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Successful Strategies for Energy Sector Enterprise Resource Planning Projects

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This is to certify that the doctoral study by

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2019

Abstract

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by

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EMBA, University of Ghana, Legon, 2011

BSc, Valley View University, 2008

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Business leaders use enterprise resource planning (ERP) to integrate and streamline business functions and processes. Each year, the majority of these projects fail due to project managers' ineffective management of the project scope. The successful implementation of ERP software enhances the flow of information in organizations and tends to improve the performance of employees and job satisfaction, resulting in improved sustainability and profitability. The Leavitt organizational change management model was used as the conceptual framework for this multiple-case study. The purpose of the study was to explore the strategies project managers in the energy sector used to implement successful ERP projects. The target population included 3 project managers from 3 energy-sector companies in the Greater Accra region of Ghana and the Nairobi region of Kenya who have successfully implemented ERP projects. Data were collected using face-to-face, semistructured interviews. Data analysis consisted of reviewing interview transcripts, grouping the data into themes, and interpreting the meaning of the themes and data. The 5 main emerging thematic categories encompass the strategies shared by the 3 participants, which were competency of the project managers, competency of the project team members, the involvement of the stakeholders, strategic practices employed and followed, and other strategies for improvement. From the perspective of positive social change, the findings of this study may provide insight that business leaders can use to improve the performance of their firms, enhance sustainability and profitability, and create employment opportunities for the community.

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Dedication

This doctoral study is dedicated to all those who believed and supported me throughout this journey. Without each of you, none of this would have been possible. Many thanks to my wonderful husband, Theophilus, for the immeasurable support. To my cherished duo, Theophylla and Daniel, your invaluable support was pivotal in this journey; thank you and never give up on learning. I hope I have shown you the way. Dare to dream and remember; you can do all things through Christ who strengthens you (Philippians 4:13 KJV). Most of all, never give up on your dreams.

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Section 1: Foundation of the Study

The introduction of enterprise resource planning (ERP) software in the 1990s as an enterprise information system featured designs to integrate production and accounting functions across organizations (Mann, Kumar, Kumar, & Mann, 2017). Designers later revised the software to enable the automatic integration of all other functions within the organization (Elbardan, Ali, & Ghoneim, 2016). According to Rouhani and Mehri (2016), many business executives in the United States believe successful ERP implementation has positively impacted their businesses. However, researchers have not fully considered the potentials of ERP systems amid growing investment and high rates of ERP implementation failures in developing countries (Kosalge & Ritz, 2017).

In most cases, ERP project managers (PMs) have difficulty scoping the project to meet stakeholder expectations, illustrating the need for increased effectiveness in the management of such projects. The successful implementation of ERP projects and the survival of organizations—as well as the accomplishment of set objectives—requires effective standardized project management (SPM) practices (Serra & Kunc, 2015). The use of SPM practices is intended to streamline the sequence of project activities and to create value for project stakeholders. The objective of this qualitative multiple case study was to explore the strategies PMs in the energy sector use to implement successful ERP projects.

Background of the Problem

The contemporary business environment is becoming increasingly multifaceted with the presence of functional units in organizations. Such an environment requires

more interfunctional data flow for effective decision making, timely and efficient management of inventory, accounting, human resources, and distribution of goods and services (Gunasekaran, Subramanian, & Papadopoulos, 2017). In this context, the management of the different functions in organizations requires efficient information systems to improve competitiveness, reduce cost, and enhance service delivery. The ability to provide the right information at the right time brings tremendous rewards to organizations in the current globally competitive world of complex business practices, indicating the need for ERP software (Starinsky, 2016). ERP as a system automatically integrates the various functions related to an organization's business functions, assisting the organization more efficiently in managing personal and professional information (Teixeira, Agrizzi, Pereira Filho, Rossetto, & Baldam, 2017).

Yet, over the years, ERP systems have had a minimal success rate (Hunt & Choi, 2015) indicating a need for more research into the critical success and failure factors of these systems. I undertook this study based on an observation of recorded evidence and an examination of ERP implementation challenges in practice, coupled with lessons on the low rate of implementation successes in the energy sector. In this study, I reviewed and evaluated professional and academic evidence concerning the implementation successes and the critical success factors of ERP systems (Ranjan, Jha, & Pal, 2016). I sought to provide more insight about ERP implementation, which is a challenging and expensive task that requires rigorous effort and detailed analysis of factors critical to adoption or implementation.

Problem Statement

The use of nonstandardized project management practices is on the rise, as evidenced by the small number of organizational leaders who use professional PMs (Vijaya, 2016). Each year, 50% to 70% of enterprise resource planning projects in the energy sector fail due to PMs' ineffective management of the project scope (Kemei, Oboko, & Kidombo, 2018). The general business problem is that appointing PMs without establishing formal strategies to meet stakeholder expectations may result in reduced organizational performance. The specific business problem is that some PMs in the energy sector lack the needed strategies to implement successful ERP projects.

Purpose Statement

The purpose of this qualitative multiple-case study was to explore the strategies PMs in the energy sector use to implement successful ERP projects. The target sample included three PMs from three energy sector companies in the Greater Accra region of Ghana and the Nairobi region of Kenya who have successfully implemented ERP projects. The implications for social change as a result of successful ERP implementation may include improvement in the performance of the firm, enhanced sustainability and profitability, as well as the creation of employment opportunities for the community.

Nature of the Study

Three methodologies exist for a research study, namely qualitative, quantitative, and mixed methods (Harry & Fenton, 2016). A qualitative approach is appropriate when business researchers seek to comprehend human experience through an understanding of the motivations and reasons governing performance, probing nonnumerical data for an in-

depth understanding of the study phenomenon (see Harry & Fenton, 2016). Quantitative research methods are suitable when researchers aim to determine how many people undertake particular behaviors (Sutton & Austin, 2015). In general, mixed-methods research involves combining or integrating quantitative and qualitative information into one single study (Bentahar & Cameron, 2015). Depending on the complexity of a study, the mixed-methods approach is appropriate when the solution cannot be studied using qualitative or quantitative methods exclusively (Panda & Gupta, 2013). A qualitative method was the most appropriate approach for this research study because I did not aim to generalize, but rather to explore and understand the personal experiences of PMs when implementing successful ERP projects.

Case study, narrative research, grounded theory, ethnography, and phenomenology are a few of the existing qualitative research designs (Bristowe, Selman, & Murtagh, 2015). The current research was a case study, a design strategy that is used to investigate a phenomenon within the subject's real-world context, using documents, observations, and interviews as sources of information (Bristowe et al., 2015). Narrative researchers focus on the lives of individuals as told through their stories (Harry & Fenton, 2016). The objective of grounded theory design is to generate or discover a theory through the process of constant comparison (Harry & Fenton, 2016). An ethnographic design involves the adoption of multiple perspectives but has as its focus the patterns and behaviors of a culture-sharing group (Bristowe et al., 2015). These designs were not appropriate for my study. The phenomenological design was also not appropriate for the current study because it is used to describe a phenomenon as consciously experienced

without the causal explanations and the objective reality of an individual's perception (Harry & Fenton, 2016). A qualitative multiple case study design was appropriate for this study of an ERP system because it allowed me to gain an in-depth understanding of the people, the context, and the phenomena under study by examining multiple forms of evidence.

Research Question

The research question of the study was, What strategies do PMs in the energy sector use to implement successful ERP projects?

Interview Questions

1. How has your professional and educational background prepared you for the role of a PM?
2. Why is an ERP system implementation relevant to your organization's business processes?
3. How did you select the ERP implementation project team?
4. What was the level of stakeholder involvement in the ERP implementation process?
5. What strategies have you implemented that supported a successful ERP system implementation?
6. How do you measure the performance of the ERP implementation project team?
7. What strategies did you employ to encourage users of the ERP system to enhance job performance?
8. What are some of the things you would do differently, given a chance to start the implementation process all over again

9. What else would you like to share in the ERP implementation process?

Conceptual Framework

The conceptual framework of this study was Leavitt's (1965) organizational change management model. Leavitt, an American psychologist, specializing in management, propounded the sociotechnical system model for organizational change. In this model, Leavitt proposed that every organizational system is made up of four main components: people, task, structure, and technology. The interaction between these four elements determines the fate of an organization during the change process (Guetat & Dakhli, 2016). The Leavitt model (other times called the diamond model) was appropriate for this study based on the premise that ERP system implementation brings about a total change in work processes, affecting the social and technical aspects of an organization. In a project management plan, which also defines the process of managing change, the PM uses the plan to document how changes will be monitored and controlled, including those to the people, the task, the structure, as well as the technology (Project Management Institute [PMI], 2013). The ERP form of change involves an organization's change structure, strategies, operational methods, technologies, and corporate culture, which affect all functions within the organization (Seo, 2013).

Successful ERP implementation requires the integration of stand-alone functions to support the change process and add value to each function (Andersson, 2016). The underlying principle of ERP is the integration of all facets of the business enterprise and subunits under one suite of the software application, thus standardizing the processes and making information management effortless through integration (Luo & Bu, 2016).

Subsequently, a successful ERP implementation results in the desired organizational change, which may lead to a competitive advantage.

Operational Definitions

Enterprise resource planning system: An ERP system is a business process management software used by organizations to integrate independent and departmental functions into a single software application, which helps to efficiently manage personal and professional information in a much more efficient way (Hajilari, Ghadaksa, & Fasghandis, 2017).

Project: A project is a temporary endeavor undertaken to create a unique product, service, or result (PMI, 2013). The temporary nature of projects indicates that a project has a definite beginning and completion (PMI, 2013).

Project manager (PM): A project manager is the individual responsible for leading a project from its inception to execution (Berg & Karlsen, 2016). The PM's responsibilities include planning, execution, and management of the people, resources, and scope of the project; this individual must have the discipline to create clear and attainable objectives (Berg & Karlsen, 2016).

Project scope: Project scope is part of project planning and involves the determination of specific project goals, deliverables, tasks, costs, and deadlines (Apaolaza & Lizarralde, 2017).

Standardized project management practices: Standardized project management practices refer to the adequate management of approved operating procedures for practice (PMI, 2013).

Stakeholder expectations: Stakeholder expectations include the concerns of individuals, groups, or organizations affected by a decision, activity, or a project outcome (Pandi-Perumal et al., 2015).

Assumptions, Limitations, and Delimitations

A researcher is restricted in many ways when conducting scholarly investigations. Such deficiencies may include the availability of resources or the researcher's reasoning processes and human failings. Other constraints may be the choices made by the researcher in designing and conducting the study, which may necessitate that the researcher make adjustments to the research design. Following are some identified assumptions, limitations, and delimitations of this research.

Assumptions

Merriam and Tisdell (2015) emphasized a researcher should acknowledge his or her individual beliefs and biases, as well as make conscious efforts to prevent them from affecting the research. Assumptions are the intricate concerns about a study that are out of a researcher's total control; but without them, the research problem could not exist or would become irrelevant (Neuman, 2014). For the current qualitative multiple case study I had several assumptions—for example, that the participants would have varying degrees of experiences in ERP system implementations and would be available and willing to share their experiences. Additionally, unknown inherent conditions or factors may exist where the participants reside, work, or study that could positively or negatively impact the responses of the interviewees. As I interviewed participants on the successful

strategies of energy sector ERP projects, I assumed that the participants responded to the interview questions in an honest manner.

Limitations

Limitations describe the shortcomings, conditions, and influences that are beyond the control of the researcher. Limitations are restrictions on a study's methodology, conclusions, or research findings (Meißner & Oll, 2018). Research limitations may include the scope of research; the ages, races, or genders of participants; unknown factors; or the researcher's biases (Standish & Umbach, 2018). Limitations could also stem from the lack of adequate information or experience on a given subject due to key variables or limited research. It is quite reasonable for a study to have some amount of limitations (Bressington, Wong, Lam, & Chien, 2018). In this study, the level of expertise and exposure in addition to the biases of the individual PMs who participated in the interview could have limited my research outcome on the successful strategies of energy sector ERP implementation. It was therefore critically important to minimize the scope of the above enumerated factors throughout the research process and acknowledge constraints in an honest manner.

Delimitations

Delimitations refer to choices or the boundaries set for the study by a researcher, which are under the control of the researcher (Agnihotri & Verma, 2016). These are simply a detailed description of the scope of interest for a study as it relates to the research design. Delimitations may include the population of a study, research questions, variables, statistical analysis, objectives, and research focus (Bernerth, Cole, Taylor, &

Walker, 2018). Clarifying delimitations and providing justifications for them helps a researcher maintain objectivity which informs readers of the purpose of study (Schizas, Papatheodorou, & Stamou, 2017). The delimitations could also support other researchers in reconstructing a study for future research on the same topic, as well as provide context for researchers to develop conclusions and determine a study's reliability or external validity.

Significance of the Study

Contribution to Business Practice

The study is of relevance to the practice of business because the findings may lead to a better appreciation of essential elements related to the standardization of project management practices. I explored the stakeholder expectations needed for the design and implementation of a successful ERP project. The choice of a multiple-case study design may contribute to the understanding of the complex phenomena of ERP (Raeburn, Schmied, Hungerford, & Cleary, 2015). Other researchers may utilize these findings to enhance the current understanding of project management effectiveness from the front-end phase of the project life cycle in relation to project success by exploring the expectations of stakeholders. A closer exploration of successful project management standards may also help to bridge the gap between theory and practice, the latter of which has resulted in high rates of project failure (Leybourne & Kennedy, 2015). A single trigger event may lead to project failure, but a complex entwined set of problems could also cumulatively result in failure.

Implications for Social Change

From the perspective of positive social change, the findings of this study may add value to the current body of knowledge. PMs in organizations may integrate the current findings into their management and implementation of ERP projects to enhance stakeholder satisfaction (Bano & Zowghi, 2015). The social change implications for a successful ERP implementation might include improvement in the performance of the firm, enhanced sustainability, and profitability, in addition to the creation of employment opportunities for the community (França, Broman, Robèrt, Basile & Trygg, 2017). The current findings might also enhance business processes and provide leaders and decision-makers with access to real-time data. In studies involving information technologies, the implications of different approaches to social change for development practices and systems should draw the needed attention.

A Review of the Professional and Academic Literature

As shown in Tables 1 and 2, I used a total of 276 cited sources in this multiple case study. The literature review is comprised of 184 cited references. Resources published within 5 years of my expected graduation year of 2019 (i.e., between 2015 and 2019) represent 88.41% of the sources in the overall study, with 11.59% older than 5 years.

Table 1

Summary of Sources

Reference type	Total	< 5 Years	%	> 5 years	%
Scholarly and peer-reviewed journals and articles	237	23	8.33%	214	77.54%
Books	23	6	2.17%	17	6.16%
Dissertations	11	2	0.72%	9	3.26%
Conference and reports	5	1	0.36%	4	1.45%
Total	276	32	11.59%	244	88.41%

Table 2

Summary of Sources by Year

2019	2018	2017	2016	2015	Earlier years	Total/%
4	17	114	74	35	32	276
		244			32	
		88.41%			11.59%	100%

In the business field a systematic literature review is usually conducted to synthesize the relevant academic literature and, as such, is not restricted to core skills such as technical, information management, communication, critical thinking, and problem solving, amongst others (van Laar, van Deursen, van Dijk, & de Haan, 2017). In this comprehensive literature review, I provide information about successful strategies for energy sector ERP projects. The importance of ERP systems to businesses has significantly grown over time but has continued to receive unfavorable attention from academics and practitioners regarding the low documented level of implementation success (Warren, 2016). Best practice guidelines for ERP implementation could be

attained through closer investigation of business requirements to avoid misfits. While reviewing the literature, I gained a richer understanding of what constitutes success in the implementation of ERP systems, primarily in the energy sector. In the process of this study, I searched and evaluated scholarly and available papers on the chosen area of study, as Ansari and Kant (2017) recommended in a guide to successful research. I also reviewed the present vital information on ERP systems for effective practice in the future. The purpose of this qualitative multiple case study was to explore the strategies PMs in the energy sector use to implement successful ERP projects. The target sample included three PMs from three energy sector companies in the Greater Accra region of Ghana and the Nairobi region of Kenya who have successfully implemented ERP systems.

The literature review starts with a brief history of ERP systems, an overview of Leavitt's (1965) model of organizational change (the conceptual framework for the study), and the rationale behind the choice of Leavitt's model for this study, followed by a review of other models. Discussion of the change management process, common barriers to change, and the benefits of ERP software packages follow. I also reviewed the cost and productivity impact of ERP systems in the energy sector, ERP system adoption in developing countries, and the barriers to adoption in developing countries. I conclude the review with a discussion of standardized project management practices and the project management office. A summary of key points and a transition to Section 3 concludes the section.

I retrieved data and other sources of information from journals and seminal works, along with conference proceedings and organizational reports located on the

Internet. Most of the literature review came from peer-reviewed journals such as the *International Journal of Business Information Systems*, *Journal of Industrial Information Integration*, and *International Journal of Project Management*. The selection of journals included *Computers in Human Behavior*, *Journal of Manufacturing Technology Management*, *Journal of Industrial Information Integration*, *Journal of Industrial Information Integration*, and *the Journal of Strategic Information Systems*. In addition to obtaining documented information relating to ERP implementation from interviewees, I retrieved facts from Google, Google Scholar, and Crossref search engines amongst others. The key words and primary search terms used included ERP systems, projects and project managers, ERP implementation strategies, and standardized project management practices. The search also included the key words stakeholder expectations, stakeholder involvement, functional integration in organizations, training and knowledge management, change management, organizational culture, change management models, energy sector and ERP, and strategic planning.

History of Enterprise Resource Planning

ERP history began with early attempts at calculating machines. In the late 1980s and the beginning of the 1990s, ERP software emerged on the market targeting large and complex business organizations (Chryssolouris et al., 2009). The software emerged initially as an enterprise information system designed to integrate production and accounting data functions of an organization (Chryssolouris et al., 2009). Although early ERP systems focused on large enterprises, smaller businesses are increasingly using ERP systems. One reason is that successful implementation of ERP software seamlessly

enhances the flow of information in organizations with the tendency to improve performance, resulting in improved sustainability and profitability (Chang, Fu, & Ku, 2015). ERP solutions have continued to evolve, moving into the cloud-hosted sphere, and are being implemented by relatively smaller and larger businesses. ERP systems also have the propensity to create value and reduce cost when presented to decision makers with the right information at the right time (Stevens & Johnson, 2016). The competitive nature of businesses in contemporary times requires tools such as ERP systems to provide improvements and to help establish standards of operations (Appelbaum, Kogan, Vasarhelyi, & Yan, 2017). Currently, the ERP software industry is a multibillion-dollar industry that produces components supporting a variety of business functions (Arvidsson, Holmström, & Lyytinen, 2014). Consequently, IT investments have become one of the largest categories of capital expenditure in U.S.-based businesses in recent times (Baker, Bloom, & Davis, 2016).

The importance of ERP has significantly grown over time, but it is still receiving increased and unfavorable remarks from academics and practitioners on the low records of implementation success (Elragal & Hassanien, 2019). In developing countries, the growing investment and the potential of ERP systems, combined with high rates of failure, has not received much attention in either the business or academic literature (Kosalge & Ritz, 2017). In many cases, companies have had to reengineer their business processes to accommodate the logic of the ERP modules for streamlining data flow through the organizations. ERP systems are implemented based on specific company requirements (Getachew, 2014). As a software-based system, business leaders use ERP to

integrate and streamline business functions and processes (Chen, 2016). The ERP strategy continually grows and adapts to the specific business practices and requirements.

Several ERP vendor types compete on the market. The most popular ERP vendors are SAP, FIS Global, Oracle, Fiserv, Intuit, Cerner, Microsoft, Ericsson, Infor, and McKesson, with about 28% market share combined, while other venders have about 72% of the market share (Huang & Yasuda, 2016). The 72% of the ERP market share jointly held by other ERP vendors implies the existence of a sizeable market of opportunities for ERP vendors to grow and consolidate. The possibility exists to see more mergers and acquisitions, and partnerships, such as the one between SAP and Ericsson (Huang & Yasuda, 2016). In the interim, it is probably safe to say that ERP software is a huge market already and will keep growing. The type of ERP system best suited for business will depend on the size and the functions supporting specific business requirements.

Leavitt's Organizational Change Model

The conceptual framework for this study was Leavitt's organizational change model. Qualitative studies using a case study design to support a theory must always connect to a body of literature, conceptual framework, or theoretical framework (Onwuegbuzie & Weinbaum, 2017). My decision to use a model as my conceptual framework seems at odds with some conceptions of qualitative research (Anderson, 2017). The misinterpretation is because qualitative studies are often inductive, which implies that there is no place for models; this assertion is false because almost every research study originates from the researcher's inherent or apparent concept of the incidence under investigation (Collier, 2013). The importance of a study shows the

relationship made between the research questions and the broader theoretical concepts or guiding principles, validating how the study illuminates the major issues of significance.

