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PROJECT MANAGEMENT PRACTICES AND IMPLEMENTATION OF ICT PROJECTS IN PUBLIC PRIVATE PARTNERSHIPS IN NAIROBI CITY COUNTY, KENYA

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ABSTRACT

This study sought to establish project management practices in the implementation of ICT Projects in Public Private Partnerships in Nairobi City County, Kenya. Two of project management practices were studied namely risk management and communication management. The research carried out a descriptive research design and conduct a census on the 201 employees of the institution. Questionnaires were administered to the employees of ICTA for the collection of primary data where quantitative and qualitative data was generated. Inferential and descriptive statistics were employed for analysis of quantitative data with the assistance of Statistical Package for Social Sciences (SPSS version 25). The study results were presented through use of tables. Findings show that there is a a moderate significant relationship between risk management and the implementation of ICT projects ($r = 0.450$, p value $=0.000$), and a strong significant relationship between communication management and the implementation of ICT projects ($r = 0.553$, p value $=0.000$). The recommendations are; project managers should also identify and document all the stakeholders in order to keep record and assess new stakeholders who might have relevance to the project, the project managers should assess and monitor risks to ensure that they are managed effectively, project managers should come up with clear communication channels that will rely information to project team on time, and the project managers should use computerized tools such as project management software and spreadsheets to assist with cost estimating, cost budgeting and cost control.

Key Words: Project management practices, ICT Projects, Risk management, Communication management

Background of the Study

PMI (2013), Project management is the application of knowledge, skills, tools, and techniques to project activities to meet or exceed stakeholder needs and expectations from a project. Meeting or exceeding stakeholder needs, and expectations invariably involves balancing competing demands among; Scope, time, cost, and quality. Jaafar, Malik, Mohammad, and Muhammad (2021) posit that there are several project management practices widely described in literature and are significant to achieve project success which include management of integration, scope, time, cost, quality, resources, communications, risk, procurement, and stakeholder. The PMBOK guide proposes a set of skills and tools that increases the probability of project success, but it is important to take note that not all skills and techniques can perform uniformly in all types of projects necessitating the need to have a predetermined criteria to measure project success (Akbar & Shahid, 2023).

One of the four pillars of Kenya's Kenya Vision 2030 blueprint is deploying world class infrastructure, facilities and services. Part of the necessary infrastructure development relates to ICT that should lead to an industrialized information society and knowledge economy. The government aims to provide local and international connectivity to enable creation of online and digital jobs, markets, and quality skills allowing Kenyans to embrace the shared economy. It is for this reason that there has been a growing interest in PPPs as they entail the use of private capital to develop public infrastructure which eases the budgetary burden on the Kenyan taxpayer (Ministry of Information, Communications and Technology, 2019). There is recent upsurge in PPPs between developing country governments and private firms in the information communication and technology (ICT) sector.

PPPs can take several forms, but are usually viewed as a business relationship, or agreement, between two or more parties that combine private sector capital (and sometimes public sector capital) to improve public services and the management of public sector assets **(**Richards,2021). Where governments are facing lack of infrastructure and require more efficient services, a partnership with the private sector can help foster new solutions and bring finance. PPPs combine the skills and resources of both the public and private sectors through sharing of risks and responsibilities. This enables governments to benefit from the expertise of the private sector, and allows them to focus instead on policy, planning and regulations than delegating day-to-day operations. This research will consider critical success factors of a PPP in effective implementation of ICT projects. In comparison with the rest of the world, the Independent Evaluation Group of the World Bank in 2014 found that PPPs in developing countries played a relatively small role in infrastructure investment, averaging between 15 to 20 percent. In the poorest developing countries, the use of PPPs has been even more negligible. A World Bank report indicated that the market for PPIs has not been expanding, (Ruiz-Nunez, 2016).

Public-Private Partnerships (PPPs) have generated a lot of interest from developing countries for leveraging private sector involvement in developing and sustaining public infrastructure and services which remain scarce. Basic infrastructure includes roads, water and sewage pipes, and electrical power and ICT infrastructure. PPPs have so far been favored in the large infrastructure-intensive sectors. PPPs involve partnerships formed by governments, development partners, civil society, and the private business sector. Project managers are tasked with project success, this involves finishing the project on time, within budget, meeting end product specifications, meeting customer needs and meeting management objectives (Minyiri, & Muchelule, 2018).

The use of Information Communication Technologies has dramatically changed services, business models, and people's expectations of the quality and efficiency of information sharing and service delivery. E-government is one fundamental element in the modernization of government business

processes. It provides a competitive edge in service delivery across the civil service, enhances collaboration in public sector organizations and institutions, interaction of government and business community and between the Kenyan government and the citizens that it serves in line with vision 2030 (Wanza, & Oluoch, 2019). Some ICT projects fail as they are not adequately and sensitively formed to the local context. This is in addition to the limited attempts to link ICTs to local perspective meaningful development aims. Thus, ICT projects for local communities in developing countries need two fundamental requirements: firstly, the long-term sustainability of projects through focusing on wants, needs, and characteristics of such communities, and to consider people as project stakeholders; secondly, founding partnerships to carry out projects (Hosman& Fife, 2008).

