DISCOVERY

Implementation challenges of enterprise resource planning systems in the Tanzania mining industry: Evidence from Barrick mining company Tanzania

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ABSTRACT

The study assessed the implementation challenges of ERP systems in the Tanzania mining industry. Mixed research approach was employed, in that regard, case study design was used. Since the approach of the study was qualitative, then the content/ thematic analysis was employed. However, the quantitative data collected were analyzed by using Statistical Packaging for Social Sciences (SPSS). The study finding shows that, despite of the ERP success, the implementation of it has been constrained by some challenges. For example, the challenges which were identified by the respondents were high cost of implantation (87.50%) due to the investment of newly acquired technology which requires investment of a lot of money on which many organizations cannot afford it. Also, the IT infrastructures in the country have been reported by respondents to be incapable of accommodating most of new technologies (84.38%). Furthermore, the findings reveal that the performance and acquisition of ERP system was constrained by lack of enough and qualified personnel which make difficult to make implementation of its at large scale (71.88%). The study concludes that, the system is important to be adopted and applied not only on the mining sector but also in all sectors of the economy. The study recommends that, the management accountants need to be able to communicate with the management team and synthesize and explain the results (the impact of the financial data) in a way that can be easily understood. Management accountants need to take on a partnership role with the managers.

Keywords: Challenges, ERP Systems, Tanzania Mining Industry

1. INTRODUCTION

The corporate climate is drastically changing all across the world. As a result, firms now have to deal with escalating customer expectations, expanding markets and heightened competition. Businesses are under increased pressure to minimize supply chain costs overall, increase throughout, decrease inventory, diversify their product offerings, enhance customer service, raise quality, raise

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efficiency and synchronize global demand, supply and production (Mtuveta, 2013). Businesses must constantly examine and alter their structures, objectives, procedures and technologies in order to maintain their competitive advantage.

The quickest and most effective way to achieve this goal is through the implementation of a new information system (IS). Enterprise resource planning (ERP) is one of the systems that make sure all of the company's operational systems are completely integrated. Maguire and co., (2010). ERP systems enable businesses to streamline their management structures and build more flexible, democratic and flatter organizations by granting real-time access to operational and financial data (Davenport, 2018).

The packaged business application software suites known as ERP systems enable organizations to automate and integrate the majority of their business activities, share common data and best practices throughout the entire enterprise and produce and access information in a real-time environment (Poon, Rajapakse and Siew, 2015). Although ERP was first used for manufacturing and production planning systems in the manufacturing sector, it began to include other back-office tasks in the 1990s, including modules for human resources, finance, operations, logistics, sales and marketing (Momanyi, 2014). Similar to other mining corporations throughout the world, these Tanzanian firms are setting the bar high by switching from disparate software solutions to a single, all-encompassing ICT solution, the ERP. With an ERP solution, mining businesses can enhance enterprise operations, minimize operational risks, improve environmental compliance and speed up the merger and acquisitions process in addition to providing excellent customer service and maximizing return on investments (ROI) on assets (SAP, 2013).

Despite the fact that the system's users are accountants and that it is supported by information and communication technology, many people believed that the ERP system's successful adoption would eliminate the need for accountants. The study will illustrate how the adoption of the ERP system has affected the tasks that accountants must perform in this environment. The results of this study will give management a better grasp of how to assign tasks and set attainable performance goals that can be measured. According to Momanyi, (2014), organizations have now invested billions of dollars and countless hours in creating information systems (IS), such as enterprise resource planning (ERP), in the hope that better performance will result from their support of various organizational goals to increase efficiency and effectiveness. Management System (of the case for study) admitted that they were uncomfortable with the use of the library system, during informal conversations. The source of such information remains anonymous to the public to protect the reputation of the organisation.

LITERATURERE VIEW

Enterprise Resource Planning (ERP) systems are seen as a crucial enabler of an organization's business transformation, according to Venkatraman and Fahd, (2016). Large corporations and the mining sector are aware on a worldwide scale that giving customers the appropriate information at the right time results in fantastic returns for businesses in a cutthroat market. Therefore, in order to compete in the complicated and quick-paced market economy of today, firms need efficient and effective information systems like ERP.

The Gartner Group originally utilized ERP informally in the early 1990s and first referred to it as the newest version of manufacturing resource planning and business system software. ERP is now a prerequisite as well as a necessity for effective business development. Without a strong ERP system, mass production with poor added value is impossible. An organization can automate its main business application and lower the complexity and expense of the integration by using ERP. An ERP system is a tool for quick and efficient business reengineering, operational optimization and benefit creation (Radoslav and Hrischev, 2020). However, there is no one agreed definition of this technology and to position this notion, research typically emphasizes the capabilities of ERP. The process of implementing ERP involves evaluating the way that corporate operations are currently carried out, establishing a strategy, formulating an operational plan, deploying and testing the ERP software, managing data and change, providing user training, and providing post-maintenance support (Kenge, Rohit and Khan, 2020).

