International Journal of Management and Business Research

Volume 7, Issue 1, pg. 434-449, 2025 *ISSN 29769-91723*

IJMBR https://grandmarkpublishers.com/index.php/IJMBR/index

PROJECT MANAGEMENT INFORMATION SYSTEM ATTRIBUTES AND PROJECT PERFORMANCE IN BUSINESS PROCESS OUTSOURCING COMPANIES IN NAIROBI COUNTY, KENYA

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ABSTRACT

Business Process Outsourcing (BPO) companies play a critical role in the economic development of Kenya. As a growing hub for outsourcing services, particularly in the fields of customer support, IT services, finance, and human resources, BPO companies contribute significantly to job creation, especially for the youth. The general objective of the study was to determine the influence of project management information system attributes on project performance in business process outsourcing companies in Nairobi County, Kenya. Specifically, the study sought to examine the influence of quality of information on project performance in business process outsourcing companies in Nairobi County, Kenya and to assess the influence of system usage on project performance in business process outsourcing companies in Nairobi County, Kenya. This study was guided by: Task-Technology Fit (TTF) Model and Unified Theory of Acceptance and Use of Technology (UTAUT). The study used survey research design. The project delivery team was derived from a pool of 350 project managers within the five companies. 70 members were picked from each company. Using Yamane (1967) formula, a sample size of 171 respondents was picked from the 300 project managers. The 300 project managers were composed of 50 managers from each of the six companies. This study deployed a stratified random sampling design to ensure adequate representation from different groups in the final sample. The research applied survey design. Questionnaires were distributed to the respective project managers. A pilot test was conducted to test the validity and reliability of the data collection instruments. Quantitative data was coded and fed into Statistical Package for Social Scientists (SPSS) and analyzed using descriptive statistics. Descriptive statistics used in the analysis included relative (percentages) and absolute frequencies as well as measures of dispersion and central tendencies (standard deviation and mean). Quantitative data was presented in tables, accompanied by relevant explanations in prose. The study concludes that quality of information has a positive and significant effect on project performance in business process outsourcing companies in Nairobi County, Kenya. The study also concludes that system usage has a positive and significant effect on project performance in business process outsourcing companies in Nairobi County, Kenya. Based on the findings, the study recommends that the management of business process outsourcing companies should invest in acquiring and maintaining high-quality project management software systems. This includes ensuring that the software is user-friendly, easy to learn, flexible to accommodate diverse project needs, and accessible across various platforms and locations.

Key Words: Project Management Information System Attributes, Quality of Information, Project Performance, Business Process Outsourcing Companies, System Usage

Background of the Study

Business Process Outsourcing (BPO) companies are firms that specialize in handling various operational and administrative functions for other businesses, typically those that are considered non-core but essential to day-to-day operations (Claudia-Inés, Joaquin & Victor, 2020). These functions can include customer service call centers, technical support, payroll processing, human resources management, accounting, data management, IT services, and more. By outsourcing such tasks, companies can reduce costs associated with hiring, training, infrastructure, and management while maintaining or even improving the quality of service (Vittal & Parviz, 2022). BPO companies operate in two main models: onshore (within the same country) and offshore (in another country), with the latter often chosen for its cost advantages. These companies use highly trained personnel and advanced technologies to deliver efficient, scalable, and consistent services (Louis & François, 2023). Moreover, BPO providers often follow industry best practices and regulatory standards, ensuring compliance and reducing operational risk for their clients. In essence, BPO companies act as strategic partners, helping organizations improve productivity, focus on innovation and core competencies, and respond quickly to market demands without the burden of managing every internal function themselves (Abdul, 2023).

One of the primary roles of Business Process Outsourcing (BPO) companies is to enhance operational efficiency by managing routine, time-consuming, and process-oriented tasks on behalf of their clients (Al-Mamary, Alina & Aziati, 2022). These include services such as customer support, billing, payroll processing, IT support, data entry, and procurement. BPO providers are structured specifically to handle high volumes of such tasks, using streamlined workflows, specialized software, and trained personnel. This focus allows them to deliver services faster and more accurately than many in-house teams (Sakdan *et al*, 2023). By offloading these functions to BPO partners, businesses can free up internal resources and focus on core strategic areas like product development, customer engagement, and market expansion. Cost efficiency is one of the most attractive benefits BPO companies offer. Outsourcing reduces the need for businesses to invest in office infrastructure, equipment, recruitment, training, and employee benefits for roles that do not directly contribute to revenue generation (Ukundwanayo & Rulinda, 2024). Many BPO firms are located in countries with lower labor and operational costs, such as India, the Philippines, or Eastern European nations, which allows clients to save significantly without sacrificing service quality. This is particularly beneficial for startups and small-to-medium-sized enterprises that need to manage tight budgets while maintaining competitiveness in their industries (Boateng, 2023).

BPO companies provide the flexibility businesses need to scale their operations up or down based on demand. This is especially useful in industries with fluctuating workloads, such as retail, e-commerce, or tourism. For example, a BPO provider can quickly ramp up its workforce to handle increased customer queries during the holiday season and then reduce capacity during quieter periods (Mbwil, 2024). This on-demand scalability prevents companies from overstaffing or understaffing, ensuring they can remain agile and responsive in a dynamic market without incurring unnecessary costs. Another critical role of BPO companies is to enhance service delivery and customer satisfaction (Shegaw, 2024). They often employ agents or specialists who are specifically trained to handle customer interactions, technical troubleshooting, or compliance-related tasks. Many BPOs also use advanced technologies like CRM (Customer Relationship Management) platforms, AI chatbots, and analytics tools to monitor performance, reduce errors, and personalize customer interactions (Ogero, 2022). Furthermore, because many BPO companies operate in different time zones, they are able to provide 24/7 customer service, which significantly improves responsiveness and customer loyalty—an important competitive advantage for global businesses (Okinyi & Keiyoro, 2021).

