

## THE ROLE OF PROJECT MANAGEMENT IN THE SUCCESS OF PROJECTS UNDERTAKEN BY ENTREPRENEURS IN ELECTRICAL CONTRACTING SME

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### **Abstract**

Studies have shown that project management skills are crucial for successful implementation of complex projects. However the impact of such skills in the SME sector in general and in the electrical contracting sub-sector especially in this part of the world is not well known. This study sought to identify the role of project management skills in the success of small electrical contracting projects. The study assessed the most important project management skills necessary for successful implementation, the extent of its use, the factors limiting their use and the relationship between their use and project success. The study was a census of the SME electrical contractors in Thika. Primary data was collected using semi-structured questionnaires. Analysis was done using descriptive statistics and data presented in tables, charts and narratives. Secondary analysis was conducted using Pearson's correlation. The research found out that the project management was a vital component in the success of any project. According to most respondents, project management was all about organizing the resources like time, labour and money in order to enable the work to run smoothly. This shows that they understand project management more than it was expected. The research also identified the factors limiting the use of project management skills and the relationship between the project management skills and success of the project. These included unqualified workforce, inadequate funds, and lack of honesty from the employees and clients, unavailable materials, limited time among others. The study made several recommendations which included among other things training of SME electrical contractors, educating the public, improvement in licensing of contractors, and encouraging entrepreneurs to invest in well stocked hardware stores in Thika.

**Key words:** Project management, project success, quality contracting, productivity, project management tool, customer satisfaction

## **1.0 Introduction**

### **1.1 Background of the Study**

Sessional Paper No.2 of 1992 on Small Enterprise and Jua Kali Development in Kenya defines a small and medium Enterprise (SME) as any enterprise employing between 1-50 employees. The importance SME has been emphasized in all development plans in Kenya since independence in 1963. The National Micro and Small Enterprise Baseline Survey of 1999 found that small enterprises contributed 18.9 % of the 1998 Gross Domestic Product (GDP) and 25.5 % of the non-agricultural GDP. Moreover, by 2002, SMEs employed 74.2% of the total persons engaged in employment.

The Sessional Paper No. 2 of 2005 on Development of small and micro enterprises highlights the major role played by SME in employment. According to the Economic Survey 2005, SME employed 78% of the total persons engaged in employment. This shows the importance this sector plays in the Kenyan economy.

According to the above session papers, substantial funds have been spent to implement government policies and programmes, and to build institutions specifically aimed at promoting the SME Sector since independence in 1963. The challenges considered critical to the development of the SME sector is the development of business management and entrepreneurial skills. Consequently, potential entrepreneurs enter the sector ill prepared to effectively contribute to its success, while the existing ones remain latent in their operations.

Forty-two percent of SME in Kenya mainly depend on the quality of their services and products as well as customer satisfaction as the main method of promotion of their goods and services (Republic of Kenya, 1999). It is therefore clear that the quality of goods and services is a major competitive factor for SME. The above survey pointed out that more than one third (34.1%) of the entrepreneurs had difficulties arising from market saturation or low demand for products.

Kenya Power and Lighting Company (KPLC), a monopoly infrastructure provider of electricity has 100% linkage with Electrical contractors. KPLC receives complaints regarding delay of electricity connections attributable to electrical contractors. Damage compensation claims arising from faulty electrical installations are also frequent (KPLC Records).

### **1.2 Need for Managerial Skills**

In the literature, it is argued that, entrepreneurial managers need a sound foundation in what are considered traditional management skills (Timons and Spinelli (2005). The authors point out that one such skill is project management which entails organizing projects teams, setting project goals, defining project tasks, and monitoring task completion in the face of problems and cost/ quality constraints.

The three prime objectives of project management are to meet specified performance within cost and on schedule (Meredith and Mantel, 1989). Timely completion of projects is viewed as one way of enhancing competitiveness of business. To support this view, Stoner et al (2005), conclude that in today's volatile business environment, speed and response time are extremely important. A wonderful new product idea or a vision of a novel of service is meaningless unless it can be delivered to customers in a timely way. True, managers must analyze their decisions and carefully reflect on available information. This process of analysis is the backbone of effective decision making. Yet leaders must be action oriented. They must avoid the tendency to over evaluate decisions. Indeed, while they wait for more information and gain assurance that the risk is acceptable, a competitor may act.