Leavitt's (1965) sociotechnical system theory for organizational change, a contemporary model for organizational change management, was a suitable conceptual framework for this study. Leavitt was an American psychologist of management. The theory proposes that every corporate system is made up of four main components: people, task, structure, and technology (Leavitt, 1965). The interaction between these four elements determines the fate of an organization in the change process (Guetat & Dakhli, 2016). The theory is appropriate based on the premise that ERP system implementation brings about a total change in work processes affecting the social and technical aspects of an organization (Mosweu, Bwalya, & Mutshewa, 2016).

The project management plan defines the process of managing change on a project. Business leaders use the change management plan to document how changes will be monitored and controlled, including the people, the task, the structure, as well as the technology (PMI, 2013). The ERP form of change involves organizational change structure, strategies, operational methods, technologies, and corporate culture affecting all functions within the organization (Shepherd, McMullen, & Ocasio, 2017). The implementation of an ERP system impacts an entire organization. Creating a written plan for implementation and beyond assists leadership, PMs, and stakeholders in thinking through each step of the change process.

The underlying principle of ERP is the integration of all facets of the business enterprise and subunits under one suite of a software application, standardizing the

processes and making information management effortless through integration. The need for functional alignment that supports a successful ERP implementation change, and adds value to the various functions of an organization, requires the integration of stand-alone functions (Andersson, 2016). A successful implementation of ERP could bring about the desired organizational change that results in a competitive advantage.

A change that results from the adoption of new technology is typical in most businesses; while it may be disruptive at the initial stages, it could ultimately increase productivity and ultimately sustain a business' competitive advantage. The realization of strategic objectives is mostly possible through effective leaders who embrace change within organizations (Guetat & Dakhli, 2016). Effective leadership could facilitate positive change helping organizations to improve on innovative practices in the contemporary business environment. The four main components of Leavitt's theory of change are the people, the task, the structure, and the technology (as cited in Bellini, Pereira, & Becker, 2016). The interaction between these four interdependent elements governs the fate of an organization in the change process. An effective transformational business change brings the people, the task, the structure, and the technology aspects of the organization to the forefront (Cummings & Worley, 2014). According to Leavitt (1965), before a change can occur in any one of the four components, the impact on the other three components must be evaluated. To implement change successfully, the right balance between all the four components must exist. Consequently, the effective management of the interdependence of these four operational components is quite critical in the change process.

The people. Whenever organizational leaders attempt to impose new changes on employees, there are difficulties (Garicano & Rayo, 2016). Participatory involvement with open and early communication and interaction is a fundamental factor to a successful change process. Organizational leaders must actively involve the people most affected by a change in its initial phases of implementation (Austin, Bentkover, & Chait, 2016). The involvement of the stakeholders will help ensure that the most affected employees at all levels of the organization understand and embrace the proposed changes. Employees will not consider anything until convinced of the existence of a problem that needs addressing (Bridges & Bridges, 2017). Because an imposed change often fails, people and teams must be empowered to find the required solutions and responses, with facilitation and support from managers, and with tolerance and concern from leaders (Thomson, Rawson, Slade, & Bledsoe, 2016). A person with a strong leadership ability could be a good role model to influence the values, beliefs, and attitudes of other employees. Management training, empathy, and facilitative capability are some of the priority areas to consider in a change process (Duffield & Whitty, 2016). Managers and leaders have a crucial role in the change process--to empower others and not merely convey and implement policies from above, which do not always work. Change is successful only when the entire organization participates in the effort. The three basic categories of individuals to coordinate the effective implementation of the reform are the change strategists, the change implementers, and the change recipients (Kanter, 2003). Each group carries its assumptions, agendas, and reactions, but the integration of the new values into the organization's values and traditions sustain the change.

The task. The management of change is one of the most troubling and challenging tasks facing organizations today. Organizing and planning towards the achievement of organizational goals involve the assignment of tasks, the grouping of tasks into constituent parts, and the assignment of authority and allocation of resources towards the accomplishments of the various tasks (Mahadeen, Al-Dmour, Obeidat, & Tarhini, 2016). Change managers ensure changes introduced into the organization come with minimum disruption to existing services. According to Shalley and Gilson (2017), organizational change characteristically models as a three-part task process as follows:

1. The organization must rise to a new reality and disengage from the past, recognizing that the old way of doing things is no longer acceptable.
2. The organization must create and embrace a new vision of the future and unite towards the steps necessary to achieve the vision or strategic objective.
3. As new attitudes, practices, and policies come into play to accept the needed change in the organization, old attitudes, practices, and procedures must freeze or solidify.

The purpose of freezing in the change process is to stabilize the new equilibrium resulting from the change by harmonizing both the driving and restraining forces (Shalley & Gilson, 2017). Change managers must ensure changes are introduced progressively with minimum disruption to existing tasks and services.

The structure. The structure component of Leavitt's model is not only about the hierarchical structure of an organization, but also the relationships, communication arrangements, and coordination between the different management levels, departments,

and employees. The structure component also includes the management of authority and responsibility flow within the organization. According to Sharma and Saurabh (2014), an organizational structure outlines how activities such as task allocation, coordination, and supervision get directed towards the accomplishment of its strategic objectives. The structure determines the information flow from one level to the other within the organization, as well as the delegation, control, and coordination of various work roles and responsibilities. Taking both the business strategy and the process-driven perspectives into consideration, business leaders must assess the organizational structure to determine how best to align with strategic goals such as reducing cost, increasing customer focus for improved service delivery, increased profitability and gaining competitive advantages amongst other business sustainability concerns. The introduction of change to any other component of the model alters the structure as depicted in the model.

The structure of every business must be organized most efficiently and effectively to enable the achievement of its strategic objectives. According to Doroshenko, Somina, Yarmolenko, Afanasiev, and Kurbatov (2015), there are three main types of organizational structure: the functional, the divisional, and the matrix structure. The functional structure is set up such that each function of the organization is grouped according to its purpose (Doroshenko et al., 2015). The divisional structure groups together the employees who are responsible for a specific product type or market service according to workflow (Doroshenko et al., 2015). The matrix organizational structure combines two or more types of the organizational structures, such as the projected

organization structure and the functional organization structure. The combination may help organizations achieve higher efficiency, readiness, and quick market, while decreasing the lead time to produce a new product. The matrix type of structure is most suitable for organizations operating in dynamic environments (Doroshenko et al., 2015).

A structural change is a significant change within an organization that changes the way authority, capital, information, and responsibility flow. The structural changes include the organization's hierarchy, the chain of command, the management systems, the job structure, and the administrative procedures. Circumstances that usually create the need for structural change include mergers and acquisitions, job duplication, changes in the market and process or policy changes.

The technology. In contemporary times, technology has become a facilitating component used by the organization to assist employees in the performance of responsibilities. Technology is the collection of techniques, expertise, procedures, and processes used in the production of goods or services towards the accomplishment of strategic objectives (Marcelino-Jesus, Sarraipa, Beça, & Jardim-Goncalves, 2017). Computers, equipment, LAN lines, barcode readers, software applications, are all counted under facilitating components of technology. Like all other components of the Leavitt's model, technology must necessarily change upon modifications of any of the other components, as the dynamics of technology keeps improving with a change of needs and demands. According to Marcelino-Jesus et al. (2017), change has evolved from the industrial age (industrial revolution) to the current information age. During the industrial era, companies with large sums of capital had the potential of employing

expensive technological tools to gain competitive advantage; small businesses had less potential and could not afford expensive manufacturing or technological processing tools (Groen & Walsh, 2013). Technological advancements have created a new economic environment that depends on information. Beyond the standard office laptop and smartphone, organizations implement information systems, customized software or specialized technological tools to keep operations running smoothly.

Advancements in technology have the potential to decrease the time needed to complete a task, or in some cases eliminate the need for a business process or job function. Characteristically, the desire for increased productivity drives upgrades to technology within an organization, which can significantly influence company operations (Ba & Nault, 2017). To most employees, technological enhancements often reduce the number of tedious office tasks and improve efficiency. Changes in the day-to-day operations may come in the form of an upgrade to desktop computers, faster office equipment or the introduction of a new information system. Business owners in recent times, increasingly utilize comprehensive software platforms to streamline operations (Rahman & Saha, 2016). An example of such advancement in technology is the implementation of ERP to integrate organizational functions, such as the customer relationship management (CRM) systems, providing cloud-based computing for project management, the efficient assignment of tasks in addition to maintaining an accurate log of client communications.

Factors underpinning organizational leaders' use of Leavitt's model. The successful implementation of change means to adopt a holistic and integrated change

strategy. The Leavitt's change model is one model that primarily helps build an integrated strategy, providing a secured framework for understanding the interdependency between the four key components: the tasks, the people, the structure, and the technology (Miterev, Turner, & Mancini, 2017). Organizations must endeavor to handle the change process carefully because the results of implementing change in isolation could lead to the expected, and unexpected. Leavitt's organizational change model offers an enhanced and interactive approach with the four basic components which is a good starting point for any change analysis process; whether in a simple process redesign or a complete organizational restructure (Dhurkari, 2017). The model helps to assess the impact of a proposed change, so one can plan and provide for the impacts in advance (Nakhoda & Esmaili, 2016). The functional parts of organizations are connected and changing one part can impact another. With the inter-connectivity of organizational structures, a change in one structure can have an adverse impact on the others (Moussa, Bright, & Varua, 2017). Accordingly, change is most likely to be successful if change managers consider all the interconnected parts.

In recent times, organizations have used Leavitt's model for making organizational change more efficient, as a framework for understanding the connection between the critical factors in an organization, and for building an integrated change strategy (Zenko, Ekkekakis, & Kavetsos, 2016). The advantage of the diamond model over the others in this study is the fact that, the model is used mostly for introducing new technology systems into organizations, in a way that lessens stress and encourages teamwork (Dada, 2016). Using Leavitt's model, one can efficiently analyze the impact of

the proposed change and effectively use the results within the implementation strategy. Other change management models accent different dynamics of the change process, but the choice of Leavitt's diamond model provides multi-faceted blueprints for sustainable success.

Technology Acceptance Model: A Rival Model

The introduction of every new information technology system at the workplace often engenders a wide range of responses among users. Propounded in 1969 by Davis and Bagozzi, technology acceptance model (TAM) is an applied change model for users' acceptance and the usage of technology (Wu & Chen, 2017). TAM is an information systems theory that models how users accept and use a technology (Bhattacherjee, Davis, Connolly, & Hikmet, 2017). The responses to any change process encompass a variety of emotions; excitement, indifference, skepticism, fear, and behaviors, such as user engagement, avoidance, and workarounds, often manifested concurrently in the same work environment. The TAM model centers on the theory of reasoned action (TRA), which proposes that two beliefs determine an individual's behavioral intention to use a system: perceived usefulness (PU) and perceived ease of use (PEOU; Rahman, Lesch, Horrey, & Strawderman, 2017). TAM has taken one of three approaches: by introducing factors from related models, by introducing alternative belief factors, and by examining antecedents and moderators of perceived usefulness and perceived ease of use.

In TAM, perceived usefulness is also influenced by perceived ease of use because, all things being equal, the easier the system is to the user, the more useful the system. According to Marangunić and Granić (2014), the degree to which a person

believes that using a system would enhance his or her job performance defines perceived usefulness. Perceived ease of use is also the degree to which a person believes that using the system will be free of effort, which is mostly because of improved job performance and other user motivations positively associated with the system usage (Marangunić & Granić, 2014). People who understand the ease of use are more likely to believe in the ease and usefulness of a system. Over time, TAM has improved and expanded into two major upgrades: the unified theory of acceptance and use of technology (UTAUT), in the context of e-commerce with the inclusion of the effects of trust and perceived risk on system use, proposing TAM 3 (Venkatesh & Bala, 2008). The TAM 3 model is intended to help understand the drivers of acceptance of new information technologies by its users. The model suggests four constructs that play a significant role as direct determinants of user acceptance and usage behavior: performance expectancy, effort expectancy, social influence, and facilitating conditions.

Other Change Management Models

Other change management models are also available to describe and simplify the change management process. A change management model defines the effectiveness with which organizations can modify and transform their strategies, procedures, and structures through change (Hussain et al., 2016). Knowing the appropriate application and the underlying principles help to understand and inform the choice of model. Different models imitate different granular levels affecting the organizational change process, but each of the different models identifies important change implementation stages (Forkmann, Ramos, Henneberg, & Naudé, 2017). Complimentary change management

models other than Leavitt's theory of organizational change include ADKAR's (awareness, desire, knowledge, ability, and reinforcement) model, Lewin's process model, McKinsey 7-S model and Kotter's eight steps for leading organizational change. Depending on the situation at hand and the level of previous organizational change experience, it is necessary to study the other available models carefully to adequately inform oneself before the selection of a suitable change model. The three models selected above gets reviewed as follows:

ADKAR's change management model. ADKAR's model is a goal-oriented change management model, which guides individuals and organizations alike in the change management process. Conceptualized by Hiatt in 2003, and introduced by Prosci, a renowned change management consultancy and learning center, the model is intended for a coaching and change management tool to assist employees through the change process within organizations (Pawl & Anderson, 2017). ADKAR is an acronym representing the five outcomes an individual must achieve for a successful change: awareness, desire, knowledge, ability, reinforcement. Hiatt developed this simple and easy-to-use framework for everyone in the organization to think about change. The model aims at supporting leaders and change management teams to focus activities on clear objectives and outcomes that drive individual change to achieve organizational goals (Mierke & Williamson, 2017). ADKAR helps to describe the required phases that individuals could go through when faced with change. The model terms the secret to successful change as a development that lies beyond the visible and busy activities but rooted in something much simpler: how to facilitate change with one person.

In the ADKAR model, the secret to successful change in organizations, businesses, and communities is how to facilitate change with one person. Change is often a complex and a difficult inevitable process, and helping an individual change can also be ambiguous, but the underlying principles of ADKAR could help to provide direction and structure. Employees, managers and senior leaders alike can use ADKAR to describe and discuss change together. Managing change on the personal and organizational level requires new thinking, new models for change and new frameworks and tools to enable the smooth implementation of the desired change (Reay, Goodrick, Waldorff, & Casebeer, 2017). ADKAR is one of the ideal models applied to a wide variety of changes to drive success in the implementation and management of change.

Lewin's change management model. The process of change in Lewin's change model entails creating the perception a change is needed, then moving toward the new, the desired level of behavior and, finally, solidifying the new behavior as the norm. Lewin's change management model was propounded in the 1950s by psychologist Lewin (Mupepi, Motwani, Ross-Davis, & Allen, 2017). This scholar observed most people tend to prefer and operate within specific zones of safety and acknowledged three stages in the change process for this model. The first stage is to unfreeze, with the notion most people make active efforts to resist change and to overcome the tendency of resistance, change managers must initiate a period of softening or unfreezing through motivation. The second stage is the transition: after the change gets started, the organization moves into a transition process which may last within a span of time. Within the period, the appropriate leadership skills and reassurance are necessary for a successful process. The

third stage occurs after the change is accepted and successfully implemented, then comes the need to refreeze. At this stage, the company becomes stable again, and staff refreezes as they operate under the new guidelines. Lewin reiterated that nothing more practical exists than a good theory, and nothing informs the development of a sound theory better than the understanding of practice (McKenzie, 2017). Lewin's change management model remains a widely used model today, even though it takes time to implement, but because it is easy to use, most businesses prefer its usage to enact major changes.

McKinsey 7-S model. The McKinsey 7-S model offers a holistic approach to organizational change management with seven significant factors that operate as collective agents of change (Malik, Lenka, & Sahoo, 2018). Waterman, Peters, Pascale, and Athos proposed the McKinsey 7-S model in 1978 after research in organizational effectiveness (Cartlidge, 2015). The seven salient factors proposed in the model have shared values, strategy, structure, systems, style, staff, and skills. The seven interdependent factors categorize as either hard or soft elements. The hard elements such as the strategy, structure, and systems are easier to define or identify because management can directly influence them. In contrast, the soft elements such as the shared values, skills, style, and staff could be more difficult to describe; these are less tangible, but more influenced by culture. The soft elements are as essential as the hard elements of organizational success. The model seeks to offer an effective method to diagnose and understand an organization, provide guidance in organizational change, combine rational and emotional components and assume all parts are integral and addressed in a unified manner.

The seven elements in the McKinsey 7-S model are

1. Strategy: The plan devised to maintain and build competitive advantage over the competition.
2. Structure: How an organization is structured and who reports to whom.
3. Systems: The daily activities and procedures that staff members engage in to get the job done.
4. Shared Values: The superordinate goals. These are the core values of the organization evidenced in the corporate culture and the general work ethics.
5. Style: The style of leadership adopted.
6. Staff: The employees' general capabilities.
7. Skills: The employees' skills and competencies.

Placing shared values in the middle of the model emphasizes the values are central to the development of all the other critical elements. The company's structure, strategy, systems, style, staff, and skills all stem from the objective and values of the business leaders and what the organization stands to achieve. As the values change, so do all the other elements. The difficulty in the use of this model is the fact that all factors are interrelated; when one part changes, all other parts change, making the model quite complex in practice. For effectiveness, an organization must have a high degree of internal alignment among the entire seven S.

Kotter's eight-step change model. Kotter's model proposed change as a campaign, where employees buy into the change campaign after leaders had convinced them of the urgent need for change to occur. John P. Kotter propounded the eight-step

change model in 1996 (Appelbaum, Habashy, Jean-Luc, & Shafiq, 2012). Step one is the need to increase the urgency for change; leaders must develop a sense of urgency around the need for change to spark the initial motivation to get things moving. Step two is building a team dedicated to change; getting the right people in place is about getting the right team, with commitment and trust to do the job. Step three is creating the vision for change, developing a vision that moves people, and paying attention to the speed by which one can introduce the needed change. Step four is communicating the need for change, keeping communication opened and simple, and understanding the mood before conveying a message or addressing people's anxieties, distrust, and anger. Step five is empowering staff with the ability to change, building optimism and self-confidence, and recognizing and rewarding achievement. Using feedback to help staff make better decisions and making use of people who have change experience to boost confidence. Step six involves creating short-term goals, or developing goals that can be achieved easily and making these goals as visible as possible. Step seven is remaining persistent and relentless with initiating change until the vision is a reality. Step eight is ensuring the change becomes permanent by articulating the connections between the new behaviors and organizational success and making sure the process of change continues until it becomes strong enough to replace old habits (Wheeler & Holmes, 2017). Success with Kotter's model requires all the above elements in the eight steps present.

Significant advantages to the Kotter model is the fact that the process is an easy step-by-step model, and focuses on preparing and accepting change, making the transition easier with this model (Nilsen, Neher, Ellström, & Gardner, 2017). The

challenges associated with this model include the fact that an organization cannot skip any of the steps involved, and the process takes a great deal of time. Adjusting to change is difficult for an organization and its employees, regardless of whether the proposed change is in the process of project planning or general operations.

The Change Management Process

Change is always present in today's world, including within homes, industries, business, and governmental organizations. The change management process is the sequence of steps and activities that a change management team follows to drive individual transitions and ensure projects meet the intended outcomes (Brones, de Carvalho, & de Senzi Zancul, 2017). The successful achievement of an organizational change is possible through a coordinated and planned approach. Organizational change involves the process where an organization changes its structure, strategies, operational methods, technologies, or organizational culture to embrace change into the organization (Martin-Sardesai, Irvine, Tooley, & Guthrie, 2017). Using a model in the change process offers leaders with guidelines, along with the ability to determine expected results, knowing change is difficult to implement and manage. Managing change and its associated complexity has become a required skill for leaders, managers, and employees alike (Hasbrouck, 2017).

Most importantly, the use of change management models helps to ensure adoption and optimization of the success of the change management initiatives. Organizational change can be continuous or occur for distinct periods of time, but the fundamental parts of an organization, such as the people, technology, and the market will always change

regardless of the intent of business leadership (Baloh, Zhu, & Ward, 2017). Businesses face change for many different reasons; in many cases, they need to go through the process of change to remain competitive. The coordination and management of change is an effort and time-intensive venture, but worthwhile, even if it is more expensive than offering an enriched experience. Changes are most likely to increase in recent times mainly because of digitalization, automation, and globalization; since the future is not predictable, the only sure thing in the twenty-first century is change (Schmidt, 2017). Products and services may not improve all the time, but employees need to improve their actions to ensure an organization goes through the necessary changes successfully.