Regulatory compliance and risk mitigation are increasingly important roles BPO providers play, especially in sectors like finance, healthcare, and telecommunications. These industries

face strict legal and industry-specific standards, such as GDPR (General Data Protection Regulation) in Europe or HIPAA (Health Insurance Portability and Accountability Act) in the U.S. for healthcare (Murira & Muchelule, 2023). Reputable BPO companies maintain compliance frameworks, data protection policies, and internal audit systems that help client organizations avoid legal issues, penalties, and reputational damage. In this way, they not only perform routine tasks but also act as safeguards against operational and regulatory risks (Ayier, 2022). Modern BPO companies also assist in driving digital transformation for their clients. Many invest in cutting-edge technologies such as robotic process automation (RPA), artificial intelligence (AI), cloud computing, and machine learning. These technologies automate repetitive tasks, reduce human error, and provide actionable insights through data analytics (Lango, 2022). By integrating these innovations into their service delivery, BPOs help client companies modernize their operations and remain competitive in increasingly tech-driven industries. For many businesses, especially those with limited IT resources, partnering with a technologically advanced BPO firm provides access to innovation without the need for heavy capital investment (Claudia-Inés, Joaquin & Victor, 2020).

A Project Management Information System (PMIS) is a structured, technology-based toolset used to support the planning, execution, monitoring, and completion of projects. Its key attributes include integration, which ensures seamless coordination of all project elements, and automation, which facilitates the efficient handling of tasks such as scheduling, budgeting, and reporting (Vittal & Parviz, 2022). A PMIS also features data centralization, allowing stakeholders to access and share accurate, real-time project information from a single source. Another essential attribute is customization, enabling the system to be tailored to suit the specific needs and methodologies of a project or organization (Louis & François, 2023). Additionally, PMIS tools often incorporate collaboration capabilities, supporting communication and document sharing among team members regardless of location. Security and user access control are also critical, ensuring that sensitive project data is protected and accessible only to authorized personnel (Abdul, 2023).

Quality of information relates to the accuracy, timeliness, relevance, and completeness of the data provided by the system (Al-Mamary, Alina & Aziati, 2022). If the information produced is incorrect or outdated, it can lead to poor decision-making and project delays. Therefore, maintaining data integrity and establishing validation mechanisms are vital. System usage reflects how well the system is adopted and utilized by its intended users, which directly influences its return on investment. High usage rates often indicate that the system meets user needs and integrates well with workflows, while low usage might point to design flaws, lack of training, or resistance to change (Ukundwanayo & Rulinda, 2024). This study sought to determine the influence of project management information system attributes on project performance in business process outsourcing companies in Nairobi County, Kenya.

Statement of the Problem

Business Process Outsourcing (BPO) companies play a critical role in the economic development of Kenya. As a growing hub for outsourcing services, particularly in the fields of customer support, IT services, finance, and human resources, BPO companies contribute significantly to job creation, especially for the youth (Ogero, 2022). These companies provide employment to thousands of Kenyans, creating opportunities in urban areas like Nairobi. Additionally, BPOs attract foreign investment, enhancing Kenya's status as a regional outsourcing center in Africa (Okinyi & Keiyoro, 2021). They also foster skills development and knowledge transfer, further strengthening the country's competitive edge in the global market. Moreover, the presence of BPO companies leads to the development of supporting industries, such as telecommunications and infrastructure, contributing to the overall economic growth of the country (Murira & Muchelule, 2023).

Business process outsourcing (BPO) companies in Nairobi County, Kenya, face several significant challenges that can impact their project performance. These challenges are critical factors that influence the overall success of projects (Ayier, 2022). Time management is a significant challenge for BPO companies in Nairobi, where delays in service delivery can severely impact client satisfaction and project outcomes. In a highly competitive industry, timely delivery is often directly linked to customer retention and contract renewals (Lango, 2022). According to a 2021 study by the Kenya Association of Outsourcing Professionals, approximately 48% of BPO companies in Nairobi reported that their projects experienced delays, largely due to poor coordination between teams, misaligned schedules, and lack of real-time data on project progress (Ogero, 2022). A notable 35% of these delays were linked to issues like the inability to forecast the time required for tasks, which led to unrealistic timelines being set. Moreover, Nairobi's growing status as a global outsourcing hub means that many BPO companies must coordinate with clients in different time zones, making it even more challenging to meet deadlines. In a survey conducted by the Business Process Outsourcing Kenya (BPOK) in 2020, 32% of respondents cited that time zone differences were a key contributing factor to delays in project completion, further complicating the timely delivery of services (Okinyi & Keiyoro, 2021).

