and proportion of projects in the firm have workloads or resource estimates which majority of respondents seemed to agree to have influenced portfolio management efficiency. Thus our results suggest that in order to expect high results in levels of portfolio management efficiency, project goals should be clearly be expanded towards wider business goals.

Availability of Information and Efficiency of Portfolio Management

The second objective was concerned with the effect of availability of information on single projects contribute to the success of portfolio management efficiency at GDC. Data analyzed from the questionnaires indicated that availability of information had significant relationship. With the portfolio management efficiency with both correlation and multiple regression analysis results supporting the findings. Availability of information (AI) was significantly correlated with Portfolio management efficiency. Majority of the respondents agreed that decision makers have up-to-date information on projects significant at 0.05 confidence level.

Systematic Decision Making and Efficiency of Portfolio Management

The third objective was to determine the role of systematic decision making on portfolio management efficiency at GDC in Nairobi. Correlation analysis and multiple regression analysis indicated that there not significant at 0.05 with portfolio management. Systematic decision making appears to have a more complex relationship with portfolio management efficiency. Most respondents agreed that most decision were made when project is ending. The correlation analysis indicates that that regression coefficient beta implied that a unit increase in the systematic decision making would lead increases in success of portfolio

management efficiency. Systematic decision making does not explain project management efficiency either directly or through reaching project goals.

Project Management Efficiency and Efficiency of Portfolio Management

Finally the study sought to know the relationship between the project management efficiency and portfolio management efficiency at GDC. The findings from correlation and regression analysis indicate that efficiency of project management was the strongest and most significant variable contributing to the success of portfolio management efficiency. It was clear from survey of the questions respondent that most respondents agreed that managing single projects offers excellent prospects for success of portfolio projects.

INFERENTIAL STATISTICS

This section presents correlation and regression analysis evaluating the dependent and independent variables nature of relationship. The study used Pearson moment correlation and also Analysis Of Variance (ANOVA) was done to determine whether there was any significant relationship between single project management and portfolio management efficiency. This was considered important since it made use of the test in terms of sum of squares effect over sums of squares residual (Mugenda & Mugenda, 2009).

Results indicated that there was a highly significant linear correlation between single project management efficiency and portfolio management efficiency compared to other variables. Single project management (SPME) was correlated with portfolio management efficiency and the relation was positively significant at ($r=0.460$, $p=0.000$,$\alpha=0.05$). This implies that single project management efficiency coefficients had positive significance and the p-value for the tests was greater or equal to 0.001.

Portfolio efficiency management was correlated with project clearly specified goals (PCSG) ($r=0.423$,$p=0.001$, $\alpha=0.05$). Availability of information (AI) was significantly correlated with Portfolio management efficiency where ($r=0.423$,$p=0.001$,$\alpha=0.05$). The systematic decision making (SDM) was correlated with portfolio management efficiency (PortME) and the relationship was significant ($r=0.295$, $p=0.018$,$\alpha=0.05$). This demonstrates clearly that higher degrees of project clearly specified goals, information availability, systematic decision making project management efficiency are reflected on higher levels of portfolio management efficiency.

These findings are also supported by Bloomquist and Müller (2006) who concluded the above concerns related with single project management are related to and positively contribute to portfolio management efficiency. The positive significance indicates that efficiency management of single projects will significantly improve portfolio management efficiency. The four independent variables were also found to be significantly interdependent and related to each other in Geothermal Development Company.

Table 1:Regression Coefficients

Model 1	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	Beta (β)	Std. Error	Beta		
(Constant)	0.474	0.355		1.336	0.187
Project clearly specified goals	0.342	0.131	0.304	2.607	0.011
Availability of information	0.342	0.131	0.304	2.607	0.011
Systematic decision making	0.089	0.162	0.065	.549	0.585
Project management efficiency	0.392	0.126	0.357	3.097	0.003

Dependent Variable: Portfolio Management Efficiency

From the regression coefficient analysis in table 4.11, the most significant variable was the project management efficiency with p=0.003. This means that the project management efficiency have a positive contribution to the portfolio management efficiency at 5 percent significant level compared to other factors. Project portfolio efficiency management can only be successful depending on leadership of the single project management efficiency. According to Chan and Suhaiza (2007) strong leadership style by the project manager is necessary for the successful planning and implementation of projects. Normally the project manager has a great deal of responsibility but does not have the commensurate authority as a line manager whereas the line manager has a great deal of authority but only limited project responsibility. This study agrees with Muhammad, Chaudhry, and Abdur (2012) who analyzed the impact of leadership on project management and performance and their results suggest that leadership has positive links with project performance.