Project Management is a well established discipline defining in considerable detail the tools and techniques required to define, plan and implement a project. However, while many researchers have addressed the issues surrounding the management of projects within large firms, there has not been a lot published to date about the management of projects in SME (Murphy, 2006).

### **1.3 The Business of Electrical Contractors**

Electrical contractors are firms or individuals licensed by the Electricity Regulatory Board (ERB) to carry out wiring installations in buildings. However, characteristically of most SME, many of them are not licensed. For the purpose of this study both unlicensed and licensed, registered or unregistered persons involved in electrical projects are regarded as contractors.

A typical installation project involves project conceptualization stage where the contractor needs to develop very clear goals and objectives. The contractor needs to get plan of building, design the wiring, present the design to with the client and incorporate client's opinion. The contractor then prepares cost estimates. Having clarified the objectives, contractor can now estimate costs of labour, materials, contingencies and profit. The contractor then agrees with client on costs and payments schedule. Considering the expected delivery time, the work is broken down to tasks and a time schedule for the tasks is developed. The main tasks are piping, positioning of boxes, wiring, fittings and finally test and commissioning.

At the implementation stage, the resources are allocated for each of the tasks. This phase also entails monitoring the progress against the set targets and taking remedial action where deviations occur. The completion of the above tasks is frequently subject to completion of certain phases of the building, by the building contractor. It is also subject to connection of supply by the public utility KPLC. Therefore delayed connection by KPLC results in delays in some of payments due by the contractor.

From the foregoing, it is clear that Electrical Contractors are involved in a business which has all the characteristics of projects namely time, budget and quality constraints in addition to having risks, all which have to be managed for the successful delivery of the project outputs.

### **Statement of the Problem**

Records from Kenya Power and Lighting (KPLC) indicated that only 680 contractors were registered in the country. It was quite clear that this small number could not cope with wiring the over 60,000 connections done annually by KPLC. The most likely scenario was that most of the electrical work done in premises was by unregistered contractors. Further, a lot of complaints by home owners and other institutions were about faulty wiring, flickering lights, or electrical shocks arising from water pipes. The KPLC records indicated that up to 20% of complaints regarding electricity interruptions were due to defective installations by contractors. This suggested that there was a quality problem in the implementation of projects by contractors.

Press reports frequently featured complaints by people complaining of delays in connecting their supply after payment to KPLC. A perusal of records from KPLC (Thika) revealed that about 300 jobs monthly could not be connected as a result of not fulfilling some obligations. One of those obligations was submission of completion certificates confirming that the premises were ready for electricity connection by KPLC.

One of the possible causes of the delay was due to the contractor not completing the works as a result of under quoting which would point to a costing or a scheduling problem. At times connection was delayed because applications for electricity supply, which were frequently duly completed and submitted by contractors, were not submitted on time. This suggested a shortcoming in the planning process on the part of contractors.

This study was based on the premise that under quoting, lack of proper time scheduling inadequate quality control and lack of sufficient risk analysis were major contributory factors to project success in electrical contracting SME. However, there was no research that had studied this problem. The purpose of this study was to investigate the role that project management plays in the success of projects undertaken by SME in the electrical contracting sector.

## **1.4 Overall Objectives**

The overall objective of this study was to investigate the role of project management in the success of projects undertaken by Entrepreneurs in Electrical Contracting SME.

### **1.4.1 Specific Objectives**

- (i) The extent to which electrical contractors apply project management skills in their business.
- (ii) The most important aspects of project management necessary for successful implementation of projects in electrical contracting.
- (iii) The factors limiting use of project management tools.

- (iv) The relationship between use of project management skills and project success.
- (v) Project management issues that require further research.

### **1.5 Research Questions**

- (i) To what extent do electrical contractors use project management tools in their work?
- (ii) What Project Management skills are critical to successful completion of electrical contractors?
- (iii) What factors limit the use of Project Management skills by SME electrical contractors?
- (iv) What is the relationship between use of project management skills and project success?
- (v) What are the Project Management issues require further research?

### **1.6 Significance of the Study**

This study would be of significance to the following categories of agents.

- (i) Electrical contractors who may get sensitized about the knowledge of project management which if acquired can assist them improve their project success and business productivity.
- (ii) The KPLC whose are currently lacking a more effective electrical contracting sector due to their lack of project management skills. Effective contractors will subsequently increase KPLC's customer base.
- (iii) Government through Energy ministry whose objective of increasing national access to electricity from the current 15% to 40 % by 2010 depends also on productivity of electrical contracting sector, and labour ministry who is charged with promoting of SME as it will give them insights in identify sector specific project management skills and subsequent relevant training decisions.
- (iv) The study will also be used by other researchers and scholars for relevant desk research and literature reviews.