Quality assurance in BPO companies in Nairobi is another significant hurdle. Many firms struggle to consistently meet the standards expected by international clients, often due to gaps in employee training, lack of standardized operating procedures, and frequent staff turnover (Murira & Muchelule, 2023). A 2020 survey by the Kenya BPO & Contact Centre Association (KBCCA) revealed that 40% of BPO companies in Nairobi experienced issues related to the quality of their deliverables. These issues were often a result of insufficient monitoring of performance metrics, with 55% of companies acknowledging that their project management systems were either outdated or not aligned with their service delivery needs (Ayier, 2022). Another study by the Kenya ICT Authority indicated that 28% of BPO service providers cited inadequate staff training and lack of continuous professional development as primary causes for quality issues. This often leads to errors such as incorrect data processing, missed deadlines, or unsatisfactory customer service, all of which negatively affect the reputation of BPO firms in Nairobi (Lango, 2022).

Budget management remains a persistent problem for many BPO companies in Nairobi. Despite the need for cost efficiency, many companies often experience budget overruns due to poorly estimated costs or unforeseen operational expenses. A 2019 report by Deloitte found that 63% of BPO companies in Nairobi reported that their projects exceeded initial budgets by an average of 15-20% (Ogero, 2022). One common reason for these overruns is the underestimation of costs associated with infrastructure, technology upgrades, and workforce management. For example, in a survey of 50 BPO companies in Nairobi by the Business Process Outsourcing Institute (BPOI) in 2022, 38% of respondents cited hidden IT costs—such as the need to frequently upgrade software systems and hardware—as a significant factor that led to budget shortfalls (Murira & Muchelule, 2023). Additionally, 40% of companies revealed that they failed to account for the full scope of staff costs, including recruitment, training, and employee retention, which contributed to unexpected budget spikes. These issues are compounded by the volatile nature of outsourcing contracts, where clients often demand scope changes mid-project, further straining the budget (Okinyi & Keiyoro, 2021).

The attributes of a Project Management Information System (PMIS) have a significant impact on the performance of projects. These systems provide a structured framework for planning, executing, and monitoring projects, leading to more efficient resource management, time management, and cost control (Ayier, 2022). Various studies have been conducted in different parts of the world on project management information system attributes and project performance. For instance, Ogero (2022) conducted a study on influence of project management information system attributes on project performance in the construction industry.

Okinyi and Keiyoro (2021) assessed on influence of project management information system attributes on performance of mobile money transfer services in Nakuru County and Murira and Muchelule (2023) researched on project management information system attributes and implementation of the national integrated identity management system project. However, none of these studies focused on quality of information, and system usage on project performance in business process outsourcing companies in Nairobi County, Kenya. To fill the highlighted gaps, the current study sought to determine the influence of project management information system attributes (quality of information, and system usage) on project performance in business process outsourcing companies in Nairobi County, Kenya.

Objectives of the Study

This research study was guided by both the general and specific objectives as discussed below.

General Objective

The general objective of the study was to determine the influence of project management information system attributes on project performance in business process outsourcing companies in Nairobi County, Kenya

Specific Objective

i. To examine the influence of quality of information on project performance in business process outsourcing companies in Nairobi County, Kenya
ii. To assess the influence of system usage on project performance in business process outsourcing companies in Nairobi County, Kenya

LITERATURE REVIEW

Theoretical Framework

Task-Technology Fit (TTF) Model

The Task-Technology Fit (TTF) Model, proposed by Goodhue and Thompson (1995), emphasizes the alignment between the tasks that need to be performed and the technology used to perform them (Sitokdana, 2020). The model suggests that the better the technology fits the task requirements, the more effective it will be in supporting the users and improving their performance. For Project Management Information Systems (PMIS), this fit refers to how well the system is designed to handle the specific demands of project management tasks, such as tracking timelines, allocating resources, and monitoring budgets. If the PMIS is well-suited to these tasks—providing accurate, timely, and relevant information—it can enhance decision-making, streamline communication, and improve overall project efficiency. The model highlights the importance of not just having advanced technology, but technology that is purposefully designed to meet the unique needs of project management tasks (Shagari, Abdullah & Saat, 2020).

In the TTF model, the focus is placed on task characteristics and technology characteristics (Hahn, Wanjala & Marx, 2020). Task characteristics refer to the specific requirements and complexity of the tasks that need to be completed, such as data processing, collaboration, or project tracking. Technology characteristics describe the features of the system, including its capabilities for data analysis, reporting, and communication. For a PMIS to be effective, there needs to be a fit between the two—meaning the system must offer features that align well with the needs of project managers and team members. For example, a system that provides real-time project updates and data visualization tools can enhance a project manager's ability to monitor and manage project progress, leading to better outcomes (Cheburet & Otieno, 2020).

The TTF Model suggests that when the technology effectively supports the tasks at hand, it will lead to better system usage, higher satisfaction, and improved project performance

(Ndiege, Wayi & Herselman, 2020). In PMIS, this is reflected in the adoption and usage rates of the system. A system that offers high task-technology fit will be used regularly by project managers and team members, leading to more efficient project execution, enhanced collaboration, and successful project delivery. As the TTF model focuses on aligning tasks and technology, it offers valuable insights into optimizing PMIS features to meet project management needs (Sitokdana, 2020). The theory will be used to examine the influence of quality of information on project performance in business process outsourcing companies in Nairobi County, Kenya.

Unified Theory of Acceptance and Use of Technology (UTAUT)

The Unified Theory of Acceptance and Use of Technology (UTAUT), developed by Venkatesh et al. (2003), integrates elements from eight different models of technology acceptance to create a unified framework for understanding how individuals decide to accept and use technology (Bindman, Kwan & Marlow, 2020). UTAUT identifies four key constructs that directly influence system usage: Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions. Performance Expectancy refers to the degree to which users believe that using the technology will enhance their job performance. In the context of Project Management Information Systems (PMIS), if users believe the system will improve their project management tasks, such as tracking progress or managing resources, they are more likely to adopt and continue using the system. Effort Expectancy refers to how easy the system is to use. A PMIS that is intuitive, easy to navigate, and requires minimal effort to learn will likely see higher usage rates (Bongomin & Nziu, 2022).