Becoming more efficient, reducing costs, and increasing revenues all require changes in the management of every business. Change does not come easy; many barriers prevent organizations from adopting change and moving forward. Statistics show that 33% of management behavior does not support change, and 39% of employees are resistant to change (Brown, Kulik, Cregan, & Metz, 2017). The complex nature of change makes it often mysterious and resisted by employees. The most successful organizations are proactive about change—they actively look for ways to turn obstacles into opportunities. Because managers set behavioral standards in the workplace, it is essential that they are well equipped with the exigencies of change and are the best examples of how their teams receive change. Organizations that overcome the barriers to change can successfully implement new business practices with significant or even more exponential growth in revenues and profits. The contemporary competitive markets in the global economy are driving tremendous changes in the ways businesses and organizations

operate. A change management process is a necessary process aimed at helping employees to understand, commit to, accept and embrace changes in their current business environments (Morin et al., 2016). Many traditional organizations are beginning to accept to either change or die out of business. Strategically, managing organizational change is critical to implementing new agendas and initiatives, and ultimately achieving organizational success.

Common Barriers to Change

Organizational leaders must identify the need for change and effectively communicate with the entire organization for a successful implementation of change initiatives. Employees are the force behind every change, but there are psychological, cultural, social, and economic stimulants and barriers making change normally inevitable and unpredictable (Alvesson & Sveningsson, 2015). Change management failures are attributed mostly to negative employee attitudes and unproductive management behavior. The oldest and strongest emotion of humanity is fear, and the oldest and most influential kind of concern is the fear of the unknown (Kolosova, 2017). Effective handling of the organizational change process reduces the associated anxiety and negativity as well as stops the rumor mill. Below are some of the common barriers to change:

Insufficient leadership. A change is a way of life, and proficient navigation into a change's turbulent waters is a strategic imperative. Effective change management is a required skill for all leaders, managers, and employees alike, but today's leadership capacity is insufficient to meet the future leadership-skill requirements (Burbaugh, Seibel, & Archibald, 2017). The leadership-skills gap exists, particularly in change

management, making the change management process often challenging. The four most important skills: inspiring commitment, leading employees, strategic planning, and change management, are among the weakest competencies for today's leaders (Manzi & Richardson, 2017). The leadership gap appears notably in high-priority, high-stakes areas. Other areas with significant gaps between the needed and existing skill levels are employee development and self-awareness (Jigsaw Consult, 2015). Such skills and perspectives are critical for success, both now and in the future.

A leadership gap or deficit may have one of two causes: lack of mastery of the required competencies or lack of focus on necessary skills (Megginson & Whitaker, 2017). The first is a matter of degree, and the second is a matter of substance. Collectively, each can be a problem in both the short and long term, as such, leaders need to demonstrate commitment throughout the entire change implementation process actively. Organizations must essentially take both a strategic and a tactical approach to increase the leadership capacity. On the individual and tactical level, managers must align the development experiences with organizational objectives. Businesses, government agencies, nonprofits, and educational organizations require leaders who can effectively navigate into complex issues and effectively handle change situations (Bryson, 2018). Organizations must examine the available leadership competencies, what they need to do, as well as how well equipped they are to handle the change management process. The sooner organizations understand the reality of the leadership situation, the quicker they can move to adapt by refocusing leadership development efforts and rethinking recruitment priorities.

Ineffective communication. Communication is paramount when it comes to change management. The management of change often fails because communication is insufficient and is often the case of one size fits all, rather than tailored to the addressees (Hornsby, Ripa, Vassillo, & Ulgiati, 2017). The gap depicts the unfortunate fact that most business leaders are ineffective in their communications to stakeholders. With the growing conveniences of modern technology, few people are taking the time to talk with people face-to-face, and when they do, they adopt mass audience forums inherently designed to only pass along information in a one-way communication (Rosenberry & Vicker, 2017). In order for employees to execute organizational strategies and expectations to achieve organizational goals, diligent and effective communication is needed. Understanding the need for change is the first step to creating new behaviors within organizations, behaviors that represent business values (Burke, 2017). In driving behavioral change, leaders must communicate the need for change as it relates firstly to the overall business, and secondly to individuals.

The design of the communication phase in a change management process means preparing the organization for transformation from a current state, or practice, to a future state (Becker-Olsen & Guzmán, 2016). At the initial stage, leaders need to prepare messages that define the organization's written principles and values. In doing so, they must set the stage for behavioral and performance expectations. The initial communications phase of the change process must essentially provide a mechanism to uncover potential paths of resistance to change (Borland, 2017). Unlike the practice of passing on information, excellent communication is a two-way affair; as leaders make

others aware of the strategy and need for change, leaders must also elicit feedback to understand better how the message was received. Leaders and managers alike are sometimes unprepared to address the resistance to change, and in fact sometimes become resistant themselves, coming in two primary forms: passive and active, or covert and overt. As people express forms of resistance differently, so must leaders make it a goal during the initial phase of the deployment plan to uncover the passive resistance paths (Gaubatz & Ensminger, 2017). Leaders must provide significant amounts of time for people to ask questions, request clarification, and provide input for effective communication. Employees must feel involved in the change process, creating involvement and commitment, nothing else is as significant during a change process.

Lack of focused training. Training increases the rate of change management success as well as helps maintain visibility and encourage belongingness. Key to engagement on the job is a sense of belonging, which comes from understanding the organizational environment mostly through training programs (Fujimoto & Härtel, 2017). Organizational leaders should offer sound induction training that shares the mission, vision, values, and strategies as well as provides regular refresher opportunities, which are committed to memory and embedded in daily operations. Subsequently, as workplace strategies, structures, and systems become adjusted to change, the organizational culture also responds. Planned training programs are critical to support and sustain an organizational change, and to ensure guidance through the change journey.

Training promotes employee engagement and is a good indicator that highlights the importance of engaging and involving employees in the change management process

(Bourke & Roper, 2017). Managers require training to deliver the change message incrementally to their teams and ensure they gather enough feedback to influence change, knowing that the use of training is a key component of a smooth transition. The change manager's role in training is to identify the skills and capabilities that employees need and to recognize any gaps existing in the training requirements (Shalley & Gilson, 2017). One's preparation, knowledge, and skill in managing change are predictors of success.

A focus on installation. Getting the full value of a new technology investment requires much more than getting the new hardware and software launched. The focus and the sole concentration of installing technology and the associated new processes rather than implementing the change is a major change barrier (Klempin & Karp, 2018). Some PMs perceive a project ends once the system officially gets to go live; once the lights go on, and the new processes are in place, they declare the project complete. At this stage, there is only a successful installation and not a successful project completion. Even though a successful installation completion of a new system is critical, it is not the finish line of a successful project. What organizations and leadership must realize is that if employees' behavior has not changed, nothing at all has changed. Successful project implementation is when the project is on time, on a budget, all technical objectives met, and all business and human objectives are also met, in addition to people using the new technology to its full capacity (Nicholas & Steyn, 2017). Most organizations fail because they fail to apply the business-discipline and rigor for managing the human elements of a change as they do the timeline, the budget, and the technical objectives of a project.

In most cases of failure, the human objectives are mostly poorly defined, and ultimately, poorly measured. When issues arise during a technology project, the integrity of the system is rarely the source of the problem. Instead, it is usually the human and cultural aspects of the implementation, which causes sub-optimized results. Given the complexity of an ERP system and other technologies' implementation, managers should look for a change management methodology that will enable them to address the potentially significant barriers to change as well as the must-haves. The starting point for every change initiative must be clear, with a compelling definition of the change, which is more than just expectations for time and budget, or technical objectives. A good change management strategy must focus on the human beings as a priority, where many people get triggered up in a technology change as they focus on the system, rather than how people will be using the system and new processes on the jobs.

The Benefits of ERP Software Packages

While some businesses choose to stick to the tried and true methods of the past, modern businesses seek technology solutions. ERP is one of such solutions that provides a generic, computer-based, enterprise-wide, business-process support for many organizations. ERPs are often sub-optimized—not due to the integrity of the software, but because the human and cultural issues are not managed systematically and strategically (Zubar, 2017). The software has fundamental characteristics such as a seamless integration of data and processes across the organizations, with embedded best practices. The package has a suite of customizable applications used to integrate and manage most critical business processes, and the successful implementation of the application gives

numerous counts of competitive advantages (Angst, Wowak, Handley, & Kelley, 2017). Although ERP implementation requires a major investment move, there is also the even higher cost of not investing. Some benefits of the solution are cost reduction, quality of service delivery, increased capacity, improved decision making, transparency, improved efficiency, and improved access to information. Others include cheaper and efficient access to large storage capacities within larger and more advanced computers. Modern businesses cannot afford to defer an ERP implementation when other competitors who invest in the solution reap countless benefits, such as those elaborated below.

Efficiency. The ERP system streamlines business processes, making it easier and more efficient for companies to collect and maintain data, regardless of department or activity. The solution eliminates repetitive processes and greatly reduces the need to manually enter information (Ferrari, Codispoti, & Bradley, 2017). The capabilities of an ERP solution can be extensive, and departments that may be geographically scattered are brought together with the implementation of ERP to provide a central and comprehensive system in the operations of a business. With ERP, business functions rely on a single database, with one source of information that contains accurate, real-time data, breaking up information logjams and improving efficiency in business operations.

Forecasting. An ERP package has an embedded planning tool that helps management to manage the uncertainties of the future, depending mainly on data from the past and present and the analysis of trends assumptions based on experience, knowledge, and judgment. Since the analysis of information within ERP emanates as accurate as possible, businesses can make realistic estimates and forecasts that are more

effective. According to Appelbaum et al. (2017), ERP systems contain tools that offer users and managers the flexibility to create forecasts that are more accurate. An option exists that suggests a forecast method to fit specific requirements and business models. The system can also generate a statistical forecast of item-locations set up by the users as well as other optional time series forecasting methods to generate forecasts (Appelbaum et al., 2017). To drive production and deployment decisions, users can also adjust the system generated item-location forecasts and aggregate them nationally, regionally, or by other criteria such as product, class, or market zone.

Collaboration. The collaboration between departments is a crucial aspect of every business. Collaborative systems in IT-based tools support the works of teams by the sharing of documents and the flow of information (Blazek, Kuca, Jun, & Krejcar, 2015). With the implementation of ERP solutions as centralized and consistent systems, there is no reason for departments to work in isolation. The software has inbuilt facilities that provide support to the various aspects of a business, naturally encouraging collaborative, interdepartmental efforts. The collaboration tools provide a seamless link between buyers and sellers to exchange and share vital information, reducing errors and removing cost from the supply chain operation. With enhanced ERP collaboration tools, the entire enterprise can communicate and collaborate to track people, assets, and processes.

Integrated information. Businesses aim to identify various solutions like distribution software, supply chain management software, customer relationship management software, sales force automation software, and more to streamline, integrate,

and automate the overall processes. They do so to achieve end-to-end visibility, transparency, and control. With the successful implementation of ERP systems, issues such as the above with data spread across separate databases become a thing of the past; all information gets housed in a single location (Lyytinen & Grover, 2017). One can then integrate different software platforms with the ERP system, ensuring data remain consistent, accurate, and unique, with customer details, orders, and inventory, amongst others, in one place and properly integrated. ERP effectively integrates with other systems to provide real-time information to business units, reducing costs and increasing profits.

Cost savings. Using one source of accurate, real-time information, ERP software reduces administrative and operational costs. The package supports manufacturers to manage operations proactively, prevents disruptions and delays, breaks up information logjams, and helps users make decisions more quickly (Pinjala, Seetharaman, & Roy, 2017). The solution also saves time and increases productivity levels. Businesses with the right ERP solutions and requirements will see a significant return on investment. Over time, the high investments in ERP systems have proven effective at reducing business costs (Oesterreich & Teuteberg, 2017). With ERP solutions, investments uncertainties as a problematic area of high relevance to decision makers is a thing of the past.

Streamlined processes. As businesses grow, the operations become more complex, and the need to streamline processes also becomes imperative. The ultimate purpose of ERP implementation is to make the entire company run more efficiently, as a suite of customizable applications that allow businesses to integrate and manage their

most important processes (Carugati, Fernández, Mola, & Rossignoli, 2018). Business owners spend time trying to find information stored in different systems and locations in the company. These disjointed sales, accounting, and operational processes reduce productivity and wastes time. Having multiple systems means one can duplicate data which in turn leads to errors and more delays. An ERP software optimizes and automates business operations across departments and functions, providing accurate, real-time information to everyone utilizing the solution (Ammar, 2017). Effective use of the system increases efficiency and productivity by helping users navigate complex processes, improving functions throughout the organization.

Security. Security is critical to every business's operations and reputation. A successful unauthorized intrusion into the operations of every business information and operations can be catastrophic; most especially for businesses with highly sensitive records, such as medical offices, data exposure can have disastrous financial repercussions (Matthewman, 2016). Unauthorized intrusions could cause irreversible damage to a company's reputation, making data security crucial to the survival of such businesses. With ERP solution in place, data security is not a worry; the solution helps to improve accuracy, consistency, and security of data, through built-in resources and firewalls (Banda, 2017). Further restrictions on data could become customized and enhanced, as preferred by the user.

ERP for better business decisions. An ERP solution offers more profound insights into business performance using powerful multi-dimensional analytical tools. ERP enterprise analytics, a ready-to-use analytics solution, enables complete

performance management for enterprise with a 360-degree view of business operations (DuttaRoy, 2016). The system has the potential to minimize delays due to lag in information flow in the operations of a business. The system can identify crucial answers to ad-hoc questions for decision-making at the click of a button, bringing faster returns on investment with a vast repository of pre-packaged analytical content for financials, human resources, maintenance, and the supply chain (Yaman et al., 2017). The overall implementation success of the ERP system is not only of interest to business leaders in the field of information technology but also for those performing enhanced decision-making. The solution offers an integrated platform for managing all aspects of projects from proposal and bidding to commissioning and operation (Zhang, Pan, Wang, Sun, & Wang, 2017). The software package can assist stakeholder collaboration across the supply chain, minimize cost and schedule overruns, and control project risks, among other benefits.

Modern ERP software systems are robust, flexible, and configurable; they are not a one-size-fits-all proposition, but tailored to the unique needs of businesses (Ross, 2015). The software can also adapt to the ever-changing needs of a growing business, making it easier to provide high-quality, interactive, and improved customer service. ERP is now experiencing the transformation that makes it highly integrated, more intelligent, more collaborative, web-enabled, and even wireless (El Kadiri et al., 2016). With all the above advantages put together correctly, an organization that successfully implements an ERP solution stands to gain an edge over other market players.

ERP Systems in the Energy Sector

It has become critical for the energy sector industries to automate most of the business processes to attain the apex of success. In the utility industry, from power generation to transmission and distribution, wastewater treatment plants to storage and distribution, and from upstream to downstream processes in oil and gas, ERP provides comprehensive and flexible enterprise solutions to help organizations meet current and emerging business challenges. In most cases, the mention of the energy sector embodies the oil and gas industry as well, and there are several reasons why these energy companies worldwide will use ERP to manage the internal operations. The production of energy is a costly initiative that needs a variety of support systems to improve the management of production in the energy chain, from generation, through transmission, till distribution at the doorstep of the end user (Carreiro, Jorge, & Antunes, 2017). The effort also includes the need to optimally manage and maintain the capital-intensive assets, improve performance and operational effectiveness throughout the value chain, meet the end-market demands, as well as comply with regulatory mandates and environmental safeguards. Businesses such as those in the energy sector have a considerable contribution to the GDP of every country; when the economic health of utility businesses in a country improves, the financial health of the nation also becomes enriched (Al-Maamary, Kazem, & Chaichan, 2017). The need for an innovative enterprise solution to align with industry's needs is imperative to achieve the desired business outcomes. In recent times, the energy sector industries have striven to switch over from the age-old legacy systems to seamlessly automated systems such as ERPs.

The need for a comprehensive, easy-to-use, quick to implement, cost-effective, and flexible systems to accomplish the unique business needs and the ongoing changes has dawned on the energy sector (Pisoni, Michelini, & Martignoni, 2018). The system helps the energy sector to put in place automated, advanced, and industry-specific solutions to effectively manage processes to grow on demand in addition to transforming business processes.

A full-blown ERP is a cloud-enabled product that comes with power-packed functionalities designed to drive innovation (Church, Schmidt, & Smedley, 2017). The solution is easy-to-use, with powerful, mature and comprehensive yet flexible solutions, which align with the unique requirements of the energy and utility industry. ERP has embedded key capabilities, such as flexible, scalable and agile solutions to address the specific needs of the various energy sector business segments. Encompassing project management, supply chain, operations and maintenance, finance and human capital management, the solution helps to improve operational efficiency and effectiveness, reduce costs, and improve the bottom-line (Modgil & Sharma, 2017). The flexible and scalable product architecture of ERP gives the required agility and frees businesses such as the energy sector from the tyranny of inflexible software, creating profits from assets.

In contemporary times, technology convergence has become an inevitable part of operations in most businesses and the power sector is no exception. The cost of asset downtime and underutilization of capacity could be very expensive and prohibitive in the energy and utility industry (Biran, Collins, & Dubow, 2017). ERP brings an easy-to-use, powerful, mature, comprehensive, yet flexible enterprise asset management solution with

the simplicity of cloud computing, to help manage all aspects of the asset lifecycle from asset planning and budgeting till retirement and disposal. An ERP solution implemented in the energy sector could enhance the following areas of operation.

Reliability. The global energy sector is undergoing sweeping changes to improve reliability. Given the high cost of assets, the extended operational life cycle and demands for reliability in power production, energy companies are increasingly implementing IT functions to meet the operational needs (Jiang et al., 2017). One such technology is the ERP system, which improves asset reliability by optimizing maintenance strategy with the right mix of corrective, preventive, predictive, and risk-based maintenance. The ERP solution also helps the energy sector to develop real-time visibility anytime into asset location, condition, and performance by directly integrating with systems such as geographic information systems (GIS), supervisory control and data acquisition (SCADA) systems, amongst others (Inden et al., 2014). Not only are renewables becoming a more significant part of the energy mix, but the quest for sustainability has expanded the scope of technology in the industry.

Performance. An ERP solution helps to perform the various tasks involved in a business process more quickly and efficiently. In the energy sector, ERP is used to manage work permits, shutdowns, maintenance budget, lubrication programs, work orders, work logs, and a lot more for sustained asset performance (Dennis, 2016). The solution also helps to improve control of assets, services, and workflows, offering asset management solutions, and managing IT and non-IT assets through the entire asset lifecycle. From planning, requisitioning, allocation, and retirement, to disposal, ERP

helps to streamline the processes to meet the end goals of maximizing energy production, minimizing downtime and reducing operation and maintenance costs to improve performance.

Easy integration. Instead of having personnel at the various departments and manually following multiple processes to access information, ERP seeks to bring all the various sources of information together into a central database for easy access at any moment in time with the touch of a button. ERP can best be summed up as a suite of integrated applications that allow for cross-departmental interaction (Holdstock, 2016). The solution brings all functions of the organization into a single computer system and software solution, forming a central database that works as a repository for information originating from the different parts of the business. Subsequently, the system creates interfaces for easy access to each department's data. For example, a manager at the sales department can check on the status of a customer's order at shipping and receive payment information from accounts receivable without having to communicate with different persons in each department. An ERP solution helps to provide complete integration of the system not only across departments but also across companies under the same management, providing quick and easy access to information

Improved service delivery. An ERP solution supports the bridging of information gaps across a company. The system helps to focus on key issues such as productivity enhancement, customer service, cash management, inventory, quality control, and prompt delivery (Hwang & Grant, 2016). In effect, the solution offers accurate billing with optimized customer satisfaction, by improving billing accuracy and

collection efficiency to enhance customer relations in the energy sector. According to Castelle (2017), billing and customer care with ERP solutions for utilities provide the framework for managing customer billing, credit handling and back-office operations such as payment processing, collections, and revenue receipts, as required. The solution helps organizations to maximize revenue, arrest revenue leakages, improve cost efficiencies, and respond to market dynamics within shorter durations. ERP also helps to improve service with smart metering interfaces and delivery of bills through mobile phones in real-time.

Automated processes. Automated business processes provide consistency in execution, as well as safeguard compliance. Service automation embedded in the ERP solution boosts efficiency and enables seamless, smooth, fast flowing workflow through automatic resource fulfillment (Bilge, 2017). The ERP solution provides an easy way to automate processes and parallel tasks, in addition to moving data between process players in the energy sector. The system supports the integration and automation of most business processes as well as the sharing of information enterprise-wide in real-time, improving customer service and the corporate image at large. Eliminating human error and automating processes with ERP systems allow for a more seamless operational environment for the different departments that need to collaborate. In a demanding set up as a utility, errors not only mean outages and inconvenience to consumers, but also translate to sharp revenue losses. The automation increases the reliability of business data, while simultaneously breaking down silos. The solution also aids in the undertaking of preventive maintenance and auto-remediation of requisite permissions, eliminating

errors, delays or failures that may set in with human intervention. Through automation in ERP systems, management can establish real-time visibility and control of the business process, as well as determine how the processes operate at the various divisions, and bottlenecks highlighted for possible improvements.