Statement of the Problem

Information communication technology (ICT) is key to service delivery and is one of the essential factors in promoting growth in the economy. Information and Communication Technology is necessary in the modern fast economic and technological developments in the global business environment in order to remain competitive. Public-private partnerships offer possible solutions for governments seeking to achieve better value for money and fund the investments needed to provide infrastructure and manage public services (Awuah, & Young, 2021). PPPs are widely used to deliver a sequence of infrastructure projects in the world as an approach approved to boost the economic value of infrastructure outputs, it also encompasses a broad spectrum of public sector infrastructure (Cui, Liu, Hope, & Wang, 2018). In the period between 1990 to 2016, the number of PPP projects that were completed in Kenya were 26, out of which three were in ICT. In the same period, two major projects that accounted for 75% of the total investments under PPP were cancelled due to political interference (The World Bank, 2017). The government of Kenya has since the 90s formulated policies and development blueprints for development of ICT to propel its economic and social development. Despite its pursuance of PPPs as a strategy to realize the ICT vision, progress in the sector has been below par. The average success rate of government driven ICT projects are lower than 10% of all the prospected projects. Studies show that barriers that hinder the implementation of these ICT projects are: lack of Infrastructure, inadequate Finance, Poor data systems and lack of compatibility, inadequate skilled personnel, Leadership styles, culture and bureaucracy (Kimani, 2017).

According to Sergi, Popkova, Borzenko and Przhedetskaya, (2019, there exists variations in PPP implementation between developed and developing countries. Compared to developed countries, developing countries face more obstacles, such as the shortage of government financial resources, public sector inefficiencies, huge uncertainties in contractual environment, public and private partners' capacity deficiencies, weak political willingness, and administrative bottlenecks. According to Suchman, Hart and Montagu (2018) some challenges faced in the implementation of PPP projects were those such as lack of communication that result in mistrust and a general lack of engagement between government and private providers that impedes private provider understanding of government policies and procedures and other challenges cited were those where a particular number of partners who were involved across the globe, were sometimes slow and inefficient due to multiple bureaucracies interacting.

Studies show that barriers that hinder the implementation of these ICT projects are: lack of Infrastructure, inadequate Finance, Poor data systems and lack of compatibility, inadequate skilled personnel, Leadership styles, culture and bureaucracy (Kimani, 2017). According to Selim and ElGohary (2020) the challenges that most governments face when implementing smart infrastructure technologies include: adapting smart city requirements to current regulations; financial constraint and project funding, multi-stakeholder perspectives, and generation of smart governance that makes city applications more comprehensive. Karani (2017) carried a study

focusing on factors impacting delivery reliability of projects. In the study the researcher identified the critical factors as cash flow problems, delayed payment to vendors, under estimation of project duration, unqualified staff on the project team, inadequate supervision of work and increase in scope of works. Little is known about the operation of the PP model in the ICT project context and so makes it difficult to transfer or copy learnt lessons and strategies. It is in this in mind that this study sought to establish the project management practices that in the implementation of ICT PPPs in Kenya.

Research Objectives

The general objective of this study was to establish project management practices affecting the implementation of ICT Projects in Public Private Partnerships in Nairobi City County, Kenya.

The specific objectives of this study were:

i. To establish the effect of risk management on implementation of ICT Projects in Public Private Partnerships in Nairobi City County, Kenya
ii. To explore the effect communication management on implementation of ICT Projects in Public Private Partnerships in Nairobi City County, Kenya

LITERATURE REVIEW

Theoretical Review

Ofori's Project Management Success Factors Model

The study proposes to apply concept that considers project management best practices and critical success factors within a developing country context. The model that was developed by Ofori (2013) considers, in addition to cost, schedule, and performance, social, cultural, political and economic factors, as well as communication, stakeholder involvement, leadership and competency. The scholar believes that there are endogenous environmental factors that influence the different critical factors, and subsequently the project's outcome. He stated that these factors include political, socio-cultural, economical, governmental, technical and operational environment. These factors act as "filters" as the more pervasive they are, the higher their impact is on the project's outcome. The framework encompasses some of the project management practices believed to result in successful projects as well as factors that are held to contribute directly to project success namely; clarity of project mission and goals, top management support, well-laid out specifications, competency of project personnel, effective consultation with project stakeholders, effective communication, adequate financial resources, teamwork, leadership, and beneficiary satisfaction.

In a developing country such as Kenya, changes in government may affect project fund allocation, compatibility with development priorities as well as management competencies which culminate in project delays and often affect project success. The endogenous factors thus act as a filter and the stronger and more pervasive they are, the higher the impact they are likely to have on project outcomes. The current measures of success do not consider ICT’s focus on dynamic technology and the constant innovation. Such characteristics mean that the emphasis of what is important to a project and how it is measured changes over time and from one phase to another. In other words, there is a constant need for change in when and how success of the ICT project is measured. For this reason, the researcher proposes to use Ofori’s model while considering CSFs of PPPs.