Social Influence is another important construct in UTAUT, as it examines the impact of others' opinions on an individual's decision to use technology (Jansen and Gregorio, 2020). In a project management context, this could include recommendations or support from colleagues, supervisors, or project stakeholders. If key influencers within an organization advocate for the use of a PMIS, their endorsement can significantly boost adoption rates. The final construct, Facilitating Conditions, refers to the resources and support available to users, such as technical assistance, training, and infrastructure. A PMIS with strong facilitating conditions, including adequate user support and training programs, will likely have higher usage rates, as users will feel confident in their ability to use the system effectively (Ngugi, Were & Babic, 2021).

The UTAUT model highlights that these four constructs—Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions—are key determinants of system usage (Otieno, 2020). By addressing these factors, organizations can enhance the likelihood of technology adoption and improve the overall user experience. In the case of PMIS, understanding how these constructs influence system usage can help organizations optimize the design, training, and support provided to users, leading to better project management outcomes. The UTAUT model offers valuable insights into how users perceive and interact with technology, making it a powerful tool for improving the effectiveness and success of PMIS implementations (Hasan, 2022). The theory was used to assess the influence of system usage on project performance in business process outsourcing companies in Nairobi County, Kenya.

Conceptual Framework

A conceptual framework is a structured plan that outlines the key concepts, variables, and their relationships within a study, providing a clear roadmap for the research process. It serves as a foundation for understanding the theoretical underpinnings and guiding the analysis and interpretation of data (Miles & Huberman, 1994). By illustrating the connections between the research questions, hypotheses, and existing theories, a conceptual framework helps to ensure coherence and rigor in the study (Maxwell, 2019).

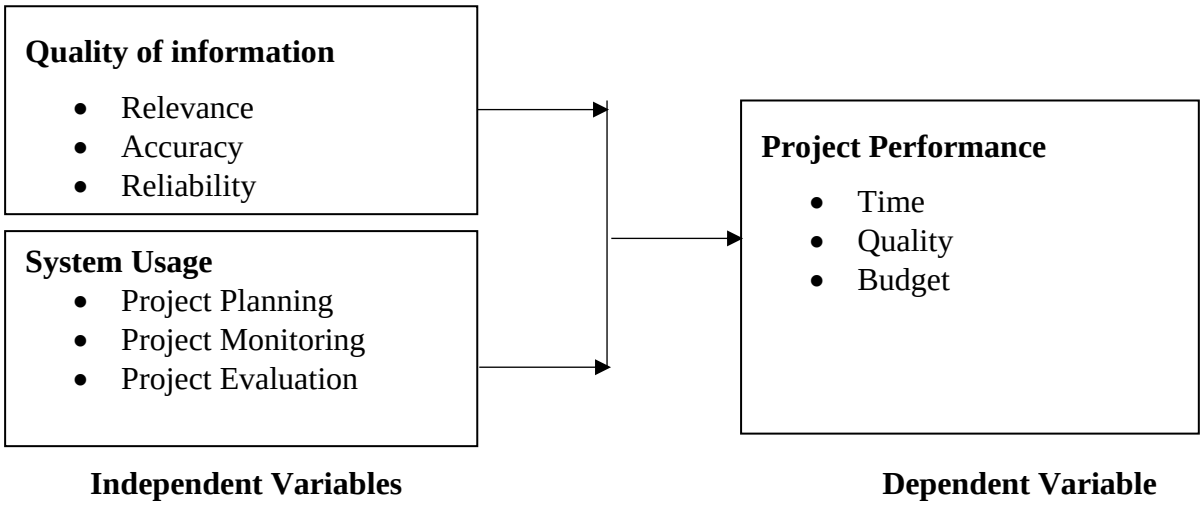

Figure 2. 1: Conceptual Framework

Quality of Information

Quality of information refers to the degree to which the data or content provided is accurate, reliable, relevant, and useful for its intended purpose (Sitokdana, 2020). High-quality information is clear, consistent, and precise, ensuring that users can trust it to make informed decisions. It is also timely, meaning it is up-to-date and available when needed, and complete, covering all necessary aspects without omission. Additionally, the format and presentation of the information are important; it should be easy to understand and navigate. When information is of high quality, it helps reduce confusion, errors, and misunderstandings, enabling users to act confidently. In the context of system software, quality information ensures that users can rely on it to resolve issues, understand features, and make optimal use of the software. Ultimately, the quality of information plays a crucial role in user satisfaction and decision-making, influencing both individual and organizational outcome (Shagari, Abdullah & Saat, 2020).

Relevance refers to the degree to which information is applicable or useful in a given context or for a particular purpose (Hahn, Wanjala & Marx, 2020). In the realm of system software, relevant information is directly tied to the user's needs, helping them solve a problem, understand a feature, or make a decision. Irrelevant information can lead to confusion, wasted time, and frustration, as it distracts users from their goals. For instance, when users are troubleshooting an issue, providing them with highly relevant and context-specific solutions is far more helpful than general or off-topic information. Ensuring the relevance of information in software systems enhances user experience and ensures that users can quickly and efficiently find what they need (Cheburet & Otieno, 2020).