### **1.7 Limitations of the Study**

The major challenge faced during the research was accessibility to the contractors. Most of them were busy hence offered limited time to acquire the information required. This was however adequately addressed by use of persuasion.

### **1.8 Literature Review**

The study adopted an exploratory approach in investigating the role of project management in the success of projects undertaken by entrepreneurs in electrical contracting SMEs. The dependent variable is project success while the independent variables include Application of Project management skills, Limitations in application of project management tools, Perception of its importance and other project management aspects. This chapter is outline as follows:

#### **1.9 Project Management Overview**

Meredith (2006) defines a project as a specific, finite task to be accomplished, whether large or small scale, or whether long or short term is not particularly relevant. However, project management is the discipline of organizing and managing resources in such a way that these resources deliver all the work required to complete a project within defined scope, time, and cost constraints (Harvey, 2005). A project is a temporary and one-time endeavor undertaken to create a unique product or service. This property of being a temporary and a one-time undertaking contrast with processes, or operations, which are permanent or semi-permanent ongoing functional work to create the same product or service over-and-over again. The management of these two systems is often very different and requires varying technical skills and philosophy, hence requiring the development of project management.

The challenge of project management is the optimized integration and allocation of the inputs needed to meet those pre-defined objectives. The project, therefore, is a carefully selected set of activities chosen to use resources (time, money, people, materials, energy, space, provisions, communication, quality, risk, etc.) to meet the pre-defined objectives. ([http://en.wikipedia.org/wiki/Project\\_management](http://en.wikipedia.org/wiki/Project_management))

#### **1.10 Principles of Project Management**

Project Management has existed, in theory, for centuries with its informal application by the Chinese and Egyptians with such feats as the Great Wall of China and the Pyramids. However, modern Project Management is a recent phenomenon gaining initial acceptance in the rapid development of the Information Technology industry, (Fox, 2004). Cicmil (1997: 390).

Project Management is an innovative process whose implementation is increasingly necessary in today's competitive market. Undertaking any project now involves overcoming many obstacles (Kerzner, 2001) that include project complexity, client special requirements, organizational restructuring and project risks. With a systematic process in place, such as Project Management, obstacles can be accounted for and actions or measures taken to either prevent or overcome them. Some of the many potential benefits project management provides as proposed by (Kerzner, 2001) include: Identification of functional responsibilities, ensuring that all activities are accounted for identification of time limits for scheduling, measurement of accomplishment against plans, early identification of problems and improved estimating capability.

Essentially, project management is the planning, organizing, directing and controlling of an organization's resources to achieve a relatively short-term objective. Over its course, modern Project Management as a discipline has emerged and has been constantly remoulding itself to allow for expansion in its practice. A valuable conclusion was made by Crawford et al (2005:7) who carried out a study of the International Journal of Project Management and the Project Management Journal over the last ten years to try to uncover the trends in project management:

### **1.11 The Role of Project Management in Organizations**

According to Meredith (1989) project management provides an organization with powerful tools that improves the organizations ability to plan, organize important and centre its activities and the ways it uses its people and resources. The author identifies intense competition amongst institution, both profit and non-profit as one of the societal forces that is fostered by the economic system.

This has put extreme pressure on business to make customized goods and services as quickly as possible. Meredith (1989) says that as a result of the need to avail goods and services more quickly, responses must come faster, decisions must be made sooner and results must occur more quickly. The author notes that information and knowledge are flowing explosively, but the allowable time to locate and use the approximate knowledge is decreasing.

The project manager is expected to integrate all aspects of the project, ensure that proper knowledge and resources are available when and where needed and above all ensure that the expected results are produced in a timely, cost effective manner. Meredith (1989) explains that the outcome of a project includes the product or services itself, the time at which the outcome is available and the cost entailed in achieving the outcome. For example the competition of a building on time and on budget is quite a different outcome from the competition of the same physical structure a year late or 20% over budget or both.

On the other hand Harvey (2005) views projects management not just as the steps required to complete a product but as a tool for systematically incorporating the voice of the customer, creating a disciplined way of prioritizing effort and resolving trade offs, working as concurrently on all aspects of the project and much more. The author notes that in the Toyota firm, 60% of the activities are pure waste, and that this waste can be removed by project management techniques.