Improved decision-making and efficiency. Every business wants to get ahead of the competition and increasingly seeks to innovative ways of achieving effective solutions, cut costs and help retain smooth-running and efficient organizations. ERP is used by managers as a strategic planning resource, allowing organizations to pinpoint the target market and to define their missions, visions, and strategic objectives accurately. Regarding the day-to-day activities, an ERP software gives quick and easy access to information required for better decision-making (Jagoda & Samaranayake, 2017). The solution also helps staff make better decisions more quickly and frees up time for more high-value exercises assisting businesses to grow even faster. The solution also assists in the implementation of smart and interactive revenue collection modes with third parties, banks, credit cards and counters. ERP in the energy sector helps leaders to make better business decisions with enterprise analytics tools giving comprehensive visibility to the various department's performance; an example is the functioning of financial records viewed with full integration of business analytics (Eker & Aytaç, 2017). By remaining abreast of the economic situation, an organization may recognize opportunities to boost profitability and to improve financial controls and risk management in the energy sector.

In today's competitive environment where every business is aiming to cut costs and increase productivity, ERP systems help meet many strategic objectives. With ERP,

utilities can achieve higher productivity, reliability, safety, improved customer experience, compliance, and revenue management with appropriate and ambitious digital goals. The solution serves to increase business awareness within organizations using integrated applications and the understanding of inter-dependencies between processes. While digital transformation is the driving force, ERP is the reliable partner to execute the redefined frontiers of the energy sector (Marques, Agostinho, Zacharewicz, & Jardim-Gonçalves, 2017). The successful implementation of an ERP solution across an organization such as a utility can transform the operational, financial and human resources aspects of a business, providing the flexibility and agility to support an ever-changing business environment.

ERP Cost and Productivity Impact

With the advent of the information age, more companies have realized the need for IT as a vital part of the modern enterprise. IT investments are necessary to maintain the business' vitality and competitiveness and have continued to become even more critical for corporate survival and development. Enterprise software applications such as ERP, with the customer relationship management, and enterprise content management solutions have become a comprehensive, practical management tool in recent times (Trąbka, 2017). The solution significantly improves operational efficiency by enhancing organizational performance; the system remains embraced by most large and medium-sized organizations worldwide. IT investments such as ERP have become one of the most significant capital investments for companies; the ability to quantify the impact on company performance is of great value. A recent survey of 500 large and medium-sized

enterprises in the developed countries showed the overall ERP penetration rate at 67%; 74% of manufacturers and 59% of service companies report using or implementing ERP systems (Abu Bakar & Ahmed, 2015). When IT investments get done at the right time with specific goals, proper management, and definite complementary investments, it generates higher benefits.

The appeal of the ERP solution is vibrant; while most organizations typically have systems that perform most of the component functions of ERP, the standardized and integrated ERP software environment provides a degree of interoperability that is difficult and expensive to achieve with stand-alone, custom-built systems. While the business value of ERP implementations extensively is debatable, there is also a small sample of statistical evidence on adoption and the question of whether the benefits of implementation exceed the costs and risks (De Mattos & Laurindo, 2017). Although there is sometimes a small slowdown in business performance and productivity shortly after ERP implementation, it is normalized soon after financial markets reward the adopters with higher market valuation. With ERP implementation and financial data, larger firms tend to appreciate and invest in ERP (De Mattos & Laurindo, 2017). The implementation of ERP systems requires substantial investment in time, money, and internal resources fraught with technical and business risks. Empirical results indicate that as a long-term strategic investment accompanied by large-scale business process re-engineering and organizational learning, ERP implementation has time-lagged effects; even so, it eventually produces significant benefits (Zhang, Huang, & Xu, 2012). Understanding the impact of ERP investment is crucial to both managers and researchers.

Part of the difficulty in implementation is the pervasiveness of the changes associated with ERP, the need for simultaneous process redesign of multiple functional areas within the firm, and the need to adapt processes to the capabilities of the software. A typical ERP installation takes between 1 and 3 years, with an average of 21 months, with benefits starting to accrue in an average of 31 months (Batocchio, Ghezzi, & Rangone, 2016). There is also a high degree of managerial complexity of such projects. While ERP systems have packaged software applications, the majority—about 60%—of the project cost is devoted to setup, installation, and customization of the software, as well as services typically provided by consultants (Thomassey, 2016). Success or failure hinges on the effective collaboration between the two primary teams involved in the implementation: the business knowledge of internal business experts and the technical skills of consultants. Given the scale of ERP implementation projects as well as the possibility of both substantial successes and failures, it is reasonable to expect that ERP deployment has a significant and measurable effect on firm performance. While both costs and potential benefits is a primary concern for abandoning ERP implementation, another critical concern is the expectation to change business processes to suit the software design. A typical ERP project cost breakdown is as follows: software licensing (16%), hardware (14%), consulting (60%), training and other internal staff costs (10%). The estimation is that at least 90% of ERP implementations end up late or over budget (Keil, Smith, Iacovou, & Thompson, 2014). Since the implementation is difficult with some uncertain processes, businesses that are successful in implementing ERP may gain

a competitive advantage over other firms that are unwilling or unable to make similar changes.

ERP System Adoption in Developing Countries

Contemporary businesses who seek to innovate and to expand their market shares are making substantial investments in complex information systems such as the ERP systems. According to Randhawa and Sethi (2017), aside the apparent differences in the relative wealth of organizations in developed versus developing countries, ERP adoption rate in developing countries is quite low. By identifying culture clashes through the various dimensions, one could manage to explain some reasons for low levels of ERP adoptions in developing countries. National cultures of the developing countries, which are entirely different compared to the culture of the developed world (the birthplace of ERP), may be one reason for such low adoption rates in developing countries. Factors such as the high relative cost of hardware and software compared to costs in the developed countries and limited national infrastructure (including countrywide knowledge of ERP systems) could also account for the low adoption. Documentation difficulties with IT implementation projects are also significant in explaining the relatively low adoption rates of western-based ERP systems in developing countries (Lai, Lai, & Lowry, 2016). The fundamental dispute is that business practices embedded in western-based ERP software are likely to reflect U.S. and European business and national cultures (Hwangbo, Tsekleves, & Cooper, 2015). Such systems, when implemented in developing countries, could result in difficulties due to a mismatch between cultural assumptions and practices embedded in the software and those in the client organizations.

Most businesses in the developing countries are beset by records of significant rates of ERP implementation failures, leading to substantial waste of investment and other resources (Hyder & Lussier, 2016). ERP technology faces additional challenges in developing countries related to economic, cultural, and basic infrastructure issues, even though there is little research to compare the implementation practices of ERP in developed versus developing countries. According to Sadki, Bengourram, Latrache, and Mabrouki (2015), the four pairs of opposing cultural forces that work against ERP adoption in the developing countries are computer self-efficacy, organizational support, training, and compatibility. These four factors have a positive influence on ERP usage, which, in turn, has a significant impact on empowerment and individual performance. Many businesses have encountered organizational and cultural problems during the adoption and implementation of new IT systems in general (Whittle, Hutchinson, Rouncefield, Burden, & Heldal, 2017). The implementation of ERP systems in developing countries faces specific difficulties over and above those faced by industrialized countries. This discovery suggests information technology and management practices require modifications to suit different cultural contexts. Consequently, it is pertinent to understand the influence of the various factors influencing the acceptance of ERP in the developing country's context.

ERP Adoption Barriers in Developing Countries

In the past decade, developed countries have heavily adopted ERP systems in their business operations. Similar levels of adoption have not occurred in the developing countries as compared to developed countries (Dwivedi et al., 2015). As a result, scholars

have questioned why the adoption of ERP software from developed countries is so low in developing countries, and why the few local organizations—excluding multi-national corporations—who have adopted ERP experienced difficulties. Answering these questions will benefit ERP vendors in formulating product development and implementation strategies for developing countries, as well as help potential customers in developing countries to understand the pre-requisites for successful ERP system adoption. The preliminary findings suggest that high cost, culture, integration, and lack of adequate knowledge are among the four most important factors that make ERP unsuitable for many organizations in developing countries (Alhirz & Sajeev, 2015). Due to changes in the developing economy and consequent changes in the business environments, there is a need to understand how different factors have influenced information system deployment into developing firms. To date, the U.S. and European-based vendors are the leading ERP solution developers (Naeem & Islam, 2016). Since the developers are mostly U.S. and European based, these artifacts embody western-style thinking which may be at odds with the prevailing cultural morals, values, and norms in developing country contexts.

It is apparent from the circumstances so far reviewed that several factors combine to influence the low rate of adoption of ERP systems from the major global vendors. The problem is, developing countries are not maximizing the use of ERP systems. The factors below explain some of the reasons why the adoption of ERP systems in the developing world is so low.

Initial cost. It is difficult to determine the total and absolute price for ERP implementation accurately at the initial stage. The fact is, the total cost becomes more visible after project completion; vendors state their pricing policy and possible additional costs and clients' budget based on infrastructure, staff, and software requirements (Wong, Li, & Laplante, 2017). The standard rule is the bigger the company, the higher the number of users, and the higher the cost. The acquisition and implementation of ERP systems are a much more capital-intensive project. The initial cost of ERP adoption is not within reach of most organizations in the developing world, making most organizations in developing economies unable to afford the high investments needed for ERP implementation (Abrego Almazán, Sánchez Tovar, & Medina Quintero, 2017). Additionally, ERP products and their associated maintenance costs and upgrades are very expensive relative to average wages in developing countries, making it not economically viable.

Knowledge gap. The skillset and knowledge gap within organizations of developed countries on how to configure, customize, and use the ERP software further reduces the benefits obtainable from the adoption of ERP systems in the developing world. The associated best practices and the very high level of integration embodied in ERP software also clash with the prevailing business practices of the developing countries (Azan, Bootz, & Rolland, 2017). There are few ERP vendors in developing countries; also, while other vendors are operating through local agents, the staff of local agents also lack adequate knowledge of the ERP products. Only a few vendors are conducting training programs on the ERP packages, making it difficult to find trained

personnel to support ERP products in the developing countries. ERP vendors could also consider developing different versions of the software for different regions of the world with similar cultural and business practices. Business owners considering the adoption of ERP solutions in the developing countries are wary of the likely scale of social upheaval in their organizations. There are two things advised to reduce the misalignment. First, organizations in the developing world should seek to improve their business processes before embarking on an ERP project. Second, they should seek to raise their staff's skill levels to align work practices more closely with the practices currently embedded in the ERP software (Kotze, Zeeman, Niehaus-Coetzee, & Roux, 2014). The process of managing the development of the ERP software requires critical analysis of detailed knowledge of the system. Managing ERP systems' philosophy is a critical success factor if a firm and its suppliers and logistics providers are to retain control of their business.

Cultural differences. The culture of developing countries at the organizational level is not geared to accept the culture imposed by the ERP software, which is originally a Western-based system. Most organizations in the developing world have a centralized and labor-intensive system of management, relying on various types of stand-alone independent functional based reports, for decision making, changing of roles, and manual authorization procedures amongst others (Zanchi, Delogu, Zamagni, & Pierini, 2016). Staff reduction facilitated by ERP adoption also clashes with the cultural norms of the developing labor market. By contrast, ERP systems inscribe management concepts and values using online services and highly-structured processes, data, and roles. In developing countries, decision-making is mostly based on seniority and is uncommon

among junior and middle management, but ERP systems demand decision-making at all levels of operations (Singh & Singh, 2015). Again, most of the working population are accustomed to being employed by one organization for an extended period, and often accustomed to working within a function within the organization; with experience, they become managers and owners of departments, not team players. This practice goes against ERP culture, which promotes shared environments.

Lack of expert information. Factors such as lack of knowledge, awareness, and ERP-trained human resources; low rates of successful ERP projects; and the uncertainty concerning agents appointed by the ERP vendors have severely affected the growth rate of ERP adoption in developing countries. The awareness of ERP software is low in the developed world, and few local organizations have adopted ERP solutions with the various modules that leads to an integrated environment and the achievement of some level of success (Suhaimi, Nawawi, & Salin, 2017). Should the ERP software become widely used in the developing countries, both the ERP vendors and the potential customers will need to change most of the existing operational practices. Vendors should know that cost reduction through workforce reduction is not a significant advantage in the developing countries, as well as savings in staff reductions are negligible compared to the cost of purchasing and implementing the ERP software. Many developing economies also view ERP projects with some concern because cheap labor can produce similar outputs for much less cost and in a more socially friendly manner (Zompras & Siakas, 2015), making it impossible and impractical to implement ERP systems in isolation.

In conclusion, until vendors make specific changes, the existing challenges in the developing countries would continue to constrain the appropriate and productive use of ERP systems. In the context of developing countries, ERP adoption needs further examination and revision. The reviewed assertions above make it imperative to clarify the differing effects of the underlying factors examined in the developing countries; the presence of a factor could encourage success, while the lack of it could promote failure. If an ERP software is to become widely used in the developing countries, both ERP vendors and potential customers will need to change their current practices.

Standardized Project Management Practices

There is a premise that all projects, including ERP implementation projects, are fundamentally similar, and are consequently managed with the same set of principles and tools, bringing to the fore, standards, and standardization. ERP systems have currently become a tool enabling organizations to standardize business processes. Successful implementation of ERP projects brings about a high level of standardization and offers rich functionalities based on best practices (Matook & Brown, 2017). The mention of ERP projects brings issues of methodology, standards, standardization, and best practices to the forefront.

Organizations often choose to implement projects with some level of standardized project management practices; as a standardized set of project management practices, expecting the approach to carry significant potentials for improving project performance (ul Hassan, Ahmad, & Zuhaira, 2018). In the management of projects, stakeholders often use methodologies and standards interchangeably. In many organizations, discussions on

best practices have focused on putting policies and procedures in place for accomplishing projects. The interest stems from the need to do more with less, reducing timelines and getting a product or a service to the market for increased revenue, smaller budgets to get projects completed, with reduced project management staff, amongst others.

Methodology. A methodology is a set of methods, processes, and practices that are repeatedly carried out to deliver projects (Svejvig & Andersen, 2015). A methodology indicates what to do in the management of projects from start to finish, describing every step of the project life cycle in detail, and knowing which tasks to complete and how to complete them. In most organizations, the methodology is an accepted order of practices, techniques, procedures, and rules used by those who work in a specific discipline.

Standards. A standard is a collection of knowledge areas accepted as a best practice in the industry (Heravi, Coffey, & Trigunarsyah, 2015). Standards are typically used to achieve a specific look, quality, quantity, level, grade, amongst others, or to obtain specific results as well as to create a safer environment. The fundamental concept is to repeat the same steps for every project undertaken, to improve the efficiencies in the approach. In project management, processes are an organized and streamlined sequence of activities intended to create added value for project stakeholders. The difference in practice between a methodology and a standard is that standards provide industry guidance, whereas methodologies indicate efficient processes for managing projects. The two most popular standards for project management concerns are from PMBOK and Prince2.

Best Practices Versus Standardization

In most cases, individuals use *best practices* and *standardizations* interchangeably. Best practices describe the best-known methods, techniques, or processes used to achieve a goal or a standard, while standards include the established rules and principles by an authority or by general consent as a basis of comparison (Loebbecke & Thomas, 2016). The typical use of these words helps to achieve maximum performance and to ease comparisons between different entities creating transparency in the sense that one can know what to expect in the different parts of a process.

Best practice. Different organizations define best practice differently. Best practice is a business catchword often used to describe the process of developing and following a standard way of doing things (Amponsah & Ahmed, 2017). For some organizations, best practice refers to a consistent way of doing something; for others, the best practice is simply ensuring everyone in the project management function uses the same templates and software. Most organizations have some described best practices already in place; staff adheres to these practices because someone high up in the organization rolled them out through the organization. Even if project managers' available methods do not fall within the officially recognized methods of the organization, their way of doing things qualifies as a best practice.

Business executives in contemporary business environments are interested in developing a best practice around project management within their organizations. Precisely what a best practice means differs from organization to organization and in many instances, the definition of best practice varies from department to department or

business unit to business unit, and even sometimes within the same organization. Many organizations are uncertain about what a best practice means for their organizations and how to effectively develop a best practice that works for their organizations. Some consulting organizations specialize in best practices, offering pre-made templates to standardize business process documentation. Given the contemporary business environments, the focus of many organizations on project management is doing more with fewer resources. The emphasis is on shorter deadlines, tighter budgets, reduced human resources, and decreased general uncertainties. Organizations desire to establish best practices to meet many needs, including effective management of project resources, alignment of projects to the strategic goals of the organization, improved tracking and reporting on projects' status, and reduction in time and money spent on ensuring projects results in successful conclusions.

Standardization. When organizations aim to develop a best practice around a project management function, they usually mean one or more of the following: standardized processes, tools, and templates; standardized software; in addition to the development of competencies, assessment of skills against the competencies, and effective resource planning. According to Heldman (2018), standardization is the process of making something conform to a standard. Standardization also includes the development of specialized career paths, development of strategic, long-term training plans, the development of formalized mentoring and coaching policies, support for and promotion of industry certification, and the development and rollout of a project management office (PMO) function, amongst others. Standard project management

(SPM) is a methodology for managing projects that are composed of non-uniformed and consistent practices. In project management, standardization indicates the degree of absence of variation in implementing such practices; as variation decreases, standardization increases (Gelonch-Bosch, Marojevic, & Gomez, 2017). To many, standardization is a framework of agreements to which all relevant parties in an industry must adhere to ensure all processes associated with the creation of a product or the performance of a service gets performed within set guidelines. Conforming to standards helps to ensure everyone within an industry uses the same terminologies and templates, as well as the existence of appropriate training for all in the management of similar technical skills. The underlying principle of SPM is the creation of a stable and a predictable methodology for project management practices.

The expectation is the deployment of an acceptable methodology will preclude project management practices, which may vary from project to project and from PM to PM, leading to a repeatable project management methodology and higher project management contract or consultancy (PMC). Increasing the standardization of a project management process can help improve PMC, as well as the ability to deliver projects successfully per predetermined schedule, cost, and quality, with customer satisfaction goals. Many previous researchers have argued that eliminating variation in the project management process—by adhering to a consistent sequence of project phases, activities, deliverables, and milestones—may significantly enhance standardization, and hence, the PMC (Singh & Lano, 2014). Conversely, the use of the process as a predictor for PMC may depend on another set of factors frequently unnoticed by researchers. These factors

include the type of project under study and other SPM factors such as methods, organizational structures, performance metrics, and leadership, amongst others.

The Project Management Office

The function of the PMO is to bring order and standardization to chaotic and diverse project management practices by instituting defined, repeatable processes and standards, monitoring and controlling to ensure that these practices are followed (Cabral, 2017). While effective PMOs share some key traits, there is no such thing as a standard approach to PMO development. PMOs can differ significantly from organization to organization. What all PMOs must have in common is a strong foundation to help weather the precarious early stages of the PMO's launch. According to the *Guide to the Project Management Body of Knowledge* (2013), the project management office is a formalized structure directed toward support of the project management community within an organization. Projects by nature are unique and distinct from operations, requiring a great deal of creativity and flexibility. The marriage of project management with knowledge management concepts create a framework that enables sharing of project knowledge and lessons learned and providing opportunities for cross-pollination of ideas. A PMO would typically document and disseminate lessons learned, but best practices of the tacit knowledge are hard to harness.

There is a premise in current project management literature that all projects are fundamentally similar, and consequently managed with the same set of principles and tools (Rolstadås & Schiefloe, 2017). To some experts, this translates into a one-size-fits-all form of project management for all sizes and types. Recent researchers have taken a

different view, arguing that projects with different characteristics and properties present different management issues; organizations should, therefore, use different management strategies for the different types of projects (Gemünden, Lehner, & Kock, 2018). The practice is a contingency approach, and many practitioners particularly, project managers tend to agree with the new observation. Most practitioners perceive new product development projects and software development projects as significantly different, with each posing its own set of management problems (Artto, Gemünden, Walker, & Peippo-Lavikka, 2017). Subsequently, the approach must consider the specific characteristics of the two projects types in the project management process.

Transition

Section 1 included background information for this multiple qualitative case study. The goal of this qualitative multiple case study is to explore the strategies PMs in the energy sector use to implement successful ERP projects, and the overarching research question focuses on strategies PMs in the energy sector use to implement successful ERP projects. Section 1 of the study also included the literature review with a brief history of ERP systems, the Leavitt model of organizational change, and the rationale behind the choice of the Leavitt model in this study, followed by TAM, a rival model and a review of other models. The review also included the change process, common barriers to change, and the benefits of ERP software packages. I then reviewed ERP systems in the energy sector, including cost and productivity impacts, in addition to ERP system adoption and barriers to adoption in developing countries. Discussions of standardized

project management practices, the project management office, and a transition or summary forms the conclusion of the section.

A restatement of the purpose statement begins Section 2, in addition to discussions of the role of the researcher, the research method and design, research ethics, and procedures for data collection and analysis. Section 3 included my findings, implications for social change, recommendations for further study, and a conclusion. In the conclusion, I highlighted the study's strengths and reiterated the most important evidence supporting the research findings on the critical success and failure factors of ERP implementation in the energy sector.