Theory of Triple Constraints

Time, cost and scope as the triple constraints have been used since the 1960s as a standard measure of success in a project. Key attributes of the theory of the triple constraints are the cause and effect of new or changing triple constraint requirements that are constantly negotiated at various phases of a project. The three key triple constraint relationships signify that at least one of the triple

constraint variables must be constrained (otherwise there is no baseline for planning), and at least one of the variables must have capacity for exploitation (otherwise quality may be affected) (Mokoena, Pretorius& Van Wayngaard, 2013). The researcher proposes to use the Triple Constraints as a guide, with additional criteria based on the uniqueness of the ICT projects by establishing its objectives, main project activities and its current achievement. The Theory of Triple Constraints is best suited here as it automatically binds the project cost and time factors to the scope and so in this context will be used to measure and define the dependent variable.

Conceptual Framework

The conceptual framework for this study is made up of constructs derived from Ofori's (2013) project management success factors model while considering importance placed on four variables as summarized from the work of Osei-Kye iand Chan (2015). This studyconsiders project management factors of the PPP that are applicable through the life cycle of PPP projects. The four are risk management and communication management (Kavishe et al, 2020). The framework is a graphical representation of how the variables interconnect and is illustrated in Figure 2.1

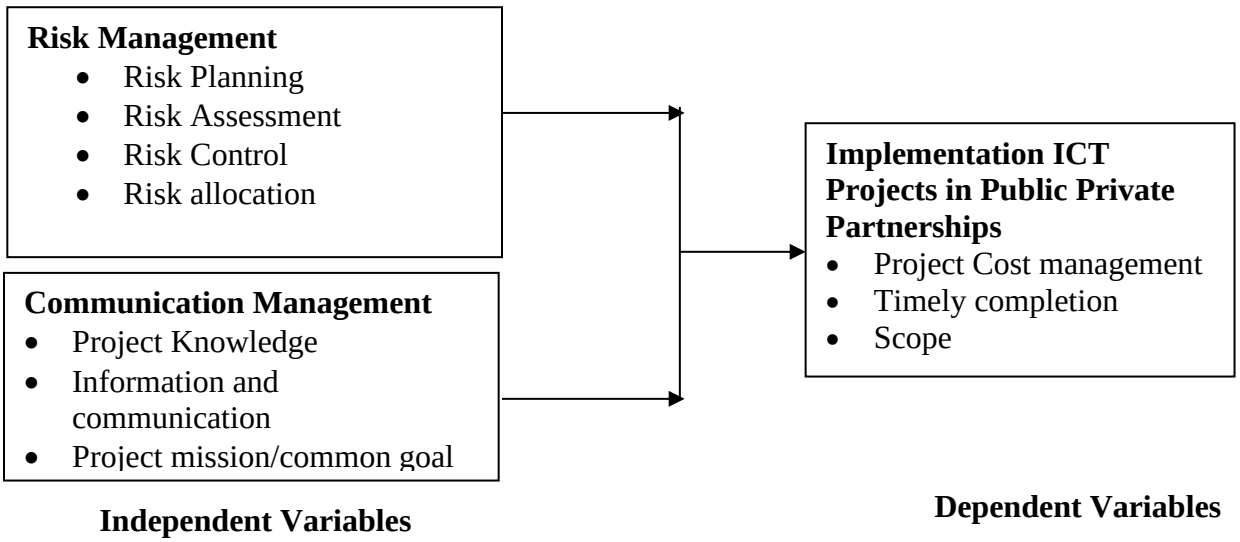

Figure 1: Conceptual Framework

Risk Management

Schwalbe, (2016) defined project risk management as the art and science of identification, analysis and responding to the uncertainties that emerges during the life period of a project. Risk management is a management activity that becomes more important as companies become more global and more competitive. The risk management process consists of a series of steps that define context, define, analyze, assess, process, control, communicate, and continuously improve decision making. By implementing risk, organizations can reduce unexpected and costly emergencies and allocate resources more efficiently. It helps improve communication and improve organizational performance by providing a brief summary of the threats it may face (Pojasek, 2017).

Serpellaet al.(2014) argue that without an effective project risk management function to combat the risks and uncertainty that any project presents, there will always be continued delays, high costs and contractual disputes. It is thus paramount that project risk management becomes an integrative process which can be implemented in a systematic manner throughout the lifecycle of a construction project leading to project success. Vijayan and Sharma (2020) noted that projects handled by many companies in India fail to give proper attention to the risk management aspect

and the failure of many projects in the form of time overrun, higher cost and failure to fulfill customer requirements can be attributed to the absence of proper care given to various dimensions of risk management as well as various aspects of risk management practice.