### **1.12 Project Management and SME**

According to Murphy (2006), one innovative step that can enhance the chances of progression in SME is the introduction of the process of the project management. The author observes that with SME contributing 99% of activities in the European Union (EU,) the SME's need to increase their competitiveness and quality to match competition and that project management techniques can be used to achieve this. Although intended for application in large organizations with complex systems that require such a process, Bacharini (1999), modern methods of project management can be adopted and altered to suit the needs of the small organizations.

Harvey (2005) supports the application of project management to work that is "similar to previous work in terms of either process followed, or the product delivered". This is described as "the job we did last time but with the following differences". This suggests that SME's involved in Electrical contracting do indeed qualify as businesses where application of project management can be beneficial

### **1.13 Use of Project Planning by Electrical Contractors**

Different authors are in agreement about the planning process. (Murphy 2006, Meredith 2003, Harvey 2005). According to the authors, every project needs to identify what is to be done, how much it will cost and by

when it will be completed. Project planning defines the project activities and end products that will be performed and describes how the activities will be accomplished. The purpose of project planning is to define each major task, estimate the time and resources required, and provide a framework for management's review and control.

Planning entails deciding in advance what a project will achieve, the steps of execution, assigning people and other resources to those steps and identifying when the steps will begin and stop. Activities include defining goals and objectives, assessing risks, estimation, budgeting, allocating resources, defining tasks and building schedules. The Schedule is a key document that is based on project task sequence, recognizes task interdependencies and communicates to the project team

#### **1.14 Inadequate Performance Controls by Electrical Contractors**

Various authors, like Meredith (1985), Harvey, (2005) cite the importance of monitoring and control in project management. Control entails assessing how well project uses its plans and organization to achieve its goals and objectives. Activities include setting up change control, solving problems, tracking, monitoring, performing, contingency planning and re-planning. Performance Control requires monitoring project performance and taking corrective action.

Project Monitoring requires reviewing the work schedule in order to answer the following questions: Is progress satisfactory? Is corrective action needed? And must we re-plan? It communicates project progress to team members and management. The review also addresses Management's needs and concerns through: documenting the following: A reminder of the project objectives: How well is the project doing? What actions are being taken to guide project? And are there any issues we should know about which affect the project's future?

#### **1.15 Lack of Coordination Skills by Electrical Contractors**

Coordination involves motivating people to perform satisfactorily on their job. Activities involved include delegation, communication and motivation. Effectiveness of coordination depends on the management style adopted by the project manager and its appropriateness to project being implemented.

#### **1.16 Communication**

Typical literary definitions of effective communications (Kerzner, 2001) include an exchange of information, an act or instance of transmitting information, a verbal or written message, a technique for expressing ideas effectively, or process by which meanings are exchanged between individuals through a common system of symbols.

According to Meredith *et al.*, (1985), communication skill is the most important skill required of a project manager. The importance of communication therefore cannot be overemphasized in managing p in SME projects. Evidently, there is a high failure rate of projects. There is evidence that poor or insufficient communication is one of the factors that contribute to the high failure rate of these projects. Effective communication is important in all the main phases of projects namely initiation, execution and closedown.

#### **1.17 Quality in Goods and Services**

Quality has been defined as the degree of excellence; the degree to which a product /service fits the purpose for which it was produced/delivered. Quality is a near obsession for many companies. In fact, quality management is the expected way of operating for most business today. Quality management is nothing more than a company's unique approach for addressing quality. The foundation of quality management is a philosophy known as continuous improvement, which refers to a company's effort to provide steadily higher levels of quality through out all phases of its operation. This means each step in the production process is altered to make it better. This often results in more efficient and less costly ways of making a product. Continuous improvement also means that the products and services provided to customers are getting better all the time (Stoner et al, 2001).

#### **1.18 Total Quality Management**

Total quality management (TQM) 'as a management approach of an organization centered on quality, based on the participation of all its members and aiming at long-term success. This is achieved through customer satisfaction and benefits to all members of the organization and to society. In other words, TQM is a

philosophy for managing an organization in a way, which enables it to meet stakeholder needs and expectations efficiently and effectively, without compromising ethical values' (ISO 8402, 1994).