Accuracy in information refers to how correct, precise, and free from errors the data or content is (Ndiege, Wayi & Herselman, 2020). In system software, accurate information is essential because incorrect data or instructions can lead to mistakes, inefficiency, and even system failure. Whether it's a software manual, error message, or feature description, providing users with accurate information ensures that they can make sound decisions and take the right actions. For example, when troubleshooting, providing users with accurate details about the nature of an issue, its cause, and potential solutions prevents the spread of misinformation and avoids unnecessary confusion. Accurate information builds trust and reliability with users, which is crucial for the overall success and credibility of the software (Sitokdana, 2020).

Reliability refers to the consistency and dependability of information over time (Shagari, Abdullah & Saat, 2020). In the context of system software, reliable information is that which users can consistently count on to be correct and stable, regardless of when or where it is accessed. For example, a reliable software update schedule ensures that users know when to

expect improvements or fixes, and reliable troubleshooting guides provide accurate solutions every time. If information is unreliable, users may encounter discrepancies, outdated content or false instructions, which can undermine their confidence in the software. Reliability is a cornerstone of user satisfaction and trust, as users need assurance that the software they use and the information provided to them will consistently meet their expectations (Hahn, Wanjala & Marx, 2020).

System Usage

System usage refers to the way in which users interact with a software or system to accomplish specific tasks or objectives (Bindman, Kwan & Marlow, 2020). It encompasses the frequency, duration, and context in which the system is accessed, as well as the variety of features and functions utilized by the user. Effective system usage means that the system is meeting the users' needs efficiently and that they are able to navigate, access, and apply its functionalities with ease (Bongomin & Nziu, 2022). High system usage typically indicates that the system is valuable and effective, as users continue to rely on it for their tasks. However, low or inefficient system usage may point to issues like poor usability, lack of necessary features, or a steep learning curve. By analyzing system usage patterns, organizations can identify areas for improvement, optimize features, and ensure that users are making the most of the system's capabilities. Ultimately, successful system usage not only enhances user satisfaction but also contributes to the system's overall success and long-term adoption (Jansen and Gregorio, 2020).

Project planning is the process of defining the scope, objectives, tasks, resources, timeline, and risks involved in a project (Ngugi, Were & Babic, 2021). It is a critical phase that sets the foundation for the entire project by ensuring that all stakeholders have a clear understanding of what needs to be achieved and how it will be done. Effective project planning involves breaking down the project into manageable tasks, assigning responsibilities, and establishing milestones to track progress. A well-planned project considers potential challenges and includes contingency plans to address them. Good planning also involves defining success criteria, setting realistic deadlines, and determining the necessary resources, such as budget, tools, and personnel. Ultimately, thorough project planning minimizes uncertainty and provides a roadmap for successful project execution (Otieno, 2020).

Project monitoring is the ongoing process of tracking and assessing the progress of a project against its defined goals, timelines, and budget (Hasan, 2022). It involves regularly reviewing key performance indicators (KPIs), project deliverables, and milestones to ensure the project is on track. Monitoring allows project managers to identify any deviations or potential risks early on, enabling them to take corrective actions before issues escalate. It also involves communication with the project team to gather updates, solve problems, and make necessary adjustments. By actively monitoring a project, managers can maintain control, ensure that resources are being used efficiently, and keep stakeholders informed of progress. Effective project monitoring is essential to ensure that the project stays aligned with its objectives and meets deadlines (Gumede & Dyers, 2024).

Project evaluation is the process of assessing the outcomes and performance of a project after its completion (Kinuthia, 2020). It involves reviewing the results against the initial objectives and success criteria defined during the planning phase. Evaluation provides valuable insights into what worked well and what didn't, helping to identify areas for improvement in future projects. It also includes an analysis of whether the project met its budget and timeline, as well as the quality of the deliverables produced. Evaluation often involves feedback from stakeholders, team members, and customers to gauge their satisfaction and gather lessons learned. By conducting a thorough project evaluation, organizations can enhance their project management processes, optimize resource allocation, and improve overall project outcomes in the future (Kamau, Njihia & Wausi, 2020).

Empirical Review

Quality of Information and Project Performance

Sitokdana (2020) conducted a study on the effect of evaluation of the information quality of e-government websites of the provincial governments of eastern Indonesia. Therefore, a study was conducted to evaluate the quality of information on e-Government Websites of Provincial Governments in Eastern Indonesia, namely: East Nusa Tenggara (NTT), Maluku, North Maluku, West Papua and Papua. Each of these Websites is measured using 10 (ten) dimensions of information quality. Based on the results of the evaluation, it was found that all e-Government Websites in the Eastern Indonesia Region were not enough to provide quality information to the public. It can be concluded that all websites do not provide enough quality information for the public.

Shagari, Abdullah and Saat (2020) conducted a study on the influence of system quality and information quality on accounting information system (AIS) effectiveness in Nigerian banks. Due to advancement in technology and the globalization of large scale organizations, banks are being faced with the issues of how well to design, coordinate and manage their Accounting Information System (AIS) to ensure effective planning and decision making. The study found that therefore, this paper proposed examination on the influence of system quality and information quality on AIS effectiveness. It can be concluded that the findings of this study would assist banks management in understanding the determinants of AIS effectiveness, thereby enhancing their operational activities and decision making

Hahn, Wanjala and Marx (2020) conducted a study where is information quality lost at clinical level? A mixed-method study on information systems and data quality in three urban Kenyan ANC clinics. A multiple case study was carried out between March and August 2012 at the antenatal care (ANC) clinics of two private and one public Kenyan hospital to describe clinical information systems and assess the quality of information. The study found that staff rated the quality of information higher in the private hospitals employing computers than in the public hospital which relies on paper forms. It can be concluded that the study argue that the limited data quality has to be seen in the broader perspective of the information systems in which it is produced and used.