The single most challenging aspect in terms of managing risk in ICT PPPs is the dynamic and changing nature of technology and the industry itself. This risk factor has a spill-over effect; flexibility is therefore key throughout the project life cycle. Possible changes need to be anticipated in advance (Nel, 2020). Risk management is one of the factors featuring in Ofori (2013) model as a generic project management success factor. The project risk register and feedback from the study respondents should shed light on the type of risks foreseen and encountered during the project implementation period. The specific areas to assess will be the risks retained by the public sector, transferable risks to the private sector and shared risks (Osei-Kyei & Chan, 2015) and how these affected the final outcome at the ministry ICT projects.

Communications Management

Ruuska (2016) notes that project communication involves the exchange of information to create an understanding amongst the different project stakeholders. Effective project communication depends on the quality of communication in terms of formality, feedback, and sufficiency/adequacy, among others. As such, the quality is evident from appropriate information getting to the right people at the right time. Communication is the deliberate exchange of information between two or more people in order to communicate or receive intended meanings using a common collection of signs and semiotic laws (Burnside-Lawry, 2011). In a project the use of communication in order to ensure the facet of the project activities are well fitting and there is minimal friction between the relevant stakeholders involved. The development of communicative intent, message composition, message encoding, signal transmission, signal reception, message decoding, and finally message interpretation by the receiver are the basic steps of communication (Mary, 2013). Since a project differs from other entities in that it is the primary business tool for organizing and incorporating all of the firm's key business operations, the flow of knowledge into and out of the project is extremely critical (Rajhans, 2018).

Ensuring good quality communication between the project team members is crucial since it makes it possible to use different social networks. This is especially important when project members are experts in different fields and in different countries. Social media can boost communications through reduced meeting duration. Both online and offline environments are an integral part of project management. Social media plays a crucial role in project activities. Social media tools help communicate with stakeholders and support dissemination of information therefore increasing the sustainability of results of the project (Pivec & Maček, 2019).

The importance of “Openness and constant communication” has been emphasized in prior PPP studies on CSFs (Osei-Kyei & Chan, 2017). The timely provision of comprehensive information at each phase in the implementation process is key in ensuring success. As corroborated by Ofori (2013), researcher sought to establish if there is an appropriate network and necessary data or information to all key actors in the ICT project implementation. Respondents in the study will provide useful feedback on their project understanding, project information and communication modes and knowledge of project mission or common goals by all stakeholders. Innovative processes in the tourism industry are usually defined by improving customer services and by investing in ICT (Labanauskaitė, Fiore, & Stašys, 2020).

The success of PPPs in most countries is highly determined by politics which can sway the final outcome to the negative or positive. Without the necessary political support, an approval for public expenditure on public project and work would not be granted hence the importance of this factor for PPP development and success. The politics surrounding PPPs can negatively impact on PPP

projects because of cost over runs and sometimes big projects become white elephant projects. There is need to manage politics by ensuring operational risks are mitigated early enough through sound governance structures. The most effective way of managing politics is by building consensus through public education, consultative engagement and ensuring transparency and oversight in the management of PPP projects (Baithili, Mburugu& Njeru, 2019).

Empirical Review

Risk Management and Project Implementation

Based on Osei-Kyei and Chan (2015) methodical review of 27 studies on the CSFs for implementing PPP from some selected top tier academic journals from 1990 to 2013, risk allocation and sharing, strong private consortium and political support were cited most in the studies. Risk allocation is a unique feature of any PPP as the two parties work at balancing risks while undertaking the project. A proper mechanism should be adapted in allocating risk effectively and efficiently throughout the project period. The private sector should not be left to bear all the risk as this could have a bearing on future projects. The public partner must retain risks that obviously go beyond the control of the private sector.

In a study of the risks in a PPP, 54 potential risks in PPP infrastructure development were identified. These were classified into the risks associated with site risk, design and procurement risk, construction risk, financing risk, financial risk, market and revenue risk, operational and performance risk, force majeure risk, political and regulatory risk, and social risk. The basic principles that apply to each PPP scheme is that the risks should be allocated to the party best able to bear and manage them effectively. However, to arrive at an efficient risk allocation practice, some crucial considerations are required as the possibility of a difference as a result of the subjective views of risk and the complexity of risk. Caution by all parties is necessary to the extent of allowing for alternative risk transfer to entities external to the partnership (Rostiyanti & Pangeran, 2012).

Ali, Stewart and Qureshi (2017) conducted a study in Pakistan to investigate the risk management practices adopted in Construction industry. The study adopted a descriptive research design. The study target population consisted of construction practitioners, construction managers and construction project team. Questionnaires were used to collect data from 40 respondents. Findings showed that the risk acceptance strategies adopted by the construction company such as contingency plan influence completion of projects. The study concluded that risk acceptance policies have a strong positive influence on project performance. Ubani, Amade, Benedict, Aku, Agwu, and Okogbuo (2015) investigated effect of risk management practices on construction industry in Nigeria. The study adopted a case study research design. The target was the contractors, clients and consultants from construction industry. A total of 84 construction firms. Questionnaires and interviews were used to collect data. Findings revealed that the construction firms adopted risk retention through active retention by taking self-insurance after evaluation of possible losses and costs of alternative ways of handling risks. The study findings further showed that risk retention positively influenced performance of the construction firms.