The Institute of Quality Assurance (IQA) considers TQM as a way of thinking about goals, organizations, processes and people to ensure that the right things are done right first time. This thought process can change attitude, behaviour and hence results for the better. From the opposite perspective; TQM is not a system, a tool or even a process, but an enabling philosophy supported by a series of systems, tools and processes employed to achieve the various principles of TQM. In recent years, moreover, TQM has also radically altered the way in which members of an organization work and to contribute to total performance. Today the most progressive organizations are embarking on the journey of transformation towards TQM, and this is coupled with the spread, from manufacturing to service sector and on to public services. It promotes the use of interdisciplinary teams of workers who must work cooperatively and collaboratively to achieve common objectives with the backing of management" (KEBS, 2005).

### 1.19 Conceptual Framework

The conceptual framework for this study was based on four independent variables namely application of project management skills, Limitations in application of project management tools, Perception of its importance and other project management aspects. The dependent variable is defined as those variables affected by the independent variables, which in this case is project success. It specifically zero in on project completion within schedule, budget, meeting technical specifications and results in customer satisfactions.. This relationship is summarized in the figure below.

#### Dependent Variable

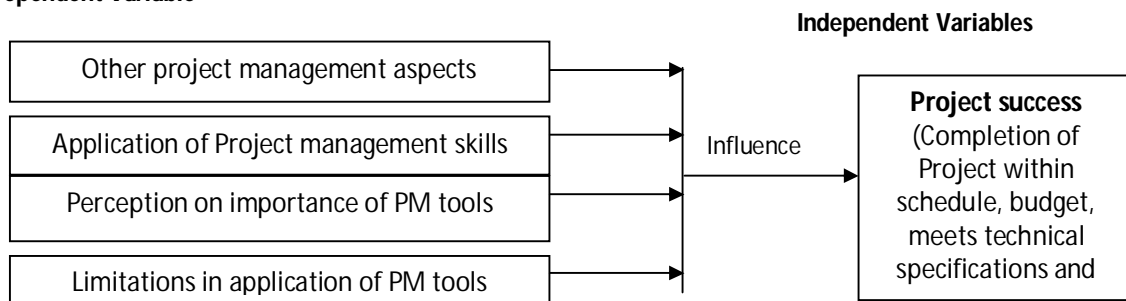


Figure 1: Conceptual Framework

## 2.0 Research Methodology

### 2.1 Introduction

In order to identify the most important factors necessary for project management in Small and Medium enterprises, the study adopted an exploratory approach. This chapter describes the research methods and gives highlights on population, sample, instrumentation and pilot testing and analysis of data in that order.

### 2.2 Population

The study focused on electrical contractors in Thika area. It included those registered with the ERB and those who are unregistered. A list of all contractors active in Thika area was sourced from Kenya Power and Lighting records and from the Association of Electrical contractors in Thika. The records indicated that there were 8 registered contractors operating in Thika. From the records of The Association of Electrical contractors in Thika, there were further estimated 30 unregistered contractors. The population was the 38 Electrical contractors operating within Thika Area.

### 2.3 Sample

In order to collect enough data and information, the study carried out a census of all the 38 known registered and unregistered contractors working in Thika Area. As this is a complete enumeration of all the items in the population, it was a census inquiry. The source list from where this was drawn had been prepared by the Association of Electrical Contractors, Thika. The Association keeps records of all the active contractors in the Area. Kothari (2004), emphasizes that where the universe is a small one, it is no use resorting to a sample survey. The list constitutes the universe.

## **2.4 Instruments**

Primary data was collected using semi-structured questionnaire. This had the advantage of enumerators being able to interpret questions for any semi-literate respondents. The semi structured questionnaire also had the advantage of increasing the response rate. To reduce interviewer bias, honest and competent enumerators were used. This method helped realize other advantages associated with schedules, namely, flexibility in the questioning process, control of the interview situation, high response rate and fuller information (Nachmias *et al.*, 2004).

The questionnaire was designed to assess application of Project Management tools, such as goal setting, management support, resource allocation, stakeholder consultation, planning, work organization, monitoring and control and risk management. Secondary data was obtained from existing reports from the Kenya Power and Lighting Company.

## **2.5 Pilot Testing**

A pilot survey was done. The pilot testing was carried out on 5 contractors randomly picked from the population. This was used as a way to test the validity and reliability of semi-structured questionnaire since a pilot test is a replica and rehearsal of the main survey. The pilot testing helped in pointing out the weaknesses if any in the questionnaires. It was important in detecting them early in order to adjust the weak areas and get the required data and information, which is in conformity with research objectives and questions.