The study further found that project clearly specified goals contributed positively to portfolio management efficiency. This is evident from the results showing that p=0.11. (P>0.05). This means that project clearly specified goals has a positive influence on project portfolio success.

Therefore, clearly specified goals were statistically significant because it was greater than 0.05. These findings agree with Meskendahl, (2010) that project portfolio management is not an end in itself, but rather a means to the attainment of organizational objectives. He concludes that performance of project portfolio management is taken to be the degree of achievement of organizational objectives. The results are also in line with a conclution by Shao et al., (2012), calling for more attention towards the broader business aspects of projects, with regards to wider success criteria than those in the ‘‘iron triangle.’’ For executives, these findings imply that the project goal setting need to certainly be extended towards broader business objectives if portfolio-level outcome is envisioned. The assumption is that an ideal allocation and balancing of resources gives a positive impact on the generation of the portfolio's worth by taking advantage of synergies and economies of scale (Teller, 2013; Blichfeldt and Eskerod, 2008). Literature reveal that the difficulties with an ideal allocation of resources could be triggered by the introduction of other financial and non-financial factors reflecting adversely on the creation of value in the project portfolio (Teller, 2013).

The study also indicated a positive contribution of availability of information with success of portfolio management efficiency. The results indicated that p=0.11. (P>0.05). The coefficient means that availability of information was statistically significant at 0.05 which was greater. These findings reveal that availability of information and project clearly specified goals contributed in the same manner positively to success of portfolio management efficiency. Our findings focused on information availability, hereby supporting the need for information sharing emphasized in many studies which also agrees with Shao et al., (2012).This study also agrees with Müller et al., (2013) that the technological Infrastructure can give an organization valuable assistance in implementing new policies, procedures, and initiatives.

The research finally found that there was no significant relationship of systematic decision making with portfolio management efficiency. The results indicate that regression coefficient beta =0.089, t=.549 and p=.585. The P-value indicates that it was not significant at 0.05 (p=0.585). Other findings agree that it is possible that systematic decision making is related to development process management (Standish Group, 2009) project selection and prioritization (Aubry et al.,2010a) project management standardization (Müller et al., 2013) or to management support and ownership which were not covered in this study.

The regression summary model for all variables that shows the significance of the independent variables on dependent variables was analyzed in the table below. The study used multiple linear regression model to determine the overall contribution the independent variables (project clearly specified goals, availability of information, systematic decision making and project management efficiency) on the dependent variable (portfolio management efficiency). Results were illustrated in table 4.12.

Multiple regression analysis was done in explaining variance in portfolio management efficiency using the independent variables. The results indicate that project clearly specified goals, availability of information, systematic decision making and project management efficiency explained 52.3 percent of variance in portfolio management efficiency (adjusted R2 =0.523). This means that all the predictors are significant to portfolio management efficiency. Adjusted R2 is also called coefficient of determination adjusted for degrees of freedom and show us how different factors contribute to or predict portfolio management efficiency varying with project clearly specified goals, availability of information, systematic decision making and project management efficiency. The regression model equation ($Y= \beta_0+ \beta_1X_1+\beta_2X_2+ \beta_3X_3+ \beta_4X_4 +\alpha$) explained 52.3 percent as measured by goodness of fit as shown in table 4.17. This means that the predictors were adequate.

This study therefore implies that factors not covered in this study contribute to 47.7 percent. Since the p-value is less than 0.05 (p=0.000) the model therefore is statistically significant in predicting how single project management affects the success of portfolio efficiency management.

Table 2: ANOVA

Model	Sum of squares	Df	Mean square	F	Sig
Regression	11.894	3	3.965	9.074	.000b
Residual	26.214	60	0.437		
Total	38.108	63			

a. Dependent Variable: Portfolio management Efficiency

b. Predictors: (Constant), Project management efficiency, Availability of information, Systematic decision making, and Project clearly specified goals.