Biira, and Tukei (2020) examined the relationship between risk avoidance strategies and organizational performance of Total Uganda Limited. The study applied a descriptive study design. Data were collected using questionnaires and interviews from 126 respondents. Analytical techniques of correlation and regression analysis were applied. Results confirmed that risk avoidance strategies significantly influenced organizational performance. The study concluded that incorporating risk avoidance strategies within the operations of the company improved their performance. Mumassabba, Mukulu, Atikiya, R. (2022) evaluated the influence of risk avoidance strategies and competitiveness of small and medium enterprises in Kenya. This

study adopted a descriptive research design. The target population was SMEs registered by the County Government City of Kisumu. Stratified random sampling was used to sample 375 . The study used linear regression model to establish the relationship between risk avoidance strategies strategy and competitiveness of SMEs in Kenya. Findings showed a strong significant relationship between risk avoidance strategies strategy and competitiveness of SMEs in Kenya

Communications Management and Project Implementation

A study conducted to assess the quality of project management practices by determining the factors that facilitate project success was conducted in Ghana. Clarity of project mission and goals, top management support and effective communication stood out as factors of project success. Those that militate against project success were found to be lack of support and finance, and lack of effective communication. The study also indicated that attention must be paid to the 4Cs – communication, commitment, competency, and coordination in order to improve project quality (Ofori, 2013).

A study by Afroze and Khan (2017) investigated the impact of effective communication practices and project complexity on performance of international development projects. The effects of practices in communication and complexity of projects on project performance was measured through a survey method. Questionnaires were sent to 60 international organizations working on such projects. The results of the study showed that these practices have significant and positive impact on project performance; project complexity has a minimal impact on the communication and performance relationship.

Parham and Li (2018) studied effects of communication management on infrastructure projects in Jamaica. The study adopted a quantitative approach and utilized questionnaires for data collection. The sample was 140 project professionals involved in infrastructure projects. Findings showed that ineffective utilization of communication methods lead to obstruction and project delay. Penned communication was classified as the most important communication methods to be utilized in implementation of projects. Penned communication is brief, inconspicuous, and precise and certain. Oral communication was classified as the second important form of communication method and included both telephone and face-to-face communication. Piozin et al. (2018) explored the usage of the virtual communication practices in the industrialized building system in the Malaysian construction industry. Findings established that most of the team members were using virtual communication during project implementation due to modern organization reform. Use of virtual communication facilitated faster and effective delivery of information, quicker decision making, and reduced delays in project delivery.

Machange and Fujo (2021) assessed effective communication management in achieving stakeholder satisfaction in project-based organizations in Tanzania. The sample respondents were 125. Findings showed that traditional communication channels are still highly used in rural-oriented projects. Of the four communication channels used, face-to-face and meetings were rated the most effective modes of communication channels preferred by the stakeholders in projects due their convenience. Kibet, Mugo, and Nassiuma (2023) assessed the influence of communication flows on project implementation at Kenya Rural Roads Authority in Elgeyo Marakwet. An explanatory research design was adopted and the target population for the study was 122 KeRRA staff selected from various departments. The study findings indicated that communication flows had a positive and significant influence on project implementation. The study concluded that communication flows were critical to successful project implementation.

Implementation of ICT projects in PPPs

Good governance is important for PPP success and this can only be achieved by providing sound economic policies and administrative platform that attract private sector to participate in public

project. Good governance ensures that there is a legal framework within which the PPP can operate. The majority of the reported studies on PPPs in both developed and developing countries highlight the importance of legal framework as one such CSF for efficiency of PPPs in delivering its purpose (Chileshe et al, 2020). The structure and compatibility of a consortium representing private sector influences the success of the project. The complex nature of PPP projects makes it very difficult for a single private company to execute the project hence different companies often come together to form a consortium. A weak and poorly managed consortium will most probably result in difficulties for a PPP project. The strong consortium is one that is equipped with strong technical, operational and managerial capacity that is then able to undertake PPP projects (Dahiru & Muhammad, 2015).

Cheung, et al (2012) in their study of practices necessary for adopting PPPs in mainland China and Hong Kong, identified several practices that they grouped under seven principal headings i.e. equitable allocation of risks, strong private consortium, judicious government control, transparent and efficient procurement process, project economic viability, adequate legal framework and stable political environment and available financial market. In their findings, the top CSF ranked by respondents was 'Favorable legal framework' followed by 'Appropriate risk allocation and risk sharing'; 'Commitment and responsibility of public and private sectors'; and 'Stable macro-economic condition'.

Iyer *et al* (2016) carried out an empirical study on factors affecting schedule performance in projects where over 40% of the projects are facing time overrun. The researcher identified seven factors with significant influence on the schedule outcome. Three factors: commitment of the project participants; owner's competence; and conflict among project participants were found to possess capability to enhance performance level while the remaining four factors; coordination among project participants; project managers' ignorance and lack of knowledge; hostile socioeconomic environment; and indecisiveness of project participants tend to maintain the schedule performance at its existing level. In Kenya, a regulatory framework for PPPs was recommended in 2010 which led to the approval of a PPP policy statement in 2011. In 2012, the Parliament approved the PPP Bill which received Presidential Assent to become the PPP Act in January 2013 (Kamau, 2013). The PPP Act provides a legal framework for the development of PPPs for infrastructure development. The Act enables the government to approach PPPs as long-term programs rather than independent projects. The Cabinet and the PPP Committee ensure that PPPs comply with the PPP Act (PPP Unit Kenya 2021).