## **2. Data Analysis**

Data was coded using a predetermined coding scheme following the rules of data coding of exhaustiveness and exclusiveness as stated in Kothari (2003). To improve reliability, edge coding was used. The Statistical Package for Social Science (SPSS) was used to analyze quantitative data. Qualitative analysis consisted of categorizing, tabulating and recombining evidences to address the research questions which were used as a unit of analysis. Quantitative analysis was done using descriptive statistics. These are concerned with the development of certain indices using raw data such as frequency counts, percentages and graphs to describe distributions, pie charts to show differences in frequencies and bar charts to display nominal or ordinal data (Cooper and Schindler, 1998). Pearson's correlation was used to establish the relationship between important variables.

## **3.0 Summary of the Findings**

### **3.1 Respondents Profile**

Most (47%) of the contractors were small income earners with a monthly turnover of between KShs 10,000 to KShs 20,000. Few made over KShs 20,000 with 22% making a turnover of KShs 30,000 to KShs 50,000. See figure 4.1 for details. The research also showed that most of the contractors were of the age of 21 to 30 years. A considerable decrease in number of contractors was noticed with an increase in age. This suggests that most of the electrical contractors are young. Concerning their knowledge about project management, 42% of the respondents said that project management is all about organizing the resources like time, labour and money in order to enable the work to run smoothly. The description they gave is close to the definitions given by various project management authors (Meredith, 1989; Harvey, 2005; and Baccarini 1999).

### **3.2 Level of Education and Training in Project Management**

Majority (70%) of the contractors had at some point attended training on project management. These were mainly done in seminars and workshops (70%) with a few (23%) providing certificate courses while very few (7%) had undergone a Diploma course. The findings imply that the contractors are more trained on project management than it was expected. According to Murphy (2006), one innovative step that can enhance the chances of progression in SME is the introduction of the process of the project management.

This suggests that there is a likely significant growth in the SME electrical contracting in future. The research indicated that most contractors valued the knowledge of PM and regarded the training they had received as vital for their businesses which agrees with the publication in the International Journal of Project Management 24, 2006 where over 80% of managers in the construction industry rated most of the project management topics as relevant to the industry.



### **3.3 Application of Project Management (PM) in Electrical Contracting**

#### **3.3.1 Steps in Electrical Contracting Project Management**

The research showed that most contractors first surveyed the work and planned for it before the actual implementation of the project. This was usually accompanied by the writing of a quotation and duty assignment by the responsible persons. However, some contractors considered writing quotation to be the second step in project management. This was accompanied by the commencing of the work, monitoring of the progress, agreement on payment, down payments and settling of balances or payments. This was accompanied by the purchase of material.

Most respondents considered the purchase of material to be their third step in a project. This was followed by the start of the actual work and agreement in payment. Testing, paying of down payment and the final completion of the work were some of the other actions considered to be part of the third step. The research showed that electrical project management is a long process made of several steps. These are shown in the table below as suggested by the respondents and the actions thought to be part of each step in the implementation of the project.

#### **3.4 Whether SME Electrical Contractors Use Some Key PM Skills**

All respondents said they normally have a clear work plan. Majority (76%) of the respondents allocate resources before starting work. The following are their reasons for doing so.

#### **3.5 Risks faced and Risk Management Techniques Used**

Majority (82%) of the contractors confided that they experienced price increment in the course of a project. These were mainly attributed to the client delay to make a down payment or give a go ahead to the implementation of the project. In such cases, majority (74%) of the contractors experienced their client's changing their minds on specifications after the project has started. The following actions were taken to solve such problems. In case of a sudden unavailability of materials alternative sourcing from other available supplies are done while the few (16%) who experienced labour unavailability while still in a project resorted to managing the project to operate within specified time and enhancing workers loyalty.

#### **3.6 Extent of Applying Various Aspects of Project Management**

Of all these aspects, the most practiced was development of a good budget and schedule. Monitoring of the progress made was highly practiced taking into consideration any corrective actions to be taken. Compared to the importance attached to various project management aspects by the electrical contractors, it appears that most contractors do not practice various project management aspects as much as they think they are important. This agrees with research that was published in the International Journal of Project Management 24, 2006 where over 80% of managers in the construction industry rated most of the project management topics as relevant to the industry.