Section 2: The Project

With the emergence of information and communication technologies such as ERP, it is possible to improve productivity, increase efficiency, decrease costs, and streamline the internal processes of businesses to achieve strategic goals (Luo & Bu, 2016). The ERP solution is a software program designed for modern businesses, both large and small. I conducted a qualitative multiple-case study to explore the strategies that PMs in the energy sector use to implement successful ERP projects. This section includes the purpose statement, discussion of the role of the researcher; and an overview of the participants, research method, and data collection and analysis techniques. The reliability and validity of the study is also discussed.

Purpose Statement

The purpose of this qualitative multiple-case study was to explore the strategies that PMs in the energy sector use to implement successful ERP projects. The target sample was three PMs from three energy sector companies—one from the Greater Accra region of Ghana and two from the Nairobi region of Kenya—who have successfully implemented ERP projects. The implications for social change resulting from successful ERP implementation in the energy sector may include improvement in the performance of the firm, enhanced sustainability and profitability, and the creation of employment opportunities for the community.

Role of the Researcher

The role of the researcher in qualitative research includes identifying relevant aspects of self, excluding biases and assumptions, as well as clarifying expectations for

the research, that qualify the researcher to conduct the study (Loeb et al., 2017). The researcher selects the appropriate research methodology and design and identifies and engages the appropriate participants to collect, organize, and analyze the data. The primary functions of the researcher conducting a qualitative study involve data collection, data organization, and data analysis (McKinlay, Morgan, Gray, MacDonald, & Pullon, 2017). According to Lancaster (2017), qualitative researchers have the autonomy to conduct interviews as well as determine the methods used to analyze the research data. An effective qualitative researcher asks probing questions, listens, thinks, and asks more exploratory questions to get to the deeper levels of the conversation, and seeks to build a picture using the ideas and theories from a wide variety of sources. My research strategy included gathering data through interviews with project managers who were directly involved in the successful implementation of ERP projects in three energy sector organizations in the Greater Accra region of Ghana and the Nairobi region of Kenya. I recruited the study participants who are PMs from the PMI database after I had received approval from the organization to conduct the research as a member, which allowed me to access the database (see Appendices A and B).

Researcher's Relationship With the Topic

My research approach was to gather data through interviews with participants who have experienced successful ERP system implementation in the energy sector. I have had some level of professional curiosity in the subject area, owing to my work experience as a PM in the utility sector for about 20 years, as well as expertise acquired from several functional project implementations. This experience, along with literature

gathered in my line of work, has broadened my worldview with the knowledge that business environments have become increasingly multifaceted, requiring more interfunctional data flow for effective decision-making, in addition to the timely and efficient management of interfunctional roles (Gunasekaran et al., 2017). My interest in the timely and efficient management of inter functional roles led to my discovery of ERP systems which automatically integrate the various business functions of an organization, facilitating the management of personal and professional information in a much more efficient way (Parhizkar & Comuzzi, 2017). This discovery, along with documentation showing the low success rate of ERP implementations, prompted this study.

A researcher who recognizes his or her personal views is better placed to understand and appreciate interpretations from other people (Marshall & Rossman, 2016). Qualitative researchers must therefore disregard their human rationalizations and activities in analyzing participants' contributions. I was better positioned to appreciate the concerns of participants from my study locations, having lived and worked in both metropolitan areas. I had no personal or professional relationships with the research participants.

Researcher's Role Related to Ethics

The *Belmont Report* (1979) identified three ethical values governing research comprising humans: (a) respect for the autonomy of participants, (b) fairness in both conception and implementation, and (c) the maximization of potential benefits while minimizing possible harm. In this study, I implemented provisions to respect participants, mitigate risk, provide assistance, and maintain confidentiality. According to Lunnay,

Borlagdan, McNaughton, and Ward (2015), participants must be cognizant of their right to decline to participate, be able to comprehend how the researcher will maintain confidentiality, be conscious of the possible uses of their responses, and be advised of their right to withdraw consent. Shoup (2015) asserted that one's role as a researcher as relates to ethics and the *Belmont Report* protocol involves doing no harm to participants; assuring and ensuring privacy, anonymity, and confidentiality; and gaining informed consent. I also adhered to the protocols of the *Belmont Report* (1979) to maintain ethical standards throughout the study (see Miles, Huberman, & Saldaña, 2014). Before the start of the interviews, I completed the National Institutes of Health web-based training course on protecting human research participants. Consequently, before the start of each interview, I provided participants with consent forms containing the nature and purpose of the study, how I would maintain their confidentiality, my responsibilities as the primary researcher, and those of the research participants. Through the consent form, I addressed issues such as voluntary participation, the right to withdraw or terminate the interview at any time, and the right to withdraw any responses at any stage before the publication of the study.

Mitigating Bias

A researcher must build and maintain a close relationship with participants to elicit open and frank exchange of information, which helps to minimize some of the biases and validity threats inherent in qualitative research. According to Hyett, Kenny, and Dickson-Swift (2014), qualitative researchers must make conscious efforts to minimize errors and biases. I consciously disregarded my professional experience,

knowledge, and preferences, in addition to any association with the energy sector, during the analysis of the study findings. The use of open-ended questionnaire also prevented participants from simply agreeing or disagreeing, and guided them to provide honest answers.

Research biases, particularly in data analysis, can emanate from a researcher's experiences, personal values, and perspectives (Sandler et al., 2016). With this assertion in mind, I was mindful of possible biases. I aimed not to insert personal beliefs and preferences into the data by approaching the study as an independent researcher acting only to gather data. In addition, I controlled my perceptions and reactions before, during, and after the interviews to ensure consistency. I ensured the consistent and judicious use of the interview protocol for each interview by following an identical process with each participant.

Rationale for Interview Protocol

Asking questions and receiving consistent answers was a much harder task than it seemed. First-time qualitative researchers are advised to use interview protocols to assist in the collection of reliable data (Dempsey, Dowling, Larkin, & Murphy, 2016). An interview protocol served as a guide to conduct a qualitative interview, highlighting the known and unknown issues of the research area or topic (see Appendix D). The interview protocol serves as a guide to be on the same wavelength with each respondent on the appropriate and relevant issues to explore (Asendorpf, 2015). The use of the protocol ensured that I asked the same open-ended questions, in the same order, to each participant, mitigating any preconceptions in the research process as well as adding

intellectual rigor to the study. The interview protocol prompted me to remind the interviewees of the information I aimed to gather, acting as a procedural guide for direction through the interview process. Additionally, because it was difficult to record everything in writing during a qualitative interview, I used an electronic device for voice recording.

Participants

Eligibility

According to Vaioleti (2016), there is a need for the research participants' involvement and familiarity with the research topic. The above assertion influenced the choice of study participants for this study. Purposive sampling is the principle underlining the selection of participants that are most likely to provide relevant information to the study purpose (Etikan, Musa, & Alkassim, 2016). I used purposive sampling to select participants from the energy sector who have successfully implemented ERP systems in their organizations. The eligibility criteria for the research participants included the following: (a) must be an employee in the energy sector within the Greater Accra region of Ghana and Nairobi region of Kenya; (b) must be a PM involved in a successful ERP system implementation; (c) must be willing to participate in a face-to-face interview or a written narrative protocol; and (d) must be willing to allow the granted interview published in a doctoral study dissertation and other publications. I also wrote down the accounts of my assumptions, expectations, and worldviews as the researcher in the data collection process; these accounts helped me to identify any of my personal biases that could affect my interpretations. The researcher's ability to mitigate

bias and validate the correct interpretation of the phenomenon determines the data quality in a study (Fusch, Fusch, & Ness, 2017). The risk of bias exists in all components of qualitative research; such biases may come from the questions, the respondents, or the moderator. Researchers have the ultimate responsibility to reduce bias and to deliver quality research.

Access

One of the most significant drawbacks in conducting successful research is the inability to obtain access to credible and reliable participants in the study area. Access to participants in the research field can vary considerably, depending on the topic under investigation (Kircher, Eriksson, Forsman, Vadeby, & Ahlstrom, 2017). I used a professional institute to gain access to research participants for the study. I sent a letter of cooperation to the institution to obtain the confirmation and willingness of participation in the study, as well as a letter of invitation to the potential participants through face-to-face communication and e-mail. The invitation included the informed consent form for participants to review and provide them with understandable information that will allow them to make informed decision about participating (see Appendix E).

It is essential to establish a working relationship with interview participants to be successful in qualitative research (Cardwell, Williams, & Pyle, 2017). According to Cardwell et al. (2017), researchers should utilize consistent communication to connect with participants as well as maintain principles of the researcher's responsibility to the participants. Once the prospective participant agreed to participate in the study, I communicated through phone calls and e-mails to establish a working relationship. My

experience with my project team as a project manager helped to foster a shared working relationship with the participants, ensuring their comfort and willingness to speak openly and with honesty in all correspondences and interactions.

Research Method and Design

Research Method

I found the qualitative method to be the most appropriate approach for this study because the purpose of this study was to explore ERP implementation strategies through in-depth interviews rather than statistically explaining causal relationships. Three methodologies exist for a research study, namely: qualitative, quantitative, and mixed methods (Harry & Fenton, 2016). Because the objective was to explore ERP implementation strategies through in-depth interviews, rather than to statistically explain causal relationships, I chose the qualitative method to guide this study. Depending on the complexity of research, the mixed method or a combination of methods is appropriate when the solution cannot be studied using qualitative or quantitative methods exclusively (Panda & Gupta, 2013). The choice of a qualitative approach was appropriate for this study to allow the comprehension of human experience through an understanding of the motivations, the reasons that govern performance, and an in-depth look at nonnumerical data (Harry & Fenton, 2016). To sufficiently answer the research questions, I required a deep understanding of the occurrence through in-depth interviews and open-ended questioning, the reason for my choice of a qualitative approach. Quantitative research methods are also suitable to determine how many people assume certain behaviors (Sutton & Austin, 2015). In general, mixed-methods research is combining or integrating

quantitative and qualitative information into one single study (Bentahar & Cameron, 2015). A qualitative method was the most appropriate for this research because I did not generalize, but rather explored the phenomenon to understand the personal experiences of PMs when implementing successful ERP projects.

Research Design

A multiple case study design was my choice for this study because it supported the exploration of a particular phenomenon and enabled the investigation and description of the phenomenon within a specific, contemporary context (Yin, 2014). A qualitative multiple case study design provided adequate tools for my study of successful ERP system implementations, which is a complex phenomenon within the study contexts. Case study, narrative research, grounded theory, ethnography, and phenomenology are a few of the existing qualitative research designs (Bristowe et al., 2015). The case study research design is an inquiry design strategy that is used to investigate a phenomenon within the subject's real-world context using documents, observations, and interviews as sources of information (Bristowe et al., 2015). Narrative researchers do not only share experiential aspects of case studies but focus on the lives of individuals as told through their stories (Harry & Fenton, 2016). The grounded theory design has the goal to generate or discover a theory through the process of constant comparison (Harry & Fenton, 2016). An ethnographic approach is also used for multiple perspectives, but focuses on the patterns and behaviors of a culture-sharing group (Bristowe et al., 2015). The phenomenological study was not appropriate for this study because it describes a phenomenon as consciously experienced without the causal explanations and the

objective reality of an individuals' perception (Harry & Fenton, 2016). A qualitative multiple case study design was appropriate for the current study of an ERP system, because it allowed me to gain an understanding of the people, the context, and the phenomena under investigation.

Population and Sampling

In research, it is impossible to test every single individual in the entire populace; thus, there is a need to narrow down or sample a manageable number of individuals or subgroups within the population of interest. Population sampling is the process of taking a subgroup as a representative of the entire population of interest (Weis & Willems, 2017). Sampling is usually used to save time, money, and effort, but a study must have a sufficient size to warrant statistical analysis. Purposive sampling involves the selection of participants who are most likely to provide the requisite data for a meaningful understanding of the topic under study (Palinkas et al., 2015). Ultimately, researchers must keep in mind that the ideal scenario is to test all the individuals to obtain the most reliable, valid, and accurate results (Fouché, Van Dyk, & Butler, 2016). Palinkas et al. (2015) iterated that in addition to knowledge and experience, researchers should note the importance of participants' availability and willingness to participate, as well as their ability to communicate experiences and opinions in an articulate, expressive, and reflective manner.

Qualitative researchers are concerned with meaning and not generalized assumption of statements (Cornelissen, 2017). Qualitative research is very labor intensive; therefore, analyzing a large sample can be time-consuming and often

impractical. Although different participants may have diverse opinions, qualitative sampling must be large enough to cover all important perceptions. If the sample is too large, data becomes repetitive and, eventually, superfluous (Dapko, 2016). This assertion was the reason for my choice of three participants from three organizations. The use of three PMs from different organizations in this study provided rich data regarding the varied experiences and strategies used for the successful implementation of ERP systems. I contacted the participants through email and face-to-face meetings, coupled with conference calls. During the face-to-face interviews, I conducted an audio recording to keep track of the interview process. After the interviews, I shared the interpretation with the participants for validation. I also used available and relevant documentation from participants to support the interview data.

Robinson (2014) stated that purposive sampling involves the notion that the researcher's knowledge of the population may be employed to choose which participants to include in the sampling. With the study objective in mind, I purposefully sampled and recruited participants with relevant knowledge and experiences in the implementation of ERP systems. To ensure a comfortable and relaxed atmosphere for an open and honest interview, I allowed the participants to determine the interview venue most suitable to their circumstances. For the best results in a qualitative interview, the atmosphere must be quiet, with minimized distractions and a relaxed ambiance (Jennings, Edwards, Jennings, & Delbridge, 2015). The choice of setting for a qualitative interview can affect the quality of participant responses, as well as the quality of recordings.

Sample size in qualitative surveys relies on the principle of data saturation (Weis & Willems, 2017). Determining the point of data saturation is an intricate occurrence; it is the sole responsibility and judgment of researchers to establish all needed information. At the point of saturation, new data will not shed any further light or provide additional insights on the research topic (Tran, Porcher, Tran, & Ravaud, 2017). One occurrence of a piece of data or code is all that is necessary for a qualitative study to ensure that valuable data becomes part of the analysis framework. I determined I had reached data saturation when the depth of the data collected was rich enough, and there were sufficient data to confirm an adequately answered research questions. I confirmed saturation when the amount of variation in the data was leveling off; when new perspectives and explanations were no longer adding to the collected data, and no new perspectives emerged on the research questions.

Ethical Research

The involvement of human subjects as participants in research constantly raises unique and complex ethical, legal, social and political issues, which researchers must carefully seek to address (Anderson & Muñoz-Proto, 2016). Three objectives are critical in research ethics: the researcher's ethical duty (a) to protect study participants from harm, (b) to safeguard their confidentiality, and (c) to obtain their informed consent before they participate in the study (Knepp, 2014). Ethical standards also require that researchers avoid placing participants in a situation of physical or psychological risk or harm for their participation in research (Dempsey et al., 2016). Every researcher must create knowledge through rigorous research processes as well as adherence to standards

and principles (Navab, Koegel, Dowdy, & Vernon, 2016). The establishment of ethical guidelines protects volunteers and preserves the integrity of research. I did not give money or any incentives to participants. Withdrawing from the study interview required the participant to send an e-mail message stating the desire to withdraw.

Agreement Documents

In this study, I followed a case study protocol, ensuring a focus on the research topic to improve the reliability of the study (DeMassis & Kotlar, 2014). The content of the case study protocol included an overview of the study, interview questionnaire, as well as the data collection techniques and tools (Yin, 2014). After being approved by Walden University's Institutional Review Board (IRB) with approval number: 01-08-19-0657402, that expires on January 7, 2020, I collected data through semistructured interviews using open-ended questions with experienced PMs. On receiving the IRB approval for this study, I sent invitation letters to potential participants via e-mail. When they agreed to participate, I sent them the consent forms, to study before data collection began. The consent form contained information describing the purpose of the study, potential benefits of the study, potential risks, guarantees of confidentiality, the voluntary nature of the study and withdrawal information for participant's perusal.

The process for participation included a preselection process consisting of written and oral explanations in addition to the voluntary nature of participation and contact information for questions. After explaining the study procedures, I provided participants with the consent form to sign. In addition to the written consent, I used verbal explanations to highlight and strengthen the contents of the informed consent for

participants who tend to casually scan, forget, or fail to read (Knepp, 2014). As an interviewer, I presented participants with questionnaires in a consistent and systematic process that ensured the ability to ask further questions as required for further exploration. I followed an interview protocol using a semistructured interview with an open-ended questionnaire. I also explored data from available documents and observations of websites to develop codes and themes that could provide triangulation.

Data Collection Instruments

Data collection instruments are tools for data collection, which include questionnaires, interviews, and observations, among others. In a qualitative case study, the researcher is the primary data collection instrument, which requires emotional intelligence and strong interpersonal skills to collect data accurately (Collins & Cooper, 2014). In this study, I ensured that the instruments chosen for the study were valid and reliable. The validity and reliability of any study depended on the suitability of the selected instruments for a study. I used member checking to enhance the reliability and validity of data collected. According to Yin (2014), some of the acceptable sources of data for a qualitative study are interviews, participant observation, documentation, archival records, observations, and physical artifacts. I collected data through interviews, participant observation, and other related records.

I did not contact participants or gather any study data until I received the approval of the Walden IRB. After I received the approval, I ensured the protection of all ethical concerns and study actions with the study committee and Walden University IRB on the rights of participants. The study participants acknowledged and communicated the receipt

of the consent form and the given contact information via email and phone calls. A semistructured interview requires the preparation of questions from participant based on the identification of themes (Kallio, Pietilä, Johnson, & Kangasniemi, 2016). I handled all data gathered in this study with the utmost confidentiality. According to Sullivan (2017), the principle of autonomy provides the right to informed consent. Withdrawing from the study at any point in time will required the participant contacting me through an email or a phone call stating his or her desire to withdraw with no associated penalties. I followed the IRB guidelines for storage and security of all data, including forms and documents related to the study for 5 years. After the fifth year, I would shred all forms and documents, erase all recordings, and delete all saved documents related to the study from my computer and flash drives or any other storage medium.

Data Collection Technique

The process of data collection started with email to all participants with the consent forms for their study. I then scheduled the interview dates, times, and venues with the consenting participants, taking into consideration their availability, comfort, and convenience. Using an interview protocol based on my nine-approved open-ended interview questionnaire, I conducted a semistructured interview with each participant. The interview with each participant lasted about 60 minutes, by face-to-face at the participant's preferred locations to ensure free and relaxed participation. Through the semistructured approach, I avoided any restrictions on the extent of explanations to questions posed to participants, and I ensured consistency with categories and themes (Kallio et al., 2016). This approach also encouraged the participants to share their varied

experiences freely. I also requested further explanations to responses with the potential to form themes and requested for available supporting documents that helped them as PMs in the implementation (Nie, 2017). I also used the process of member checking after the interview by sharing the recorded responses and the interpretations of my findings with the interview participants to enhance the validity of the study.

In exploring the advantages and disadvantages of the data collection techniques, the choice of case study had an advantage to fully depict participant's experience in the research input, processing, and output development, but disadvantaged by the fact that data collection was usually time-consuming to organize and analyze. The use of interviews as a data collection technique was also useful for gaining insight and context into a study topic. This method allows respondents to freely describe critical issues of importance (Gelderman, Semeijn, & Plugge, 2016). In contrast, however, this technique is time-consuming and expensive as well as susceptible to interview bias, and it may seem intrusive to the respondents when compared to other data collection methods. The use of available document reviews is also relatively inexpensive, acts as a good source of background information, is often unobtrusive, and provides additional critical information behind the scenes that may not be directly observable (Basu, Phelps, & Kotha, 2016). Ultimately, unstandardized data access and data security must be the utmost concern of every researcher.

The disadvantages of the available documentation may be that information may be inapplicable, disorganized, out-of-date, or biased due to the selective survival of information. Information on the study topic may also be incomplete or inaccurate and can

be time-consuming to collect, review, and analyze many documents. The use of observations includes advantages such as the use of unswerving observation when an event or activity is occurring, which does not rely on people's willingness to provide information. Directly seeing what people do rather than relying on what they report doing is a better option. The disadvantages are that observation can be susceptible to observer bias, people may pretend to perform better under observation, and that this technique may not increase the understanding of why people behave the way they do.

Member Checking

The process of member checking, which included sharing the findings and responses with the interview participants for validation, enhanced the validity of the study (Wild, Whiteman, Biggerstaff, McCarthy, & Szczepura, 2017). Following the feedback from the earlier respondents, I made the required improvements, modifications, and adjustments before continuing with the other study participants. I also used member checking to review and validate feedback from the research participants and respondents (Thomas, 2016). The use of member checking improves the credibility of qualitative research.