RESEARCH METHODOLOGY

A descriptive design was adopted for its effectiveness in helping to provide answers to the questions of who, what, when, where and how (Abahumna (2017). The descriptive design, which is useful in obtaining information concerning current status of a phenomena, with respect to the prevailing variables is therefore suited for this study. It provides a framework for the project management factors critical for Public-Private Partnerships in the implementation of ICT projects in Nairobi City County, Kenya. In this study, the members of staff of Information, Communication and Technology Authority, headquarters where the ICT projects are implemented under PPP form the study population. The target population comprises of 201 members of staff where we have 7 managers/heads of departments, 50 general (finance, accounting, administration) and 144 from the Presidential Digital Talent Team (Owade,2018).

The study targets 201 respondents and employed census technique. A census comprises the entire population in a study and it is convenient where the total population is small. Israel (2009) stipulates that census is appropriate where the population is around 200. Purposive sampling will be employed whereby the 7 managers/heads of departments, 50 general (finance, accounting,

administration) and 144 from the Presidential Digital Talent Team was chosen because they are well conversant with the relevant information concerning the study variables and they also engaged in the formulation and implementation of ICT projects.

Primary data was used in this study. The study's primary data was obtained using semi-structured questionnaires. As a standard measure, the online questionnaire was pre-tested on a sample of 20 respondents from the accessible population. This is informed by Cooper and Schindler (2011) rule of thumb that 10% of the sample is ideal to determine suitability of data collection instruments. Pretesting was used to illustrate the relevancy and clarity of the questionnaire and interview guide. The Mean was used to measure the general response of the survey samples, whether they agree to a given statement or not.Statistical Package for Social Sciences 25 (SPSS) analysis software to generate inferential and descriptive statistics. A multiple regression analysis was used to assess the relationship between project management factors in the implementation of ICT projects in Kenya, changes in the independent variable would cause a change in the dependent variable.

RESEARCH FINDINGS AND DISCUSIONS

Pilot was conducted with 20 staff members representing 10% of the sample. Questionnaires were administered to 181 staff members and 140 were successfully answered. The response rate was therefore 77.3%. The response rate was considered adequate for analysis.

Risk Management

The second objective sought to establish the effect of risk management on the implementation of ICT Projects in Public Private Partnerships in Nairobi City County, Kenya. Respondents were asked to indicate their level of agreement on listed statements related to risk management. Findings are presented in Table 1.

Table 1: Risk Management

Key: 1-Strongly disagree, 2-Disagree, 3-Not sure, 4-Agree, 5-Strongly agree

Statements	SD		D		N		A		SA		M
	F	%	F	%	F	%	F	%	F	%	
IT projects are insured to ensure no occurrence will cause a delay in automated activities	21	15.0	4	2.9	12	8.6	28	20.0	75	53.6	3.94
The equipment are insured to ensure no delay in operations	22	15.7	0	0	4	2.9	28	20.0	86	61.4	3.89
There are protection and safety systems against any event that may delay the project implementation	10	7.1	20	14.3	8	5.7	32	22.9	70	50.0	4.06
There are regular inspections to ensure no issue arises that may delay project implementation	21	15.0	4	2.9	8	5.7	12	8.6	95	67.9	4.11
Adequate resources are allocated for any risk that may occur	68	48.6	24	17.1	12	8.6	15	10.7	21	15.0	2.34
The management is always informed on continuous basis on the expected risks and strategies of managing them	8	5.7	21	15.0	4	2.9	12	8.6	95	67.9	3.74
Regular inspection of ongoing projects ensure projects are not delayed	19	13.6	30	21.4	4	2.9	4	2.9	83	59.3	3.73
There is a well-developed strategy within the project to respond to risks	85	60.7	24	17.1	7	5.0	13	9.3	11	7.9	1.86

Results in Table 1 show that majority of the staff agreed that; there are regular inspections to ensure no issue arises that may delay project implementation (m=4.11), there are protection and safety systems against any event that may delay the project implementation (m=4.06), IT projects are insured to ensure no occurrence will cause a delay in automated activities (m=3.94), the equipment are insured to ensure no delay in operations (m=3.89), the management is always informed on continuous basis on the expected risks and strategies of retaining them (m=3.74), and regular inspection of ongoing projects ensure projects are not delayed (m=3.73). The staff disagreed that there are adequate resources are allocated for any risk that may occur (m=2.34), and there is a well-developed strategy within the project to respond to risks (m=1.86).