#### **3.7 Importance of PM Skills in Successful Electrical Contracting**

Most contractors considered the level of customer satisfaction to be the most ideal way of assessing the success of a project. The assessment criteria of project success being mainly guided by customer satisfaction agrees with research that was published in the International Journal of Project Management 24, 2006 where 93% of managers in the construction industry rated stakeholder management as potential new topic for PM training.

On the other hand, a good quotation and budget and time management/scheduling were considered the most crucial skills in PM, which agrees with research that was published in the International Journal of Project Management 24, 2006 where 95% of managers in the construction industry rated budgeting and cost management as relevant to the industry which was above the average appreciation across all industries.

#### **3.8 Factors Limiting Use of PM in Electrical Contracting**

The study showed that the use of unqualified workforce and inadequate funds are the major contributors to the laxity in use of PM. Lack of honesty leading to mistrust by clients and employees has also contributed to this scenario. However, the major challenges faced by the contractors when dealing with customers was failure by the client to pay or delay to pay.

### 3.9 Relationship between Customer Satisfaction and Project Management Aspects

The importance and practice of aspects under study were fitted into a correlation matrix against the level of satisfaction. In terms of practice, the following aspects were found to have a positive correlation with the satisfaction derived: Project definition; Strategy selection; Writing of operational manual; Delivery to client and Training of client personnel. However, only *project definition* had a positive correlation at 0.05 significance level while *training of client personnel* had a positive correlation at same significance level.

In terms of importance, the following had a positive correlation with the level of satisfaction: Project definition; Strategy selection; Schedule development; Budget development; Training of new team members; Delivery to client; Disposal of surplus material; Carrying out of final audit; Complete project report and Review project management. However, Only *Project definition* and *disposal of surplus material* had positive correlation at 0.05% significance level while *Strategy selection* and *schedule development* had a positive correlation at 0.01 significance level.

This implied that for any organization to achieve the desired level of satisfaction from their client, it was necessary that all the aspects considered being importance be practiced keenly and special attention given to them. Aspects such as *schedule development*, *complete project report*, *carrying out final audit*, *budget development* etc. should be accorded the same level of practice as the other important aspects.

It was noted that all significant correlation were positive. This means that PM skills are useful in enhancing customer satisfaction. In some cases, like strategy selection and schedule development perception of some PM aspects as important had a significant positive relationship with customer satisfaction. Simple appreciation of PM may therefore enhance customer satisfaction. This can drive intuitive actions that can enhance project success and therefore satisfy the customer.

### 4.0 Conclusions

The conclusions of the research are based on the responses given in each of the four factors that have been analyzed based on the data received .The research therefore concluded that application of project management skills was a major factor in determining the success of the project. If well practiced, this can greatly increase the success and turnover of the contractor. The research further found out that the contractors who practiced PM skills had higher customer satisfaction than their counterparts.

Nevertheless, it also emerged quite clearly that while many contractors put a high premium on project management skills, relatively few used these skills in their enterprises. Moreover, except perhaps for lack of sufficient funds as reason for not using project management tools, reasons provided for not making more use of these skills do not appear to agree with the project management skills considered crucial by the contractors namely drawing up quotations, budgeting and work scheduling.

The fact that some contractors who perceive certain aspects of project management as important do not practice the same aspects implies a high likelihood that they use intuition and improvisation in managing projects. This may be driven by the need to overcome the limits of rationality in loosely structured situations. Further there was a significant positive relationship between those who attached high importance to some aspects of PM and customer satisfaction.

### Recommendations

The recommendations derived from the study were as follows:

- (I) There is a need for Thika Association of Electrical Contractors to closely study the methods used in addressing various obstacles by the contractors and the most effective ones should be applied depending on the prevailing situation. These would greatly assist in keeping the clients satisfied and therefore avoid any loss of clients.
- (II) The government, ERB (Electricity Regulation Board) and KPLC should provide training to SME contractors on stakeholder management as most challenges faced were related with this aspect.
- (III) KPLC should create more public awareness on the quality of electrical wiring this would help reduce conflict between them and the electrical contractors through increased understanding.
- (IV) ERB should recognize that majority of electrical contractors use alliance with registered contractors and therefore customize licensing requirements for SMEs. The licensing process should also be made more efficient to reduce red tape.

- (V) Entrepreneurs should seize the opportunity provided by unavailability of materials in Thika and invest in well stocked electrical hardware outlets.
- (VI) More research should be carried out in the field to determine other challenges in project management and ways of combating and changing them in to electrical contracting resources.

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