Cheburet and Otieno (2020) conducted a study on the effect of organizational factors affecting data quality of routine health management information system quality: Case of Uasin Gishu County Referral Hospital, Kenya. The absence of institutional frameworks, financing, leadership and dissemination of information affect organization processes. The study was carried out to establish the organizational factors influencing data quality of routine health management information system. The study concluded that therefore, Country Health System (CHS) was implemented without institutional documentation like the HMIS policy, guideline and DHS which were designed without any user in mind/customer focus

Ndiege, Wayi and Herselman (2020) conducted a study on the effect of quality assessment of information systems in SMEs: a study of Eldoret, Kenya. The use of Information Systems (IS) of acceptable quality has been viewed to be vital for improving the efficiency and effectiveness of business operations. . This paper presents the results of an exploratory study into the quality of IS used within SMEs in Eldoret town, situated in Kenya. The results of the study indicate that the SMEs that participated in the study use are solutions that were of unacceptable quality. The study concluded that the usage of IS within the SMEs was primarily for automation as was discernible from the types of IS adopted by the SMEs.

System Usage and Project Performance

Bindman, Kwan and Marlow (2020) conducted a study on the effect of trends in use of medical imaging in us health care systems and in Ontario, Canada. Use of computed tomography (CT), magnetic resonance imaging (MRI), ultrasound, and nuclear medicine imaging. The study

found that Changes in annual growth in ultrasound were smaller among adults and children in the United States and Ontario compared with CT and MRI. Nuclear medicine imaging declined in adults and children. The study concluded that from 2000 to 2016 in 7 US integrated and mixed-model health care systems and in Ontario, rates of CT and MRI use continued to increase among adults, but at a slower pace in more recent years

Bongomin and Nziu (2022) conducted a study on the effect of a critical review on the development and utilization of energy systems in Uganda. In Uganda, electricity generation is mainly through hydropower, which puts the country in the bottleneck of overdependence on one source of energy. There are many energy systems out there that the country can use to diversify its electricity generation. The study found that • e challenges for developing and utilizing these systems were elaborated on, and the solutions for their challenges were presented. Hydropower from the Nile River, being the main river for large hydropower plant construction, is the dominant energy system in Uganda. The study concluded that present study successfully reviewed energy systems in Uganda.

Jansen and Gregorio (2020) conducted a study on the effect of land-use data collection using the ‘‘land cover classification system’’: results from a case study in Kenya. The aim of the study is to better understand the land cover/land-use relationship and to enhance the value of a land cover mapping product for the planning and management of natural resources and/or environmental change studies. The study found that the concurrence of land cover and land-use delineations is discussed for the classes identified. The study concluded that a set of decision rules was specifically developed to generate land-use information from a land cover interpretation of satellite imagery

Ngugi, Were and Babic (2021) conducted a study on the effect of Users' perception on factors contributing to electronic medical records systems use: a focus group discussion study in healthcare facilities setting in Kenya. Electronic medical records systems (EMRs) adoptions in healthcare to facilitate work processes have become common in many countries. Two focus group discussions were conducted with EMRs users (n=20) each representing a healthcare facility determined by the performance of the EMRs implementation. The study found that the identified barriers included: frequent power blackouts, inadequate computers, retrospective data entry EMRs operation mode, lack of continuous training on system upgrades, and delayed IT support. The study concluded that users generally believed that the EMRs improved the work process, with multiple factors identified as facilitators and barriers to their use

Otieno (2020) conducted a study on the investigating factors affecting utilization of computer application systems in service sector based on technological acceptance model: a case study of Kenya airways limited. Airlines use technology in daily operations to keep track of aircraft maintenance, flight and crew scheduling, passenger reconciliation, baggage tracking, revenue management and also use systems for business intelligence on their own flights to monitor capacity on each flight and also levels of reservation. The results of the data analysis contributes to the body of knowledge by demonstrating that the above factors are critical in attitude towards usage of computer application systems in a developing country context. The study concluded that computer application systems positively help improve operation of the airline and improve on efficiency.

RESEARCH METHODOLOGY

Manjunatha (2019) recognizes descriptive research as having the ability to provide room for probing for more information, exploring new ideas while simultaneously generating discussions and information on emerging concerns. The study used survey research design as it is helpful in indicating trends in attitudes and behaviors and enable generalization of the findings of the research study to be done (Manjunatha, 2019).

the population of this study was primarily picked from project delivery managers, leads, associates and assistants who are directly involved in the day-to-day running of projects at the five IT companies under study. Additionally, Fricker (2016) aptly defined a population as the entirety of the subjects that are of interest to the researcher. In this regard, the project delivery team was derived from a pool of 350 project managers within the five companies. 70 members were picked from each company.

Using Yamane (1967) formula, a sample size of 171 respondents was picked from the 300 project managers. The 300 project managers were composed of 50 managers from each of the six companies.