Findings imply that the ICT project managers are aware of the risks that may affect implementation of ICT projects. These risks are market and security related. ICT projects are prone to hacking which may lead to data bleach. Another risk is related to harsh market especially in the global area whereby every organization needs to have its presence in the technology spheres. The project managers have put various measures to control the risks and also a plan on how to handle the risks in case they occur. The projects are also insured to ensure that the project funds are not lost. The resources allocated for risk management are however inadequate which may limit the ability to manage risks effectively. Findings support Ubani, Amade, Benedict, Aku, Agwu, and Okogbuo (2015) that the firms manage risks through active retention by taking self-insurance after evaluation of possible losses and costs of alternative ways of handling risks.

Communication Management

The fourth objective sought to explore the effect of communication management on the implementation of ICT Projects in Public Private Partnerships in Nairobi City County, Kenya. Respondents were asked to tick on the statements related to communication management. Findings are presented in Table 2.

Table 2: Communication Management

Key: 1-Strongly disagree, 2-Disagree, 3-Not sure, 4-Agree, 5-Strongly agree

Statements	SD		D		N		A		SA		M
	F	%	F	%	F	%	F	%	F	%	
There are clear communication channels within the organization through integration of ICT	10	7.1	22	15.7	4	2.9	24	17.1	80	57.1	4.01
There are clear ICT policies in the PPP projects	20	14.3	8	5.7	21	15.0	12	8.6	79	56.4	3.87
Feedback mechanism communicate the findings to protect actions	19	13.6	8	5.7	8	5.7	24	17.1	81	57.9	4.00
The ICT responsibilities and duties are clearly outlined	20	14.3	8	5.7	12	8.6	24	17.1	76	54.3	3.91
There is effective communication between the project managers and project team	8	5.7	25	17.9	8	5.7	16	11.4	83	59.3	3.99
Workplace conflict management has increased staff morale within project teams	24	17.1	11	7.9	8	5.7	8	5.7	89	63.6	3.91
The project staff can share information, collaborate, and solve problems in teams	0	0	24	17.1	16	11.4	44	31.4	56	40.0	3.94
Project communication plan resonate well with all project requirements	19	13.6	20	14.3	19	13.6	49	35.0	56	40.0	3.88

Results show that majority of the respondents strongly agreed that; there are clear communication channels within the organization through integration of ICT (m=4.01), feedback mechanism communicate the findings to protect actions (m=4.00), there is effective communication between the project managers and project team (m=3.99), the project staff can share information, collaborate, and solve problems in teams (m=3.94), workplace conflict management has increased staff morale within project teams (m=3.91), the ICT responsibilities and duties are clearly outlined (m=3.91), project communication plan resonate well with all project requirements on professional service (m=3.88), and there are clear ICT policies in the PPP projects (m=3.87).

The project managers have various communication channels to communicate with the project team and the project stakeholders too. Both conventional and digital methods are used for communication. These channels are both formal and informal. The managers use effective communication channels to ensure that there is no distortion of messages. This also helps to ensure that the project team members clearly understand the project roles for effective implementation of the projects. Communication also enables project staff to share information, collaborate, and solve problems in teams. Communication is paramount for projects to perform as planned especially when project participants and stakeholders are always and timely informed, through their most preferred channel. Therefore when communication is effective within the projects, all project participants and stakeholders will ensure that project expectations are realized. Open sharing of information is encouraged to create a trusting work environment. Findings support Piozin et al. (2018) who established that team members use various communication channels during project implementation.

Implementation of ICT Projects

The study sought to examine whether the ICT projects were successfully implemented. Respondents were asked to indicate their level of agreement on project implementation. Findings are presented in Table 3.

Table 3: Implementation of ICT Projects

Statements	SD		D		N		A		SA		M
	F	%	F	%	F	%	F	%	F	%	
The projects are implemented with the allocated costs	93	66.4	4	2.9	12	8.6	16	11.4	15	10.7	1.97
ICT projects are implemented on time	93	66.4	12	8.6	8	5.7	8	5.7	19	13.6	1.91
The implemented projects meet desired quality	21	15.0	8	5.7	16	11.4	20	14.3	75	53.6	3.86
Project beneficiaries are satisfied	24	17.1	4	2.9	8	5.7	12	8.6	92	65.7	4.03

Results show that majority of the project staff agreed that the project beneficiaries are satisfied (m=4.03), and the implemented projects meet desired quality(m=3.86). They however disagreed that the projects are implemented with the allocated costs(m=1.97), and ICT projects are implemented on time(m=1.91). findings imply that ICT projects experience budget and time overruns. They are however of desired quality that meets stakeholders' expectations.

Correlation

Correlation was conducted to measure the strength and significance of the relationship between the study variables. Correlation results are presented in Table 4.