Results for ANOVA (Analysis of variance at F-static =9.074, Degree of freedom was 60, and $p<0.05$ (i.e. $p=0.000$) indicated that there was a high significant relationship between single project management and portfolio management efficiency at Geothermal Development company.

It is clear therefore that the four independent variables, that is, project clearly specified goals, systematic decision making, availability of information and project management efficiency, when combined and tested together with dependent variable (portfolio management efficiency) were found to significantly affect the success of portfolio management efficiency at GDC at 0.05 significance level and $p<0.05$ (i.e. $p=0.000$).

Though the results indicate that the significant level show probability of $p=0.000$, the relationship shows that there was a probability of the regression model giving a wrong probability thus relationship was static. Regression analysis was done to show the extent the four variables contributed to the success of portfolio management efficiency.

CONCLUSIONS

The study was aimed at selecting few single project management factors that contribute to the success of portfolio management efficiency. This study selected few single project management factors that contribute to success of portfolio. From the correlations and regression analysis carried, it can be concluded that the single project management variables significantly contributes to the portfolio management efficiency at GDC. The study concludes that project clearly specified goals such as defined cost goals and budgets, proportion of projects that have workloads and resources estimates, projects with clearly defined goals and well defined scope objectives contributes positively to the portfolio management efficiency at Geothermal Development Company in Nairobi County.

The study also concludes that information availability especially with up-to-date information on projects significantly contributes to portfolio management efficiency. It is concluded from the results that decision makers have required information on projects, they have the required information on projects but not exceedingly and that they have truthful information on single projects.

It can be concluded also that systematic decision making on single project management has relatively no significance on success of portfolio management efficiency. The study indicated

that formal decisions are made on project ending, during feasibility study, during project execution, when proceeding from one phase to another and when planning on projects which influence success on efficiency in project management.

Finally, the study concludes that project management efficiency is an important single project management factor that contributes to the success of portfolio management efficiency. This is because managing single projects offers excellent prospects for success, the way of managing is commonly understood, management focuses on the right issue and it is efficient as indicated by respondents in the survey questionnaires.

RECOMMENDATIONS

Based on the findings, the study came up with the following recommendations to help improve the portfolio management efficiency and to ensure effective management of single projects that will lead to success of portfolio management efficiency.

Since most goals were focused on costs and budgets, there is need for management of GDC to clearly define and expand project goal setting geared towards wider business goals if portfolio level results are expected. This would have an impact on goal setting through differentiation that creates the need to prioritize or optimize between –level benefits and project level efficiency.

It's clear from our findings that systematic decision making had relevantly no contribution to portfolio management efficiency. There need for GDC management to be active participants in decision making especially improving formal decision making in project planning, execution , in feasibility study and ensure their exists good flow of communication as strategic change management process that is discussed by all heads to share ideas and agree on best change strategies for the company when necessary.

Based on the findings, it was clear that project management efficiency had greatest value for portfolio management efficiency especially when it is believed that managing single projects offers excellent prospects for success. There is need for management of GDC to ensure that project portfolio management needs are applied appropriately to each situation and thus ensure that project types are taken into account in selecting project portfolio management practices. This will ensure that better results are achieved through portfolio management efficiency.

It is clear from this study that GDC had not achieved optimum yield or returns from single projects management in portfolio management practices. There is need for project management to align strategies with change management. In dynamic environments, project portfolio management may be considered as dynamic capability sensitive to the specific environment and proactive in acquiring external knowledge. The company needs to ensure that in the process of management staff are engaged and aligned to expectations of change of strategies within the organization. One major reason why strategic changes in some organizations fail as a result of staff resistance to change. The time taken to convince the staff

to accept the change makes the organization lag behind in addressing important development. GDC, a company whose employees embrace change should not lag behind in maintain its employees through up to date training on operations as well as important organizational matters as a way of maintaining the employees who from the study do not resist change. This also includes good compensation to the employees, provision of a good working environment and working conditions.

There is also need to set up project management offices within the organization to improve on project management efficiency. Studies done by Julian (2008) agree that project management offices create a better understanding of the role of project management generally and more specifically project management offices.

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