The researcher can then utilize the sample to generalize the results back to the larger population. This study deployed a stratified random sampling design to ensure adequate representation from different groups in the final sample. According to Elfil & Negida (2017), stratified sampling ensures that the population is divided into homogenous groups in such a way that elements found within each group are more similar than the elements in the population as a whole. The target population was stratified on the basis of the companies under study. The table below shows how the strata was distributed.

Table 1: Sample size

Stratum	Total Population	Sample Size
Cloud Factory Kenya Limited	50	29
Digital Divide Data Kenya	50	28
Sama Source Kenya	50	29
Africa AI	50	28
Adept Technologies	50	28
CCI Kenya	50	29
Totals	**300**	**171**

The research applied survey design. Questionnaires were distributed to the respective project managers. Quantitative data was coded and fed into Statistical Package for Social Scientists (SPSS) and analyzed using descriptive statistics. On the other hand, qualitative data was analyzed based on responses collected. Responses with common themes were grouped together into similar categories and inferences made. Descriptive statistics used in the analysis included relative (percentages) and absolute frequencies as well as measures of dispersion and central tendencies (standard deviation and mean). Relationships between the independent variables under study (PMIS system software, the system user satisfaction, quality of information and how the system is used) and the dependent variable was established using Karl Pearson's correlation and multiple regression analysis

PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA

The researcher sampled 171 respondents who were each administered with the questionnaires. From the 171 questionnaires 149 were completely filled and returned hence a response rate of 87.1%. The response rate was considered as suitable for making inferences from the data collected. As indicated by Metsamuuronen (2019), a response rate that is above fifty percent is considered adequate for data analysis and reporting while a response rate that is above 70% is classified as excellent. Hence, the response rate of this study was within the acceptable limits for drawing conclusions and making recommendations.

Descriptive Statistics Analysis

Quality of Information and Project Performance

The first specific objective of the study was to examine the influence of quality of information on project performance in business process outsourcing companies in Nairobi County, Kenya.

The respondents were requested to indicate their level of agreement on the statements relating to quality of information and project performance in business process outsourcing companies in Nairobi County, Kenya. The results were as shown in Table 2.

From the results, the respondents agreed that the information provided by the system is relevant to the tasks they need to perform on the project (M=3.852, SD= 0.557). In addition, the respondents agreed that the system provides information that directly supports decision-making for project success (M=3.834, SD= 0.409). Further, the respondents agreed that the information they receive from the system is consistently accurate and up to date (M=3.809, SD=0.850). From the results, the respondents agreed that the system ensures that the data provided is free from errors and mistakes (M=3.771, SD= 0.828). In addition, the respondents agreed that the information provided by the system is consistently available when they need it (M=3.633, SD= 0.770). Further, the respondents agreed that the system reliably delivers the required information, without delays or interruptions (M=3.617, SD=0.741).

Table 2: Quality of Information and Project Performance

	Mean	**Std. Deviation**
The information provided by the system is relevant to the tasks I need to perform on the project	3.852	0.557
The system provides information that directly supports decision-making for project success	3.834	0.409
The information I receive from the system is consistently accurate and up to date	3.809	0.850
The system ensures that the data provided is free from errors and mistakes	3.771	0.828
The information provided by the system is consistently available when I need it	3.633	0.770
The system reliably delivers the required information, without delays or interruptions	3.617	0.741
Aggregate	**3.753**	**0.693**

System Usage and Project Performance

The second specific objective of the study was to assess the influence of system usage on project performance in business process outsourcing companies in Nairobi County, Kenya. The respondents were requested to indicate their level of agreement on various statements relating to system usage and project performance in business process outsourcing companies in Nairobi County, Kenya. The results were as presented in Table 3.

From the results, the respondents agreed that the system helps in creating detailed project plans, allowing them to better allocate resources and set timelines (M=3.963, SD= 0.521). In addition, the respondents agreed that by using the system, they can easily develop and adjust project plans to meet changing needs (M=3.889, SD= 0.706). Further, the respondents agreed that the system allows them to effectively monitor the progress of tasks and milestones during the project lifecycle (M=3.849, SD= 0.739).The respondents also agreed that they rely on the system to track project progress in real time, ensuring tasks are completed on schedule (M=3.779, SD= 0.671). In addition, the respondents agreed that the system provides valuable data and insights that assist in evaluating the success of a project upon completion (M=3.689, SD= 0.466). Further the respondents agreed that using the system improves their ability to assess project outcomes and make necessary adjustments for future projects (M=3.683, SD=0.548).

Table 3: System Usage and Project Performance

	Mean	Std. Deviation
The system helps in creating detailed project plans, allowing me to better allocate resources and set timelines	3.963	0.521
By using the system, I can easily develop and adjust project plans to meet changing needs	3.889	0.706
The system allows me to effectively monitor the progress of tasks and milestones during the project lifecycle	3.849	0.739
I rely on the system to track project progress in real time, ensuring tasks are completed on schedule	3.779	0.671
The system provides valuable data and insights that assist in evaluating the success of a project upon completion	3.689	0.466
Using the system improves my ability to assess project outcomes and make necessary adjustments for future projects	3.683	0.548
Aggregate	**3.809**	**0.609**

Project Performance

The respondents were requested to indicate their level of agreement on various statements relating to project performance in business process outsourcing companies in Nairobi County, Kenya. The results were as presented in Table 4.