Data Organization Technique

After data collection, it is critical to determine the best strategy for its organization, ultimately to help as a guide for effective analysis. According to Lienhard and Kettiger (2017), the best results come from data that are well-structured and organized. The organization of research data includes keeping track of information in a structured, cataloged, validated, well-labeled, and accessible format. Guidelines for

effective data organization include assigning unique identifiers to each participant, capturing all information about individual participants in structured formats, using consistent codes to represent the different genders, and ultimately ensuring that the data captured are consistent and in reliable formats.

I collected the data through interviews, observations, and supported it with available and relevant documentation. Methodological triangulation increases the validity of the case study findings (Ang, Embi, & Yunus, 2016). According to Turner, Cardinal, and Burton (2017), the application of triangulation is a powerful technique to facilitate the validation of data through cross-corroboration from two or more sources to develop a comprehensive understanding of the phenomena. The use of methodological triangulation adds depth to the breakdown of research data (Fusch et al., 2015). From the above assertions, I used methodological triangulation as a technique to facilitate the validation of data through cross-verification from all data sources to ensure data consistency. As a backup to ensure data uniformity, I recorded the interviews using Audacity software on my laptop computer, and I had a portable audio recorder available for use as a back-up. Before each interview, I ensured the proper functioning of all devices. Beyond my observations, I recorded each interview with a pen onto a notepad, after which I also collected available and relevant documentation from the participants that helped with their implementation to support the study. Afterward, I transcribed all the information gathered from the recorded interviews verbatim into written documents.

Data storage, data security, and data access are critical processes in qualitative research (Breault, 2016). I ensured that the collection and storage of the research data

complied with all IRB requirements. I would have exclusive access to the data after the data collection stages through to the required 5-year storage period. I would ensure the storage of all electronic data on a personal, password-protected hard drive. In compliance with ethical guidelines, I would also store every available research data for 5 years in a secured place.

Data Analysis

Data analysis in qualitative research includes the process of scientifically applying logical techniques to describe, condense, and evaluate data (Levitt, Motulsky, Wertz, Morrow, & Ponterotto, 2017). The data analysis process forms an integral component of every study, ensuring data integrity for the accurate and appropriate interpretation of research findings (Austin, Bloom, et al., 2016). The analysis process has an objective to describe and illustrate gathered data, to bring out a system of explanation, understanding, or interpretation of the participants and situations under investigations into practice. After the interview, I coded the data to develop themes and patterns. I also analyzed the data further to determine recognizable patterns and key themes that could indicate the successful strategies for energy sector ERP projects. I further explored the key themes as presented in the study data to synthesize results with newly published studies and conceptual frameworks. I used NVivo, a qualitative data analysis software package designed to assist qualitative researchers, in managing large volumes of data and the depth of analysis required in this study.

Reliability and Validity

The assessment of reliability and validity in the findings of a study require researchers to make decisions about the credibility about the application, the appropriateness of the methods undertaken, and the integrity of the conclusions (Noble & Smith, 2015). Qualitative research must not lack transparency in its analytical and logical procedures, and the findings must not depict a collection of personal opinions subjected to researcher biases. Cypress (2017) referred to validity in qualitative research as the integrity and application of the methods undertaken and the precision in which the findings accurately reflect the gathered data, while reliability describes consistency within the employed analytical procedures. It is imperative that qualitative researchers incorporate strategies to enhance the reliability and validity of a study at the early stages of research design before implementation. Gehman et al. (2017) identified three types of reliability in quantitative research: (a) the degree to which specified findings repeatedly remain the same, (b) the stability of findings over time, and (c) the similarity of findings within a given time frame. A study is reliable when the assessment tool produces stable and consistent results (Gravina et al., 2017). A further assessment using a more comprehensive framework could facilitate validation.

Reliability

Dependability, trustworthiness, and credibility are essential instruments in the reliability of a study. In the pursuance of reliability in qualitative research, data consistency and trustworthiness are critical attributes that contribute to the rigor of the study (Paré, Tate, Johnstone, & Kitsiou, 2016). Reliability is a quality assessment tool

and a measurement procedure used in data collection; the measurement procedure for every study must first be reliable to consider the results of the study as valid. The reliability of study outcomes is critical to test whether the study fulfills the anticipated goal (Montalvillo & Díaz, 2016). In qualitative research, rather than focusing on reliability, researchers must demonstrate the trustworthiness of research through dependability, which is an evaluation of the quality of the integrated processes of data gathered in a study (Elo et al., 2014). Strategies implemented during a research process should not replace strategies for evaluating trustworthiness.

Dependability

The rigorous attribute to ensure dependability in a study promotes trustworthiness and establishes research findings as consistent and scientifically viable or dependable (Madeyski & Kitchenham, 2017). The approach improves the likelihood that if other researchers analyzed these data, they would arrive at similar findings, interpretations, and conclusions. The multi-dimensions of qualitative research include rigor, description, and triangulation (Sinkovics & Alfoldi, 2012). Researchers aim to ensure that their findings and conclusions are consistent with the raw data collected. This process is important to ensure that the researcher missed nothing in the research process and was not misguided in the concluding report, making the study dependable.

In qualitative research, triangulation is used as a powerful technique to enhance the dependability of data through cross-authentication from two or more sources (Dong-Hee, 2016). Triangulation increases trustworthiness and research credibility because gathering and analyzing data from multiple perspectives enhances credibility (Richards &

Hemphill, 2018). A well-balanced content analysis based on a diverse base of multiple sources enhances reliability and provides a holistic understanding of the phenomena (Carayannis, Meissner, & Edelkina, 2017). I developed and adhered to a case study protocol, used NVivo software to create and maintain a case study database, and enforced member checking to verify that I had the correct interpretations of participants' experience to enhance dependability.

Member Checking

Member checking, also known as participant or respondent validation, is a technique for exploring the credibility of results by having participants review statements in the researchers' report for accuracy and completeness, making revisions where necessary. According to Birt, Scott, Cavers, Campbell, and Walter (2016), member checking is a technique used by researchers to help improve the accuracy, credibility, validity, and transferability of a study. In this study, I used peer review via the external audit technique and member checking to establish dependability. In peer review, I allowed another researcher to examine, explore, and critique my data analysis and interpretations. Through member checking, I returned the results of the study to respondents to check for accuracy and resonance with their experiences. Each participant received a copy of the analysis and interpretations from their interviews to review and acknowledge the rationality, accuracy, and credibility of my findings and conclusions.

Validity

The validity of research data and its interpretation is of utmost concern to every qualitative researcher. In qualitative research, the investigator aims to establish

the credibility, authenticity, transferability, and dependability of the study findings (Symon, Cassell, & Johnson, 2016). Validity designates the soundness of research and applies to both the design and methodology, ensuring research findings represent the phenomenon a study seeks to measure. The use of triangulation enhanced the credibility of this study; I used the multiple case study method to collect and analyze the various data sources with available and supporting documentation to increase the soundness of the findings. I compared and analyzed the agreements and disagreements from the various perspectives to establish validity.

Transferability

Transferability is the degree to which the results of research is generalized or transferred to other circumstances or situations (Link, Nash, Ricci, & Shires, 2016). In qualitative research, transferability is synonymous with generalizability, or external validity, and is largely the responsibility of the one doing the generalizing. The study outcome and the availability of information will appropriately inform readers to evaluate the transferability of study discoveries and conclusions. The findings of this study could also inform prospective ERP system implementations or used as the foundation for further research.

Confirmability

Confirmability is the extent to which research outcomes could be established, substantiated or verified by others. In this study, I ensured validity and maintained a high sense of credibility. According to Newman and Clare (2016), validity in qualitative research involves confirmability and data saturation, which augments the study by

maintaining high credibility and objectivity. I built strategies for ensuring consistency in the research process, instead of evaluating the inquiry; I also proactively ascertained confirmability to safeguard the rigor of the study. The strategies in the confirmability process included the creation of an audit process and the use of data analysis software (NVivo) to facilitate effective examination and analysis of the study information. Uncovering inconsistencies provided an opportunity to strengthen the study (Bluhm et al., 2011). According to Levati, Napel, and Soraperra (2017), member checking reduces ambiguity in research. In addition to ensuring consistency and credibility by asking the participants the same questions, I allowed the participants to confirm and substantiate the accuracy of the collected data.

Data Saturation

I ensured data saturation by first adhering to the doctoral study procedures. Data saturation in data collection becomes obvious when the information and records become repetitive, and the data collection process yields no new information (Bredillet, Tywoniak, & Tootoonchy, 2017). At the point of data saturation, there are no new themes or data revealed, and additional sources of data give no new insights. I interviewed the approved number of participants to obtain data saturation for this study. Using a purposeful sampling approach, the sample of this study consisted of PMs with experience in successful ERP systems implementation. A contingency approach in the interview process requires an iterative process if data saturation does not transpire or new information arise (Arthur, 2016). Additional interactive time with study participants was applied.

Transition and Summary

Using a qualitative multiple case study approach, I designed this study to explore the strategies that PMs in the energy sector use to implement successful ERP projects. I began Section 2 with a restatement of the purpose statement presented in Section 1, followed by a discussion of the role of the researcher and the eligibility of the study participants. I also explained my choice of a qualitative research method and a multiple case study design as the most appropriate for this study, justifying the choice of the method and design over the other research methods. The research population sample described a purposeful sampling comprising three PMs from three energy sector organizations based on the established eligibility criteria. Other topics in this section focused on the ethical research; data collection instruments, and techniques, data organization and data analysis with emphasis on reliability and validity. Leavitt's theory of organizational change model formed the conceptual framework for this study.

I began Section 3, the final section of this study, with an introduction to the section and a brief restatement of the purpose statement. Subtopics such as the presentation of the findings followed the introduction, with the application to professional practice, and the implications for social change. This chapter included recommendations for action, recommendations for further research, reflections, and concluding statements. I reiterated the take-home messages to achieve clarity for members of the review process and prospective readers. The final pages of the study included the references and the appendices.

Section 3: Application to Professional Practice and Implications for Change

Introduction

This third section of the study contains the complete qualitative findings from the analysis of the interviews with the three study participants, the discussion of the findings in relation to the literature, and the study conclusions. The purpose of this qualitative multiple case study was to explore the strategies PMs in the energy sector use to implement successful ERP projects. Organizational leaders continue to invest in ERP projects, though projects fail at an alarming rate (Warren, 2016). Business leaders combine the main components of the organization--people, tasks, structure, and technology for successful ERP system implementation that results in competitive advantage (Bellini et al., 2016). The target sample for the study included three PMs from three energy sector companies in the Greater Accra region of Ghana and the Nairobi region of Kenya who have successfully implemented ERP projects. In performing a thematic analysis of the interview data, I searched for the most common but meaningful patterns in participant responses. I used NVivo12 by QSR International to assist in systematically tabulating the manually coded themes and determining the final themes of the study. In this section, the three participants are identified as P1, P2, and P3. The research question for the study was, What strategies do PMs in the energy sector use to implement successful ERP projects?

Presentation of the Findings

I applied a thematic analysis to analyze the interview transcripts and report the most common and significant strategies followed by the PMs in the successful

completion of their ERP projects. I created a final list of themes related to the main research question of the study with the help of the NVivo12 software. The themes reported by all three study participants were considered as the major themes of the study. I tagged the subsequent themes with fewer references as the minor themes of the study. Finally, a number of major and minor themes were developed with corresponding subthemes to better explain and expound on the emergent themes as needed. P1 has a background in IT and is not a certified PMP. P2 is an electrical engineer and is also not a certified PMP. P3 holds a bachelor's degree in computer science and is a certified PMP.

Main Research Question: What Strategies Do PMs in the Energy Sector Use to Implement Successful ERP Projects?

The main research question of the study centered on the strategies that PMs in the energy sector use to implement successful ERP projects. From the thematic analysis of the interviews, I distinguished five main thematic categories related to the research question. Overall, I generated 29 themes with five major themes, 17 minor themes, and seven subthemes. The five main thematic categories clearly present the strategies shared by the three participants. The shared strategies include the competency of the PMs, competency of the project team members, the involvement of the stakeholders, strategic practices employed and followed, and other strategies for improvement. Under these categories, I established 29 themes. Table 3 displays all themes addressing the main research question of the study.

Table 3

Display of All Themes Addressing the Main Research Question

Thematic category	Major themes and subthemes	Minor themes and subthemes	Number of references	Percentage of references
1.Competency of the Project Managers		Having a strong background in IT	2	67%
		Having a strong background in management skills/Engineering	1	33%
		Having the willingness to train and continue learning	1	33%
2.Competency of the Project Team Members	Assigning members based on their expertise and function areas		3	100%
		Providing proper support and resources	2	67%
		Practicing teamwork and collaboration	2	67%
		Assigning responsibilities to the users	2	67%
		Assuring members of job security	1	33%

3.Involvement of the Stakeholders	Practicing close interactions and active communication with the stakeholders ** Practicing a top-down approach* **Providing training and workshops for the stakeholders*	3	100%
4.Strategic practices employed and followed	Blueprinting and documenting of all processes across the different functional areas	3	100%
	Practicing constant communication and engagement with all stakeholders	3	100%
	Conducting assessments during and after project implementation *Performance	3	100%

	reviews through milestones **Completion of project within the timeline* **Gathering of user feedback* **Quantifying the amount of money saved* **Completion of project within the budget*			
		Implementing a change management drive (awareness, sensitizing)	2	67%
		Emphasizing the security and trustworthiness of the data from the ERP system	2	67%
		Assembling a complete project team before project implementation	2	67%
		Managing of cultural differences between project team members	2	67%
		Following strict scope strategies	2	67%

	and practices		
5.Other strategies for improvement	Identifying and managing the politics around the project	2	67%
	Providing more training for the internal staff members on the ERP	1	33%
	Ensuring the functional and end users themselves manage the projects	1	33%
	Ensuring the projects are internally driven and focused	1	33%
	Ensuring the presence and availability of a support team at all times	1	33%

Thematic Category 1: Competency of the Project Managers

The first thematic category was the competency of the project manager/s. Under this category, I uncovered the strategies employed by the interviewed PMs with regard to the importance of the knowledge and skills of the PMs. Two of the three participants interviewed (P1 and P3), who had strong backgrounds in IT, and one participant (P2),

who had a background in engineering, respectively shared the need for a strong background in management skills and the willingness to train and continue learning. Table 4 contains the breakdown of the themes pertaining to the first thematic category.

Table 4

Display of Themes Addressing Thematic Category 1

Thematic category	Major themes and subthemes	Minor themes and subthemes	Number of references	Percentage of references
Competency of the Project Managers		Having a strong background in IT	2	67%
		Having a strong background in management skills	1	33%
		Having the willingness to train and continue learning	1	33%

Minor Theme 1: Having a strong background in IT. Two of the three participants believed in the significance of having a strong background in IT as PMs for ERP in the energy sector. For these participants, technical knowledge and skills will help PMs to handle the IT projects under them better and efficiently. As Pitchammal and Sarala (2013) noted, the project team leader or PM is the technical knowledge expert or subject matter expert. An IT leader's successful delivery of an IT project requires both a relevant domain knowledge and business experience, as well as the ability to convert IT project deliverables to business technology requirements. As Participant 1 stated, "the technical know-how of the project manager is vital in the successful implementation of the ERP project goals."

P1 indicated how his academic and professional background in IT prepared him to be an effective PM in the energy sector, especially with the incorporation of the ERP. The participant stated; **"**My background in IT has prepared me adequately in my role as a PM on the ERP project. My academic background has given me insight into myriad development methodologies to match the process and integration of ERP." P1 further iterated:

> Having an amount of knowledge in the technical know-how as a PM for ERP is important. Again, the knowledge of technical capability and the strength towards the discipline you are managing is essential as a PM. I have an IT background, and my educational and professional background has given me exposure to most of the tools, system development methodology, system architecture, networking, databases, and has prepared me well to manage the ERP project.

P3 also said he holds a degree in Computer Science and believed has greatly aided him in his current position. This participant added how he had also participated in various training and workshops to update his knowledge and skills in IT. P3 strongly found the need to be well-equipped with IT skills as an ERP PM in the energy sector:

> I hold a bachelor's degree in computer science which has been quite useful as far as my current schedule is concerned. Before my University education, I had a diploma in computer programming and software packages. After my bachelor's degree, I pursued further training in software packages, specializing in office. After which l picked up the opportunity to become a trainer when l joined an ERP solution provider before I joined my current organization.

Minor Theme 2: Having a strong background in management skills

P2 was of the view his strong background in the management of people and other project resources, including the willingness to train and continuous learning helped the successful ERP project implementation. P2 believes the PM needs to understand the stakeholders' expectations and positively influence the project's outcome and return on investment (Imamura et al., 2014; Iyer, 2014). P2 iterated: "I have had several roles as a PM and have had the opportunity to lead several teams in many projects. I led the implementation of SAP-ERP for my current organization; I was also seconded to be part of a team implementing ERP for another utility company in another country. I attribute the successes I have chalked so far to the strong background in managerial abilities as well as how effectively I managed the people and project resources in previous successful projects."

Thematic Category 2: Competency of the Project Team Members

The second thematic category was the competency of the project team members. One major theme and four other minor themes emerged from the thematic analysis of the interviews. For all the three participants, the most effective strategy in managing and building the competency of the project team members was by assigning them based on their expertise and functional areas. This strategy aligns with previous research of Bos et al. (2016), which concluded that accessing, acquiring, and identifying knowledge and technical subject expertise are critical components needed to respond to planned and executed projects under budget and on time. Other strategies with fewer references followed, these were: providing the proper support and resources, practicing teamwork

and collaboration, assigning responsibilities to the users, and assuring members of job security. Table 5 contains the display of the themes addressing the second thematic category of the study.

Table 5

Display of Themes Addressing Thematic Category 2

Thematic category	Major themes and subthemes	Minor themes and subthemes	Number of references	Percentage of references
Competency of the Project Team Members	Assigning members based on their expertise and functional areas		3	100%
		Providing proper support and resources	2	67%
		Practicing teamwork and collaboration	2	67%
		Assigning responsibilities to the users	2	67%
		Assuring members of job security	1	33%

Major Theme 1: Assigning members based on their expertise and functional areas. The first major theme of the study was the strategy of assigning members based on their expertise and functional areas. For all the three participants, this strategy was effective as each member was well capable and fully competent in completing the tasks assigned to them. As a result, the overall implementation process of the ERP run more smoothly and efficiently. P1 narrated: “We selected from two various types of users to form the project team. We had the functional users who are the frequent users and are

conversant with the business processes. We also selected from the technical staff from the developer team to form the project team." P1 said further, "We decided to fill in the gaps with people with the requisite technical expertise; like the finance experts, the supply chain experts, HR experts, and the information and communication technologies experts amongst the various functional expertise. We developed the team with the functional experts. With the pool of blended expertise, and with the business know-how, we were sure to develop the system with the right business requirements." P1 further narrated; "Once we picked experts from each functional area, we were sure to have a standard solution, (because the ERP system is supposed to run based on best practice). There were some instances where what the ERP system considers as best practice was not in fact, the best practice for the organization. The team of internal experts was there to assist in such situations; when we could not go by what the system offered, we customized. We circumvented where possible; where the best practice as designed by the ERP system which could not best describe our standard operational procedures, we wrote scripts that suited whatever we wanted."

P2 echoed the importance of selecting team members who possess the domain knowledge of the department they represented. The participant believed in the importance of assigning team members who have the background or expertise in a specific area to guarantee their purposefulness in their given role(s). P2 commented:

> In selecting the ERP project team, one needed to have the domain knowledge. What I mean by domain knowledge is, for example, if you are a team member or a representative for finance, you needed to have the domain knowledge for

> finance. You needed to understand how the finance function and processes work; you needed to be on top of issues or an expert in your functional area. The domain knowledge was the basis for the selection of team members from the various functional areas of the organization.

Finally, P3 also expressed how the assignment of capable team members in their organization led to the success of their projects. This participant believed in the effectiveness of the strategy and followed the method in every function or department of their organization. P3 stated; "Beyond that strategy, we ensured every functional area, amongst the various functions of the organization (e.g., finance, operations, customer service, human resources, etc.) was well represented with experience in their functional requirements to enable the project team meet user satisfaction adequately."

Minor Theme 1: Providing proper support and resources. The first minor theme which emerged was to maintain the competency and commitment of the team members by providing them with the proper support and resources. For two out of the three participants, the team managers must be well aware of the needs of their team members. According to Gómez-Hernández, Domenech, Moreira, Farrera, López-González, and Ferrer-Martí (2019), knowledge management attributes such as help desk and transfer of knowledge from consultants and project champions to stakeholders also translates to project success.