Table 4: Correlation Coefficients

Variables		Performance	risk management	communication management
Performance	Pearson Correlation	1		
	Sig. (2-tailed)			

Risk management	Pearson Correlation	.450**	1	
	Sig. (2-tailed)	.000		
Communication Management	Pearson Correlation	.553**	.197	1
	Sig. (2-tailed)	.000	.110	

**. Correlation is significant at the 0.05 level (2-tailed).

Findings show that there is a a moderate significant relationship between risk management and the implementation of ICT projects (r = 0.450, p value =0.000), and a strong significant relationship between communication management and the implementation of ICT projects (r = 0.553, p value =0.000). Findings indicate that there is a significant relationship between project management practices and the implementation of ICT Projects in Public Private Partnerships in Nairobi City County, Kenya. Findings are in support of various scholars who also found that there is a significant relationship between project management practices and project performance. These include; Ali, Stewart and Qureshi (2017) that risk acceptance policies have a strong positive influence on project performance. Kibet, Mugo, and Nassiuma (2023) that communication flows had a positive and significant influence on project implementation.

Regression Analysis

A regression analysis conducted to test is changes in the independent variables would cause changes in the dependent variable. The model summary for the regression equation is presented in Table 5.

Table 5: Model Summary

Model	R	R^2	Adjusted r^2	Std. Error of the Estimate
1	0.849	0.721	0.701	.815

Predicators: *(constant*) *risk management, and communication management*

Table 6 show the value of R^2 from the model summary is 0.721 (72.1%). This means that changes in stakeholder management, risk management, cost management and communication management contribute to 72.1% of changes in implementation of ICT Projects in Public Private Partnerships in Nairobi City County, Kenya. Other project management practices that were not examined in this study contribute to 27.9% of changes in the implementation of ICT Projects in Public Private Partnerships in Nairobi City County, Kenya

Table 6: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	169.814	4	42.453	41.134	.000[b]
	Residual	139.829	135	1.032		
	Total	309.143	139			

Predicators: *(constant) risk management and communication management*
Dependent variable: *Project implementation*

Results show that regression model had an F value of 41.134 (p= 0.000). The significance value of 0.000 indicates that the regression relationship is highly significant in predicting how project management practice affects implementation of ICT Projects in Public Private Partnerships in Nairobi City County, Kenya. . The F value is greater than 1 which shows that the overall model is suitable for running a regression equation.

Table 7: Regression Coefficients

Model	Unstandardized Coefficients	Standardized Coefficients	T	Sig.

	B	Std. Error	Beta		
Constant/Y Intercept	1.627	.462		3.520	.048
Risk management	.400	.066	.388	6.099	.000
Communication management	.572	.066	.556	8.659	.000

Project implementation= 1.627 + 0.400 (risk management) +0.572(communication management).

The regression coefficients show that holding all other factors at constant zero, implementation of ICT Projects in Public Private Partnerships in Nairobi City County, Kenya would be at 1.627. In addition risk management has positive and significant effect on performance of the ICT Projects in Public Private Partnerships in Nairobi City County, Kenya ($\beta = 0.400$, t= 6.099, p value =0.000), and communication management has positive and significant effect on performance of the ICT Projects in Public Private Partnerships in Nairobi City County, Kenya ($\beta = 0.572$, t= 8.659, p value < 0.000). Findings also imply that a unit change in risk management would result to a unit change in project implementation by 0.400, and a unit change in communication management would result to a unit change in project implementation by 0.572. Findings support Kising'u and Oyoo (2019) who found that project performance is affected by project stakeholder engagement, project leadership, project monitoring and project risk management.

Conclusion

Risk management affect performance of ICT projects. Risks are identified and resources allocated to manage the risks. Identifying risk enables full risk analysis to be done and risk to be mitigated. The effectiveness of project team in identifying potential risks influence the optimization of resources allocated for ICT projects and that the techniques employed in risk identification influence the performance of ICT projects. These resources are however not to cover the control project risks. Projects are monitored throughout the project phase and reporting to the project managers.

Communication is a key determinant of project performance. The project managers who regard communication as one of the most important factors contributing to success of projects have achieved higher success rate in their projects. Accurate, useful, timely, and credible communication is crucial to maintaining a cohesive team environment and achieving project success. Project information is communicated consistently throughout each stage of the process, so all team members are equally informed. Open sharing of information is encouraged and adopted to create a trusting work environment. A variety of communication mediums is also used.

Recommendations

The project managers should assess and monitor risks to ensure that they are managed effectively. There should be effective communication to the project team on the risk assessment reports. This will alert them on the damages that would be caused if the risks were to happen and how to react if such risks happen. Project managers should transfer risks through diversification. Using a reinsurance technique, projects can allocate risks to those parties who are most appropriate to bear them. This can reduce losses of the original project and therefore improve performance.

The project managers should use computerized tools such as project management software and spreadsheets to assist with cost estimating, cost budgeting and cost control. Such products can simplify the use of the tools and thereby facilitate rapid consideration of many costing alternatives. The project managers should also ensure that ethics are observed in project management and also seek services of professional auditors to monitor project costs.

Suggestions for Further Studies

A similar study in focusing on implementation of other projects since this study measured implementation of IT projects. This study suggests research on other project management

practices affecting implementation of ICT projects since the study shows that 27.9% of changes in the implementation of ICT Projects in Public Private Partnerships in Nairobi City County, Kenya is due to practices that were not studied.

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