From the results, the respondents agreed that the system helps them complete projects on time by providing accurate timelines and reminders (M=3.871, SD=0.848). In addition, the respondents agreed that using the system ensures that I can meet project deadlines without unnecessary delays (M=3.854, SD=0.790). Further, the respondents agreed that the system contributes to maintaining high-quality standards throughout the project lifecycle (M=3.806, SD=0.656). From the results, the respondents agreed that they can rely on the system to ensure that the final output of the project meets the required quality standards (M=3.758, SD=0.756). In addition, the respondents agreed that the system helps me manage the project budget effectively, preventing cost overruns (M=3.730, SD=0.657). Further, the respondents agreed that by using the system, they can track expenses and ensure the project stays within the allocated budget (M=3.673, SD=0.719).

Table 4: Project Performance

	Mean	Std. Deviation
The system helps me complete projects on time by providing accurate timelines and reminders	3.871	0.848
Using the system ensures that I can meet project deadlines without unnecessary delays	3.854	0.790
The system contributes to maintaining high-quality standards throughout the project lifecycle	3.806	0.656
I can rely on the system to ensure that the final output of the project meets the required quality standards	3.758	0.756
The system helps me manage the project budget effectively, preventing cost overruns	3.730	0.657
By using the system, I can track expenses and ensure the project stays within the allocated budget	3.673	0.719
Aggregate	**3.782**	**0.738**

Inferential Statistics

Inferential statistics in the current study focused on correlation and regression analysis. Correlation analysis was used to determine the strength of the relationship while regression analysis was used to determine the relationship between dependent variable (project performance in business process outsourcing companies in Nairobi County, Kenya) and independent variables (quality of information, and system usage).

Correlation Analysis

The present study used Pearson correlation analysis to determine the strength of association between independent variables (quality of information and system usage) and the dependent variable (project performance in business process outsourcing companies in Nairobi County, Kenya) dependent variable. Pearson correlation coefficient range between zero and one, where by the strength of association increase with increase in the value of the correlation coefficients.

Table 5: Correlation Coefficients

		Project Performance	Quality Of Information	System Usage
Project Performance	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	149		
Quality Of Information	Pearson Correlation	.834**	1	
	Sig. (2-tailed)	.003		
	N	149	149	
System Usage	Pearson Correlation	.842**	.160	1
	Sig. (2-tailed)	.002	.013	
	N	149	149	149

The results revealed that there is a very strong relationship between quality of information and project performance in business process outsourcing companies in Nairobi County, Kenya (r = 0.834, p value =0.003). The relationship was significant since the p value 0.003 was less than 0.05 (significant level). The findings conform to the findings of Sitokdana (2020) that there is a very strong relationship between quality of information and project performance.

The results also revealed that there was a very strong relationship between system usage and project performance in business process outsourcing companies in Nairobi County, Kenya (r = 0.842, p value =0.002). The relationship was significant since the p value 0.002 was less than 0.05 (significant level). The findings are in line with the results of Jansen and Gregorio (2020) who revealed that there is a very strong relationship between system usage and project performance.

Regression Analysis

Multivariate regression analysis was used to assess the relationship between independent variables (quality of information, and system usage) and the dependent variable.

Table 6: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.217	0.057		3.807	0.000
	Quality Of Information	0.379	0.098	0.378	3.867	0.000
	System Usage	0.365	0.094	0.364	3.883	0.001

a Dependent Variable: project performance in business process outsourcing companies in Nairobi County, Kenya

The regression model was as follows:

$$\mathbf{Y = 0.217 + 0.379X_1 + 0.365X_2 + \varepsilon}$$

The results also revealed that quality of information has significant effect on performance of cement manufacturing firms in Kenya (β1=0.379, p value= 0.000). The relationship was considered significant since the p value 0.000 was less than the significant level of 0.05. The findings conform to the findings of Hahn, Wanjala and Marx (2020) that there is a very strong relationship between quality of information and organization performance.

In addition, the results revealed that system usage has significant effect on performance of cement manufacturing firms in Kenya (β1=0.365, p value= 0.001). The relationship was considered significant since the p value 0.001 was less than the significant level of 0.05. The findings are in line with the results of Bindman, Kwan and Marlow (2020) who revealed that there is a very strong relationship between system usage and organization performance.

Conclusions

The study concludes that quality of information has a positive and significant effect on project performance in business process outsourcing companies in Nairobi County, Kenya. Findings revealed that relevance, accuracy and reliability influences project performance in business process outsourcing companies in Nairobi County, Kenya.

The study also concludes that system usage has a positive and significant effect on project performance in business process outsourcing companies in Nairobi County, Kenya. Findings revealed that project planning, project monitoring and project evaluation influence project performance in business process outsourcing companies in Nairobi County, Kenya.

Recommendations

The study recommends that the management of business process outsourcing companies should prioritize the implementation of systems and processes that ensure the delivery of accurate, relevant, and reliable information throughout the project lifecycle. This can be achieved by integrating real-time data validation mechanisms, enhancing data governance policies, and regularly reviewing information sources to maintain consistency and precision.

The study also recommends that the management of business process outsourcing companies should encourage widespread and consistent use of project management information systems (PMIS) across all project teams. This can be achieved by providing comprehensive user training, simplifying system interfaces, and ensuring that the necessary infrastructure and support are in place for seamless usage.

Suggestions for Further Studies

This study was limited to the influence of project management information system attributes on project performance in business process outsourcing companies in Nairobi County, Kenya hence the study findings cannot be generalized to public organizations in Kenya. The study therefore suggests further studies on the influence of project management information system attributes on project performance in public organizations in Kenya.

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