As P1 commented, "The other strategy, of course, was effective functional support. We ensured users got conversant with the system, gave them the needed support, so users never got unnecessary stacked using the new system." P3 explained how they

also created a support team exclusively for the needs of their team members. The support team dedicated time, energy and expertise to making the stakeholders feel confident and motivated to use the new system despite the changes and difficulties present. Furthermore, we invested in user-friendly hardware and software to encourage the users to give their best performance and outputs, saying: "We also set up an effective support team that was 100% dedicated to in-house support (both functional and technical), and they ensured challenges faced by users on the system got resolved promptly. The prompt and user-friendly support largely reduced user apathy towards the system, hence greatly enhanced user performance." Again, he said, "We implemented continuous user training. A budget was set aside to continuously train the users (on ERP certification where applicable), which highly motivated, and armed users with the right skills to ensure optimum performance." He further iterated: "We also purchased the intermittent upgrades for both hardware and software from the vendors whenever new versions and editions were available. Most of the newer versions and upgrades are made to improve system performance, thus, encouraging users to get the best out of the system, and allowing them to improve their performance."

Minor Theme 2: Practicing teamwork and collaboration. Another minor theme that emerged was the practice of teamwork and collaboration. Research has revealed positive knowledge corroboration between project team members increases successful IT project outcomes (Filho et al., 2015). This theme was established on the competence of team members as the PMs shared their beliefs on such an essential trait, where project team members work closely with their peers and teammates. As P2 explained, project

team members are expected to have the ability to communicate and network with team members and other stakeholders. P2 provided an example of the importance of flexibility and collaboration within a project team, saying: “In addition, we needed to have members with the people skill; knowing how to work with people, one had to be a team player. We realized the success of the ERP implementation was not just how much knowledge we possessed but also on how we related to each other within the team as well as our stakeholders.”

P2 explained further;

> We had a case some time ago in our organization where some international consultants brought to work in our organization, had terrible interpersonal skills; they would not listen to the client needs and eventually got chased out of the organization. Team leads such as PMs, consultants, etc. are supposed to relate well and listen to the challenges of clients and stakeholders, as well as try as much as possible to see how best emerging challenges can be resolved. But if leads such as vendors and consultants come with preset or prejudiced minds such as this is the solution I want to give you, then one can never achieve a successful implementation. In addition to the domain knowledge, and the technical capabilities, one needs the people skills to enable effective teamwork. The various team members selected for the functional modules were selected based on the key traits above; consultants and organizational representatives respected each other’s cultural background which promoted effective teamwork.

P3 explained how PMs look for different traits and characteristics in building their team members. Aside the knowledge and background, P3 believed project team members who can relate and interact well and closely with the stakeholders are vital requirements as well. P3 stated, “It is all about dependability; there are those who work harder than others, those who are quick to learn new technologies faster than others and those who can interact better than others. Whoever is selecting a project team, will look out for such qualities to qualify for a team member.”

Minor Theme 3: Assigning responsibilities to users. The third minor theme was the assignment of responsibilities to the team members/users, by doing so the team members/users felt more accountable and more committed to the project assignments assigned to them. The sharing of ideas, knowledge, and responsibilities among team members and users help to align the focus of the project (Foote & Halawi, 2016). Two of the study participants shared the same theme and stressed the importance of making these users feel involved, valued and important during the implementation process. P2 stated the assigned responsibilities encouraged the team members and users to learn more and did their best to accomplish the tasks assigned to them. P2 explained: “Another strategy was to assign responsibilities to the users; the approach was to train some of the key users to make presentations, train the top management, their peers, as well as the external stakeholders. We realized when we gave them such responsibilities; they wanted to know more and more about the project to enable them to be on top of affairs as facilitators. They did not want to let themselves down before their superiors, peers and direct reports during the training sessions. They became more concerned, thus, we succeeded in

enhancing user involvement and performance." Similarly, P3 expressed the need to empower team members to manage the responsibilities or tasks assigned to them effectively. The participant commented about the preferred qualities of PMs when determining and forming their team members for projects. P3 stated, "Many times, we also looked out for those who are multitasking; those who are experienced in many areas and can handle more than one process area. We also looked out for good trainers as well as people who will be able to gather concise requirements. These qualities and characteristics were the traits we looked for in the selection of our team members."

Thematic Category 3: Involvement of the Stakeholders

The third thematic category was the involvement of the stakeholders in the process of project implementation. Under this theme, I uncovered one major theme and two subthemes. For all the three participants, the most important strategy used when dealing with the stakeholders was by practicing close interactions and active communication. According to Butt and Savolainen (2016), effective communication in project implementation is either the core of the solution or the key enabler to a successful project strategy. All the PMs practiced a top-down approach in providing training and workshops for the stakeholders in a bait to involve them. Table 6 contains the breakdown of the themes in response to the third thematic category.

Table 6

Display of Themes Addressing Thematic Category 3

Thematic category	Major themes and subthemes	Minor themes and subthemes	Number of references	Percentage of references
Involvement of the Stakeholders	Practicing close interactions and active communication with the stakeholders **Practicing a top-down approach* **Providing training and workshops for the stakeholders*		3	100%

*Subtheme.

Major Theme 1: Practicing close interactions and active communication with stakeholders. The first major theme of the study was the strategy of practicing close interactions and open communication with the stakeholders. Gupta et al. (2019) supported the assertion most IT projects failures are as a result of poor communication between actors in the project network. All the three study participants believed the top management must be active in reassuring the other stakeholders on the issues and concerns with regards to the changes from the ERP implementation. One example was provided by P1, saying: “The change management team was also available to handle stakeholder concerns. With their strategies and plans, they managed to allay the fears of many stakeholders and encouraged them to buy into the project.” P2 added how the top

management also ensured all stakeholders felt valued and important in the process of completing the ERP implementation. The participant commented on how each stakeholder was involved and updated in every step of the system change, "One of the key strategies was stakeholder's consistent involvement. You must involve the users right from the beginning. We had several milestones to accomplish, from requirement gathering to the go-live and post-implementation. In all these milestones, stakeholder involvement was paramount; we engaged the users every step of the way since they are the eventual beneficiaries of the system. We patiently listened to the stakeholders to adequately get their views and expectations right. We needed to know what they do, and their pinpoints, to make them feel involved in the project." P3 echoed the first two participants' responses and stated how communication played a vital role in the success of the ERP project. He explained how important it was to communicate every step of the project process to stakeholders effectively. P3 also identified how PMs must provide constant updates to the stakeholders through meetings and other forms of communication, saying: "During the implementation process and training, we kept updating management on progress. We also used the steering committee a great deal during the implementation process which made most of the associated key decisions (notably on budget and the direction of the project). As a PM, my daily reporting was consistent as well as my weekly and monthly stakeholder engagements and meetings."

Subtheme 1. Practicing a top-down approach. The first subtheme of the above minor theme 1 of the study was the practice of a top-down approach. The participants confirmed Daddi, Iraldo, Testa, and De Giacomo (2019) assertion that executive

leadership contributes to a positive work environment leading to users maximizing their involvements in projects. The study participants found this strategy to be vital since they believed a complete user buy-in was impossible without the initial support of the leaders of the organization. P1 then shared the implementation process followed in their organization which started from the chief executive officer (CEO) before trickling down to the other staff members. For P1, it was essential to seek for an initial buy-in from the top leadership, for example, the CEO, in order to receive the necessary assistance in disseminating the necessity of the change to the other departments and members of the organization. P1 narrated, "The stakeholder involvement was very high, the initial pace was set for effective interactions from the CEO and the top management, down to the general managers (GMs), cascading to the lower operational workforce. Thus, in the implementation process, we started with the CEO, (this was the first meeting). The CEO was the one who kicked off the meeting and appointed the steering committee members (we call them the steer com). The steer com was composed of every divisional GM. Below the steer com, we had the project teams also composed of members from the various functional areas as representatives and headed by the PMO. The project team comprised of the functional and the information and communication technologies experts who significantly represented the various divisions and disseminated information and progress to their functional staff."

P2 said they conducted stakeholders' buy-in before the formal implementation of the project. He shared how they presented the project to the different stakeholders and answered their questions and doubts to the best of their ability. Similar to the previous

participant, P2 also used the top-down approach, from the top management to the different functional teams involved:

> We did that through what we called the stakeholder buy-in before we started the project. We did the individual functional stakeholder requirement presentations, and then the ERP system presentations to the stakeholders in turns. We initially made presentations to the top management, then we presented the various modules to the various stakeholders, making time for quality interactions and answering questions that came up. The type of recipients informed the customization of the presentations. For example, presentations to the top management were more about the reports, dashboards, the executive summaries, and were all solution based. We ensured stakeholders understood the system to enable them to make ready the kinds of user requirements during data and requirement gathering stage of the project. We also gave out questionnaires to stakeholders asking them of their expectations of the processes and the ERP project.

P3 expressed how crucial it was for the PMs to approach the top management first before any other department or stakeholder. The participant discussed how the top-level management must be entirely convinced with the project benefits and advantages to support the need for the project. According to Saade and Nijher (2016), employees comfortably embrace ideas when directed by upper echelon. Senior management commitment and support is a critical success factor (CSF) in every phase of the ERP system implementation. As P3 stated,

> As a PM, I always go for a top-down approach. If you do not get the buy-in of the top-level management, including the CEO, you might have difficulties with the downstream (the operational staff). So first we got the buy-in of top management by organizing high-level presentations on the project. We demonstrated to management how they could use the system to oversee the organization's operations with improved visibility and decision making. Management is always interested in reports, and so the reporting side of the system was highlighted as well as how the system could get them involved in the business processes so they do not feel sidelined. Another challenge was getting staff to be full-time project team members. Staff had to take care of their regular schedules and daily routines before making time to participate in the project implementation. So, if you can have the top management buy-in, then they can give instructions to the staff involved to make time to participate fully in the project.

Subtheme 2: Providing training and workshops for the stakeholders. Another subtheme that emerged from major theme 1 was the provision of training and workshops for the project stakeholders. The study participants believed training sessions and workshops should not be exclusive to the internal stakeholders but provided for all the project stakeholders (internal and external). The inspiration and acquired knowledge from education and training programs with efficient communication constitute greatly to project success (Aga, Noorderhaven, & Vallejo, 2016). P2 narrated the need for training and awareness creation which helped to manage the expectations of the stakeholders even before the start of the project. P2 discussed how both the internal and external

stakeholders must be constantly informed and updated with the progress and results of the project. P2 said,

> The workshops served two purposes: One was to collect high-level requirements from the client and stakeholders and to firm up the requirements we had already received (including the tender documents and other documentation). And two, to manage the stakeholder expectations. It is beneficial when stakeholder expectations are managed earlier in the project. You get to know the expectations at the beginning of the project; then you understand what they expect the system to offer. In some instances, the system might not be able to offer all their expectations and so if you do not engage them earlier in the project, when it gets to training and user acceptance later in the project, you are going to have challenges. But if you realize earlier that there is something stakeholders want, or something they expect the system to do, which the system cannot do, then you start to manage their expectations right from the beginning. After employees, third party engagements were also crucial; we called to show them how the new system will affect them and managed their expectations, we also needed their buy-in as external stakeholders before the implementation.

P3 explained the need for training for continuity and sustainability purposes. He shared how they required the super users to train the other user units to ensure the cycle continued even at the parting of some of the members of the project team. P3 added how they also provided support teams to help the stakeholders to familiarize themselves with the system:

> The super users (key and skilled users) were the first people trained on the operation of the system after the implementation. They were the ones who first did the user unit testing and were the same ones we trained to train the end users. We worked with these trainers of trainers throughout the development cycle. The reason why we trained the key stakeholders (who are also reps from all the directorates or functional areas) to train the end users (and did not depend fully on the consultants) was because of the need for continuity of system support when the experts and the consultants were done and gone. We also created a dedicated help desk support for all users.

Thematic Category 4: Strategic Practices Employed and Followed

The fourth thematic category of the study was the general strategic practices employed and followed by all the three PMs interviewed. Strategic planning prepares the groundwork for successful project implementation; making focused, strategic and tactical decisions to enhance competition and generate business benefits (Leu & Lee, 2016). Three major themes and five subthemes emerged from the thematic category four analysis of the interviews. All participants reported the effectiveness of the following strategies: blueprinting and documenting of all processes across the different functional areas; practicing constant communication and engagement with all stakeholders; conducting assessments during and after project implementation. Five other sub-themes or strategies were uncovered from the analysis but received fewer references than the major themes stated previously. The strategies indicated were: implementing change management drive (awareness, sensitizing); emphasizing the security and trustworthiness

of the data from the ERP system; assembling a complete project team before project implementation; managing cultural differences between project team members; and following strict scope strategies and practices. Table 7 contains the breakdown of all the themes under the fourth thematic category of the study.

Table 7

Display of Themes Addressing Thematic Category 4

Thematic category	Major themes and subthemes	Minor themes and subthemes	Number of references	Percentage of references
Strategic practices employed and followed	Blueprinting and documenting of all processes across the different functional areas		3	100%
	Practicing constant communication and engagement with all stakeholders		3	100%
	Conducting assessments during and after project implementation **Performance reviews through milestones* **Completion of project within the timeline* **Gathering of user feedback* **Quantifying the amount of money saved* **Completion of project within the budget*		3	100%
		Implementing a change management drive (awareness, sensitizing)	2	67%
		Emphasizing the security and trustworthiness of the data from the ERP system	2	67%

(*table continues*)

Thematic category	Major themes and subthemes	Minor themes and subthemes	Number of references	Percentage of references
		Assembling a complete project team before project implementation	2	67%
		Managing of cultural differences between project team members	2	67%
		Following strict scope strategies and practices	2	67%

*Subtheme.

Major Theme 1: Blueprinting and documenting of all processes across the different functional areas. The first major theme of the study was the strategy of blueprinting and documenting of all processes across the different functional areas. For all the three participants, another important strategy was the clear and complete documentation of data. Documentation helps PMs to remember and focus on set goals and objectives throughout the project implementation process (Kivilä, Martinsuo & Vuorinen, 2017). Effective documentation is also an evidence of a good project management practice; it helps to track project related activities such as time constraints, productivity monitoring, planning for the future, amongst other (Papke-Shields & Boyer-Wright, 2017). According to Aversano, Guardabascio, and Tortorella (2017), documentation in project management is not optional but mandatory. Participants believed it was critical maintaining openness and accountability in the overall project

process through documentation. P1 shared an example on how he strictly adhered to proper documentation in their organization during the project implementing process, saying: "Another thing we did was to include blueprinting (blueprinting means documentation of processes and procedures from the different functional areas. For example, in finance, accounts payable, how do you pay? They gave us documentation on the processes. Like the process map or the process diagram; how they went about the processes to work, the levels of approvals they needed to go through, amongst others." Similarly, P2 said he used documentation and other recorded data as 'reference points' for access when needed. P2 stressed on the usefulness of well-documented data which has helped him resolve critical issues emerging over the years. The participant explained, "The other strategy was documentation, I mean adequate documentation before, during and after the project. I ensured the team documented everything with clarity; including minutes of all meetings with stakeholders and ensured minutes got approved by all meeting attendees. We also carefully documented changes proposed by stakeholders with approvals by all stakes at the meetings. These documentations became excellent reference points as the project progressed and were used to resolve many issues of misunderstandings. For me, documentation was one of the key strategies."

P3 recounted similar experiences as P2 and shared the importance of documenting all processes and decisions made during the project. He made some recommendations with regards to documentation, saying:

> Another thing I will do differently is not to take anything for granted, one must learn to document everything including meetings attended on the project. Take

> minutes of all meetings, no matter how small or large the meeting, have the minutes printed and get the participants to sign. Take records of all meetings; it could be extremely important at a later date. Sometimes users may agitate that the system was configured without their approval on the processes, in most of such cases, the easiest way out to exonerate yourself is the documented minutes of a meeting where the users approved the processes to be configured.

Major Theme 2: Practicing constant communication and engagement with all stakeholders. The second major theme was the strategy of practicing continuous communication and engagement with all the project stakeholders. According to Osei-Kyei and Chan (2017), effective communication in project management maximizes success and minimizes risk. All three participants stressed the need for consistent and active communication with all project stakeholders. For P1, communication was a key strategy employed to achieve successful project implementation. The participant identified the use of meetings, banners, flyers, and posters to demonstrate the importance of communication to stakeholders especially during the change process: "Communication throughout the project implementation period was also consistent, we communicated to stakeholders every step of the way through, meetings, banners, posters amongst others. These exposures got stakeholders more involved, to know and understand the impending change, as we prepared to go-live." P2 also reinforced the approach of P1 and shared the importance of working closely with the project stakeholders. P1 said,

> The constant communication and interaction allowed us to keep stakeholders up to speed with project progress, eliminating most of the uncertainties and possible

> conflicts. Consistent stakeholder engagements, especially at the beginning of the project with constant feedback was a good strategy for us. During and after every milestone, we engaged stakeholders and ensured consistent feedback. This strategy allowed us to rectify most challenges when we realized some of the issues were not coming out as planned; thus, we were able to make changes much earlier in the project. We also engaged consistently with the change management team, particularly at the beginning of the project. This engagement was critical because most ERP projects do fail not because the product was not good or not well configured, but because of user resistance or lack of user adoption. The challenges are often as a result of the failure of the change management teams to effectively do their work.

Finally, P3 highlighted how communication and frequent engagements helped to address possible challenges with project development and implementation. Similar to P2, the method of communication used was the circulation of newsletters and magazines within the organization. The participant narrated:

> One key strategy was the constant update to management on project progress. This approach helped to curb the internal politics because management was in full control and abreast with progress and so could give instructions on the direction of project progress. We also updated users through the internal newsletters and magazines circulated to staff. We also used the counterpart approach; every member of the consultant team had a corresponding peer from the client team (the organization's internal project team). We interacted better and learned closely

> from each other with this arrangement; the consultant's team got to learn our processes, and we tapped into their expertise. We found this arrangement to be very motivating, encouraging and useful towards the successful project implementation. Again, stakeholders were not afraid to use the system because they got the assurance of an ever-ready team of system support.

Major Theme 3: Conducting assessments during and after project implementation. The third major theme was the strategy of conducting assessments during and after the project implementation. The benefits of performing assessments in project management include the reduction in project risk exposure, precise and clear decision making, amongst other key issues (Samset & Volden, 2016). All three study participants said they conducted project evaluations via the following practices: performance reviews through milestones, completion of the project within the timeline, gathering of user feedback, quantifying the amount of money saved, and the completion of the project within the budget. These practices were effective in determining the overall success of the ERP project. Each practice or subtheme discussed is as indicated below.

Subtheme 1: Performance reviews through milestones. The first subtheme was the performance reviews with the use of the project milestones. All three participants highlighted the achievement of milestones in measuring the performance of a project. As P2 discussed, every project has its corresponding milestones. PMs and team members can determine the progress and success of the project by reviewing the milestones created when developing the project plan. The participant commented: "There are a couple of ways of measuring the performance of a project. One of them is by the milestones of the

project achieved. Every project has milestones, and each of these milestones has expected completion time. The team is mostly judged based on whether they are achieving milestones as stipulated in the project plan."

Subtheme 2: Completion of project within the timeline. The second subtheme was the assessment through the completion of the project within the specified timeframe. Two of the participants determined the success of the project by its completion within the planned timeframes. However, the study participants indicated although the timeline is crucial; it is also more important to have quality outputs. P2 commented, "The main question is whether we delivered within the project plan and within the stipulated time." P3 believed in practicing a 'time conscious' strategy as the project's budget and resources are limited as well: "We also ensured we delivered on schedule as planned and stakeholders experienced the system and its benefits as close as possible to the agreed dates. Management did not have to stress up for additional financial support for the project and consultants. A time-conscious strategy often translates into a successful project."

Subtheme 3: Gathering of user feedback. The third subtheme was the method of gathering user feedback used to improve the project deliverables. For two of the study participants, effective user feedback allowed their teams to develop the system as needed. P2 discussed how user feedback is important in determining the experiences and reactions of users from different functional areas. "With proper feedback, PMs and teams can adjust accordingly and improve upon project deliverables going forward. We assessed user feedback through opened forums with users." P2 said some of the feedback

was oral and others embedded in some of the milestones achieved. “For example, during training sessions, we made sure we had evaluations for the trainer and the trainee. The trainees unanimously evaluated the trainer teams, giving feedback on several issues like their command of the functional areas, technical capabilities, interpersonal skills, understanding of the user business requirements (critical), amongst others.”

Subtheme 4: Quantifying the amount of money saved. Another subtheme of the project evaluation completion was by quantifying the amount of financial resources saved by the organization. For P1, the amount of money saved by the organization under the different departments was used to determine the change created by the project. P1 explained how the ERP system has allowed them to practice a more open and visible accounting of their expenditure. The participant discussed, “We also tried to quantify the amount of money that the company was able to save — for example, the amounts involved in travels. Before we implemented the ERP, the staff used to fill in manual travel forms as they traveled for their travel allowance; it was very difficult managing these travels before ERP. But after the successful implementation of ERP, there is visibility in travel expenditure as well as divisional spending and other activities of employees. With the implementation of ERP, we can better manage staff movements.”

Subtheme 5: Completion of project within the budget. The final subtheme under this major theme was the assessment through the completion of the project within the given and planned budget. For one participant, budget overruns are of great concern to the top management and can play a significant role in the overall assessment of project success. P3 explained the importance of project cost-effectiveness, saying: “We also

ensured the project lived within the budget and did not go into budget overruns because cost-effectiveness was the watchword from the top management. I believe cost-effectiveness also translated into successful projects with management full support and encouragement. Mostly, top management and the board of directors are not happy with projects that overspend their budgets."

Minor Theme 1: Implementing a change management drive (awareness, sensitizing). The first minor theme under thematic category four was the implementation of a change management drive. According to Lucianetti, Battista, and Koufteros (2019), business leaders need to treat change management as a critical component in the implementation process to ensure the integration is not only adopted but effectively producing results. Osnes, Olsen, Vassilakopoulou, and Hustad (2018) also identified change management as a CSF as well as the most challenging to a successful ERP system implementation, if not effectively handled. Two, out of the three PMs found it vital to follow concrete steps in ensuring all stakeholders are aware of the purpose and use of the ERP systems in their respective functional areas. As P1 explained, it is important to provide the facts about the project to avoid the negative implications of the stakeholders' misconceptions about the proposed change. The participant narrated, "We initially emphasized on the change management drive, through the human resources division. We sensitized staff to allay the fear of job losses after the ERP implementation. The change management team continuously sensitized stakeholders, making them to understand their critical roles in the implementation process, assuring them the implementation could not succeed without them; this strategy ultimately helped." P2 stated the need for a change

management drive to ensure stakeholders appreciate their roles even before the start of the project implementation process. P2 believes users must be well oriented and prepared to fulfill their tasks accordingly. P2 highlighted, "User resistance mostly prevails because the change management team fails to effectively do their work. Thus, users are often not aware of their post-implementation roles and are neither prepared for such roles. Obviously, in such situations, users are going to frustrate the system and the implementation will not be successful."

Minor Theme 2: Emphasizing the security and trustworthiness of the data from the ERP system. The second minor theme was the strategy of emphasizing the security and accuracy of the data from the ERP system. In order for analysts and decision makers to produce accurate analysis for effective decision making, data must be trustworthy. (Donelan, Walker & Salek, 2015). For two participants, the security and integrity of the data increased the confidence of the users on the system in their respective organizations. P1 commented: "The reliability, security and integrity of the data reports produced from the system created confidence among staff from the various functional areas." P3 also shared how they consistently reminded stakeholders of the ERP's benefits and advantages, and how the project was for the organization's sustainability in the long run: "Throughout the period of the project lifecycle, the benefits of the ERP system was re-emphasized to all stakeholders; assuring users the project was an investment for the better. This strategy which ensured stakeholders remained positive to the accomplishment of the desired and expected results, translated into a successful ERP implementation project."

Minor Theme 3: Assembling a complete project team before project implementation. The third minor theme uncovered under the fourth thematic category was the strategy of assembling a complete project team before starting the project implementation. The need for a project team before the start of every project is critical to the success of every project because the project team members are the ones who work to produce the project deliverables (Ika & Donnelly, 2017). For two out of the three participants, it was crucial to establish the complete project team before the project commences. P2 explained having the full complement of the project team before the start of the project allowed the team to collaborate better for a smooth take-off. P2 narrated, "The first strategy was to assemble a complete project team or the full complements of the project team at the beginning of the project. For most of the projects, the teams do not start at the same time, they start looking for other team members when the project had already begun. But having people come into the project team who were not there at the beginning, often bring about the disconnects between the earlier team members and the members who join later. One big advantage is having the full compliments of the project implementation team on sight at the beginning of the project."

Minor Theme 4: Managing of cultural differences between project team members. Another strategy was the management of cultural differences between project team members. Multiculturalism in project management in the 21st century is an issue PMs must focus attention on in order to be successful (Cicmil & Gaggiotti, 2018). The "cultural arrogance" of people from different parts of the world, who carry with them their own ideas, terminology and ways of doing things, and do not want to respect the

values of their adopted countries, remains a challenge. Different cultures differ with some distinct features from each other: the national character, perception, thinking, language, nonverbal communication, values, behaviors and social groupings, just to mention a few. Our society is growing in diversity and no doubt has resulted in creating numerous challenges for an average PM. Two of the participants interviewed, recommended the critical need for intercultural awareness when setting up project teams and dealing with project stakeholders. P3 explained: "Another risk is the management of cultures, especially when there are different consultants and stakeholders from different backgrounds on a project. Cultural differences can bring conflict amongst team members because the different cultures have different beliefs on issues and if not properly managed, a substantial amount of the project time will go into conflict resolution."

Minor Theme 5: Following strict scope strategies and practices. The final minor theme was the strategy of identifying and following the scope of the project. The scope of a project is the clear identification of the work required to successfully complete or deliver a project (Badewi, 2016). Ensuring the execution of required work (scope) and completion of deliverables within the allotted time and budget is one of the PM's responsibilities. For two participants, a detailed and accurate project scoping drastically reduces confusions and challenges in the project implementation process. P2 related effective project scoping with improving timelines and budget outcomes. He commented, "It is important to do a proper and detailed scoping of the project before implementation begins. Good and detailed scoping saves time and money; once you come out with a detailed scoping report, you save time and budget overruns."

Thematic Category 5: Other Strategies for Improvement

The fifth and final thematic category contains the findings on other strategies for project improvement. Five minor themes emerged from the analysis, and the PMs recommended the following strategies: identifying and managing the politics around the project; providing more training for staff on the ERP; ensuring the functional and the end users manage the project; ensuring the projects are internally driven and focused; ensuring the presence and availability of a support team always. Since the last four minor themes received just one reference respectively, only the first minor theme got discussed thoroughly. The breakdown of themes is in Table 8.

Table 8

Display of Themes Addressing Thematic Category 5

Thematic category	Major themes and subthemes	Minor themes and subthemes	Number of references	Percentage of references
Other strategies for improvement		Identifying and managing the politics around the project	2	67%
		Providing more training for the internal staff members on the ERP	1	33%
		Ensuring the functional and end users themselves manage the projects	1	33%
		Ensuring the projects are internally driven and focused	1	33%
		Ensuring the presence and availability of a support team at all times	1	33%

Minor Theme 1: Identifying and managing the politics around the project. The first minor theme of the thematic category was the identification and proper management of the politics surrounding the project. Organizational politics is difficult to define; we can usually recognize the symptoms which almost always involve a struggle for power and possession (Landells & Albrecht, 2015). Whether the politicking entails simply trying to keep a job or get promoted, the situation becomes difficult to avoid even if you are not personally involved. For two of the participants, it is very important and highly recommended for PMs to be well aware of the 'environments surrounding the projects' at the workplaces. P2 explained, "You need to know exactly who is for the project, and who is against the project; you need to realize the environment early enough. Sometimes even at the top management level, some people will support the implementation of the new system, and there are people who will support the existing third-party systems. You must learn to use the people who are supporting the implementation of the new system to your advantage and effectively manage the other in such situations. If you are not aware of such politics that thrives in most organizations, and how to maneuver around them, then you are not likely to have a successful implementation."

Relevance and Linkages to Conceptual Framework

The conceptual framework used for this study is the Leavitt's organizational change management model, also called the diamond model. The model provided the theoretical support for the study emphasizing on the effective interactions in organizations between the people, the task, the structure, and the technology in any change process. According to Guetat and Dakhli, (2016), the interaction between these

four elements determines the fate of an organization during the change process. The Leavitt model was appropriate for this study based on the premise that ERP system implementation brings about a total change in work processes, affecting the people, the task, the structure and the technical facets of an organization. After verifying the relevance of the conceptual framework, I employed the theory to explore and execute a comprehensive analysis using the multiple data sources gathered from my study participants, to discover the strategies PMs in the three energy sector organizations used to implement ERP systems successfully. The qualitative multiple case study functioned as an effective means to ask *how* and *what* PMs witnessed and experienced during the successful implementation of an ERP system in their respective organizations.

Application to Professional Practice

The findings of the study, even though not generalizable to all ERP projects, can be insightful for many organizations, business practitioners, and leaders in project management. The information provided by the three PMs from three energy sector companies in the Greater Accra region of Ghana and the Nairobi region of Kenya who have successfully carried out ERP projects, showed proper delegation to expertise and functional areas as one of the keys to implementation success. The participants emphasized the value of open and active communication, having a top-down approach, and providing adequate training and workshops. The participants also emphasized the value of blueprinting and documenting of all processes across different functional areas and ensuring assess to project outcomes with effective monitoring and support. Performance reviews were crucial not only at the project completion but, regularly as the

implementation progresses. Findings indicated the kinds of performance reviews that can effectively lead to successful ERP implementation which could be helpful strategies for current business practitioners, and leaders seeking for strategies to carry out successful ERP projects.

Overall, the qualitative results are of relevance to business organizations because they provide organizational leaders and PMs with a deeper appreciation and knowledge of the basic and essential elements linked to the standardization of project management practices. By analyzing the important stakeholder expectations as crucial for the design and implementation of a successful ERP project, using a multiple case study design could simplify the quite complex phenomena of ERP implementation projects (Raeburn et al., 2015).

Business leaders may enhance their current understanding of project management effectiveness from the front-end phase of the project life cycle from how these praticipants explained and described their success story. The study offers a closer exploration of successful project management standards, bridging the gap between theory and practice. Theoretically, it seems easy to note the key success indicators of ERP projects and yet in reality, firms shared high rates of project failures (Leybourne & Kennedy, 2015). With the current findings, a single trigger or inefficiency could lead to serious project implications; although there are more cases of complex sets of problems that could also cumulatively result into difficulties and failures.

Implications for Social Change

The findings can lead to positive social changes. The findings could also expand the current body of knowledge on ERP success and failures, particular emphasis on business leaders and organizations within the energy sector. PMs in various organizations who practice in similar dynamic industries could note and adopt what the participants shared in this study into their management and implementation of ERP projects, and if proven successful, could increase stakeholder satisfaction (Bano & Zowghi, 2015). The implications for social change as a result of successful ERP implementation include improvement in the performance of the firm, as well as the creation of employment opportunities for the community. The benefits indicated in this study will not accrue only to the three study organizations; but the enhancement in sustainability and profitability could also have accumulated effects on the industry, creating employment opportunities and other economic benefits for the whole society.

Recommendations for Action

Business practitioners or PMs within the global energy sector are called to note the outcome of the study findings for successful ERP projects, to meet the extensive and dynamic changes within the industry. They are recommended to note the success strategies shared by current participants on implementing effective ERP systems to meet the asset reliability needs of the industry as well as to develop real-time visibility anytime into asset location, condition, and performance. With a successful ERP implementation, organizations could integrate systems such as GIS, SCADA systems, amongst others because of the increasingly positive reputations (Inden et al., 2014). PMs are also called

to carefully consider the current findings as a guide to determine their preparedness to integrate with ERP systems and consider what the study participants revealed as crucial for ERP implementation success.

The study findings revealed that regardless of the available widespread literature on the effectiveness and benefits of ERP solutions, if PMs would not communicate effectively with their stakeholders or conduct proper performance reviews before, during and after the implementation, the project is set to fail. The challenge is regardless of what the ERP solution could offer. Even though successful ERP implementations allow for efficient management of work permits, shutdowns, maintenance budget, lubrication programs, work orders, work logs, and many more (Dennis, 2016), the energy sector organizations are called to ensure they have the components such as performance evaluation systems, open communication methods, and many more mentioned by the participants in place to achieve success. Whether or not ERP systems can improve the planning, requisitioning, allocation, and retirement, to disposal functions of an energy company, the business practitioners must ensure they effectively carry out their expected mandates first, and not simply expect the implementation of ERP to improve their processes without the needed work efforts. In the pursuit of successful ERP implementation and for most other projects, there must be people ready to engage in open and active communication, leaders comfortable having a top-down buy-in approach, and practitioners and supervisors providing adequate training and workshops.

I hope to share this study with businesses and organizations seeking to implement ERPs especially, the energy sector organizations, and academic institutions. I will also

seek support to disseminate these findings via academic journals, trade journals, professional conferences, and magazines, among other scholarly journals to extend the potential benefits from this study. Through these channels, I will share the study findings with (a) ERP system professionals, (b) ERP system vendors and consultants, (c) energy sector organizations, and (d) ERP academic researchers, among other interested entities.

Recommendations for Further Research

In the literature review of this study, I identified some limitations that could possibly affect the reliability and validity of the study. Even though the findings are significant, future researchers can also address the earlier limitations identified in the literature, to build upon the current study. For instance, the level of expertise and exposure in addition to the biases of the individual PMs who participated in the interview were expected to affect their responses as to what are the successful strategies for energy sector ERP implementation. Future researchers can also increase the sample size and add to the diversity of it, such as making it more gender, years of experience, or educational-background diverse to enhance generalization. The current study participants showcased two PMs with backgrounds in IT, with only one with PMP certification; the other one with a background in engineering with strong managerial background but was not PMP certified.

Reflections

In conducting this study, I did not initially contemplate the participants would be as open as they were, their exemplary open-mindedness and contributions were very much appreciated. I also knew because of the high failure rates of ERP implementations,

it would be difficult to find a large sample size of PMs in the energy sector who has successfully implemented ERP to share their insights and experiences. I am, however, grateful the three participants who were very cooperative and supportive in answering the interview questions for this study. I did not also anticipate managing organizational culture and political environments, because of user resistance would be a critical ERP strategy. I now appreciate the significance of the challenge, given the anxiety of users in a developing economy with less experience with technology who have manually handled many processes successfully without the benefits of technology. The ability to overcome this significant cultural challenge, entwined with organizational politics, is a testament to the commitment of top management.

Conclusion

The purpose of this qualitative multiple case study was to explore the strategies PMs in the energy sector use to implement successful ERP projects. The target sample included three PMs from three energy sector companies in the Greater Accra region of Ghana and the Nairobi region of Kenya who have successfully implemented ERP projects. From the thematic analysis of the three interview transcripts, I uncovered a total of 29 themes or strategies. Of the 29 themes, five major themes turned out as the most significant strategies by the interviewed PMs. All three PMs found success in assigning members based on their expertise and functional areas. Additionally, all three participants suggested the need to practice close interactions and active communication with the stakeholders by employing a top-down approach and providing training and workshops for stakeholders. Other strategies also included the blueprinting and documenting of all

processes across the different functional areas and conducting assessments during and after project implementation. The participants recommended the practice of evaluations by: performance reviews through milestones, completion of the project within the timeline, gathering of user feedback, quantifying the amount of money saved, and the completion of the project within the budget. Appendix F contains the breakdown of the themes as referenced by the three study participants. The table helps determine the exact strategies used by the companies or organizations of the three participants.

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Appendix A: Letter Seeking Authorization to Recruit Study Participants via Association Membership Database

Dear Sir/Madam:

My name is Dora Kwei Arko. I am currently a Doctoral student at Walden University pursuing a Doctor of Business Administration (DBA) program with Project Management specialization. I am conducting a research on Enterprise Resource Planning (ERP) projects on a study entitled: "*Successful Strategies for Energy Sector Enterprise Resource Planning Projects*." I am seeking your authorization to recruit study participants from the professional association database (I am also a member in Ghana with membership ID XXXXXX). I seek to recruit and interview three participants who fit the following criteria:

1. Project managers who have successfully implemented ERP projects.
2. Project managers working with the energy sector within Ghana and Kenya.
3. Must be fluent and able to read, and write English

The selection criteria is to ensure participants are likely to possess knowledge and information relevant to the study's purpose. Recruited participants who voluntarily choose to participate in the study would participate in a face-to-face interview to provide their unique perspectives. The results and findings would be shared with participants, and other scholars. All responses would be categorized, and no names would be attached in any form to the results. Confidentiality is assured through protocols established by the Walden University Internal Review Board (IRB).

I seek your authorization to recruit participants for individuals who meet the above criteria and are interested in participating in the study. I can be contacted on telephone number [redacted] and via e-mail at [redacted]. Participation in this study is voluntary after signing a consent form. Thank you in anticipation for a favorable consideration.

Sincerely,

Dora K. Arko

Appendix B: Approved Letter of Authorization to Recruit Study Participants

Dora Kwei Arko
DBA Candidate
School of Management & Technology
Walden University
U.S.A. 10 January 2019 10 January 2019

Dear Mrs. Dora K. Arko,

AUTORIZATION TO RECRUIT STUDY PARTICIPANTS FROM THE MEMBERSHIP OF PROJECT MANAGEMENT INSTITUTE, GHANA

Following your request to recruit participants for your Doctoral study from the Professional Association membership, permission is hereby granted to enable you to proceed with your study.

Individual's participation will be voluntary and at their discretion.

We trust you will carefully observe the terms and conditions as a member of this association in your conduct with the membership.

We wish you good luck in your study on the *Successful Strategies for Energy Sector Enterprise Resource Planning Projects* in the pursuance of your academic laurels.

Best Wishes,

Ms. Jumoke

Ms. Jumoke Lafenwa
President

Appendix C: Interview Protocol

I will use the following interview protocol:

1. I will introduce myself to the participant as a Walden University doctoral student and inform him/her of the time and the purpose of the interview.
2. I will review the consent form with the participant to read and sign; I will also ask the participant to keep a copy after signing.
3. I will inform the participant of an audio-recording of the interview; I will also request the participant's background information:
    a. Are you a certified PMP?
    b. How many years have you been a PM?
    c. How many years of experience do you have in the use of ERP?

The interview questions:

1. How has your professional and educational background prepared you for the role of a PM?
2. Why is an ERP system implementation relevant to your organization's business processes?
3. How did you select the ERP implementation project team?
4. What was the level of stakeholder involvement in the ERP implementation process?
5. What strategies have you implemented that supported a successful ERP system implementation?

6. How do you measure the performance of the ERP implementation project team?
7. What strategies did you employ to encourage users of the ERP system to enhance job performance?
8. What are some of the things you would do differently, given a chance to start the implementation process all over again
9. What else would you like to share in the ERP implementation process?

4. I will ask for any other information the participant would like to share (if any) and finally thank the interviewee for participating, stop the audio recording, and conclude the interview.

Appendix D: E-mail Invitation

Dear _____

You are invited to take part in a research study to determine successful strategies for energy sector enterprise resource planning (ERP) projects. My name is Dora Kwei Arko, a Doctor of Business Administration (DBA) candidate at Walden University, USA. I am conducting this research as a partial fulfillment of the requirements to complete my DBA degree.

In this study, I will investigate the strategies project managers (PMs) in the energy sector use to implement successful ERP projects. The criteria for participants to be included in this study are:

 Must be a PM

 Must be a PM who works in an organization that has successfully implemented ERP

If you meet the above criteria and agree to be in this study, please contact me via email at or by phone on. I will ask you to sign a consent form (attached to this email for your study). Respecting your busy schedule, I will schedule an appointment at your convenience. The interview is intended to last between 30 and 60 minutes.

Thank you very much for the opportunity to involve you in this study.

Appendix E: Breakdown of Themes as Referenced by the Participants

Thematic category	Major themes and subthemes	Minor themes and subthemes	P1	P2	P3
Competency of the Project Managers		Having a strong background in IT	✓		✓
		Having a strong background in management skills		✓	
		Having the willingness to train and continue learning			✓
Competency of the Project Team Members	Assigning members based on their expertise and function areas		✓	✓	✓
		Providing the proper support and resources	✓		✓
		Practicing teamwork and collaboration		✓	✓
		Assigning responsibilities to the users		✓	✓
		Assuring members of job security	✓		
Involvement of the Stakeholders	Practicing close interactions and active communication with the stakeholders * *Practicing a top-down approach* **Providing training and workshops for the stakeholders*		✓	✓	✓
Strategic practices employed and followed	Blueprinting and documenting of all processes across the different functional areas		✓	✓	✓
	Practicing constant communication and engagement with all stakeholders		✓	✓	✓

(*table continues*)

Thematic category	Major themes and subthemes	Minor themes and subthemes	P1	P2	P3
	Conducting assessments during and after project implementation *Performance reviews through milestones **Completion of project within the timeline* **Gathering of user feedback* **Quantifying the amount of money saved* **Completion of project within the budget*		✓	✓	✓
		Implementing a change management drive (awareness, sensitizing)	✓	✓	
		Emphasizing the security and truthfulness of the data from the ERP system	✓		✓
		Assembling a full and complete project team before project implementation		✓	✓
		Managing of cultural differences between project team members		✓	✓
		Following strict scope strategies and practices		✓	✓
Other strategies for improvement		Identifying and managing the politics around the project		✓	✓
		Providing more training for the internal staff members on the ERP	✓		
		Ensuring the projects are managed by the functional and end users themselves	✓		
		Ensuring the projects are internally driven and focused	✓		
		Ensuring the presence and availability of a support team at all times		✓	