Technology Acceptance Model (TAM)

The TAM was developed to predict and explain how people will accept IT and IS and was initially presented by Davies in 1986 (Fishbein and Ajzen, 1975). The core tenet of TAM is that people's behavioral intent to adopt and utilize a particular technology is determined by two factors: Perceived utility and perceived ease of use (Davis, 2009). The attitude and beliefs of the user, as described by TAM, are seen as a crucial factor influencing the adoption of new technology when it comes to the implementation of ERP systems.

Drivers of ERP systems development

Studies suggested four primary justifications for company adoption of ERP. To perform more effectively, integrating activities is the primary justification. By combining data entry and retrieval across several corporate areas, ERP systems are a great method to

increase business efficiency. Time is money and the more time people waste on repetitive tasks, document searches and task overlap, the less the company accomplishes. Facilitating business expansion is the third justification. ERP is a fantastic way for a company to expand without overtaxing its staff. Finally, ERP may efficiently connect the business with outside groups or individuals, assisting in corporate integration both internally and externally. ERP assists in connecting partners, consultants and other businesses if the company collaborates with a lot of them (Hoseini, 2012; Momanyi, 2014; Aini, 2018).

The Tanzanian has seen the successful implementation of numerous ERP solutions that offer the most cutting-edge technology currently available on the global market, including on-cloud deployment, user-defined workflows, social media integration, strong Business Intelligence (BI) and Analytics Tools, etc. However, very few studies on the implementation of ERP have been done, with the majority of studies concentrating on specific organizational preferences. Few implementation successes or failures were noted in this research, possibly because few businesses choose to make their implementation processes public (Mtuveta, 2013).

The factors influencing the success of ERP deployment in SMEs operating in emerging regions like Latin America were examined by Miguel Maldonado, (2009). He applied the D&M model, one of the most frequently used models in the field of IS success. The proposed approach is experimentally supported by information from 49 SMEs in Latin America. The regression analysis method permits 7 out of the 8 hypotheses to be supported. While some findings appear to be specific to the Latin American setting, others appear to be consistent with earlier research. These findings suggest that Project Deployment Success, User Satisfaction and Ease of Use of ERP Capabilities are important factors determining the overall success of an ERP implementation. Change management, though, does not appear to be as important as the other components. It also supports the critical function of User Satisfaction as a mediating variable. The effectiveness of an ERP implementation is judged by how much business performance has improved.

ERP system success and failure variables in Engineering and Construction enterprises were examined by Boo Young Chung in 2007. 281 individuals from various nations participated in the data collection; 22% of them use SAP and 44% use Oracle. The researcher compared the samples using the t test or Analysis of Variance (ANOVA), then used regression analysis to look at the relationship between factors and indicators and as a final analysis, he used Structural Equation Modeling (SEM) to look at the reliability of the suggested research model. He discovered that ERP benefits are the ultimate barometer of ERP success, i.e., the more successful the ERP system, the greater the potential ERP advantages for the business. The research's primary finding about the success of ERP projects. The success of a project is typically judged in terms of its timeliness, cost, scope and quality. The results of the study revealed that while the quality and scope of the ERP system have a major impact, the ERP implementation project's progress has no bearing on the benefits of the system.

2. METHODOLOGY

Research Design and Data Collection

The framework for a study, or research design, outlines how each action will be carried out to achieve the study's goals. This includes defining the information needed, creating the instruments, choosing the sample, gathering the data, and conducting the analysis (Kothari, 2004). It serves as a guide for conducting research since it outlines the methods, timing, and locations used to gather and analyze data (Parahoo, 2006).

The case study research design was employed in this study. The approach was developed in order to gather qualitative and quantitative data, analyze it, and draw meaningful conclusions about the study about the evaluation of problems associated with implementing Enterprise Resource Planning systems in Tanzanian mining. Because it was feasible to use interviews, specially created questionnaires, and documentation, the design provided for flexibility. A case study also appeared to be less expensive in terms of consumption and resource requirements than other methods. By focusing on the chosen example, the researcher in this study was able to conduct a thorough investigation and gain insightful knowledge about the issue. Through the use of specially created surveys and documentation, thorough information was gathered.

During the study, both primary and secondary data were collected from the field. The researcher created semi-structured questionnaires for this study, and the researcher also performed face-to-face interviews with the assistance of the mining company's management. These methods were used to gather the study's primary data. The questionnaire method was chosen since it is rapid, affordable, and objective. Additionally, it provides adequate time for respondents to consider the questions and is a useful way to collect responses from a large sample. The poll had both open-ended and closed-ended questions. Open-ended questions allow respondents to react freely and according to their own terms rather than being compelled to choose from a list of possibilities (Appendix 03).

During the interviews, oral-verbal stimuli were delivered, and participants reacted with oral-verbal responses. Because managers and decision-makers are more likely to agree to interviews than to self-complete surveys, this made it simpler for the researcher to collect more in-depth information, especially from them. Secondary data was gathered through the documentary review, which covered both published and unpublished materials. Information about enterprise resource planning was gathered for this study from books, journals, corporate reports, articles about its implementation, dissertations, online resources, and various papers (ERP).

Data analysis and presentation of results

The computation of specific metrics and the hunt for patterns of links between sets of data are both included in the definition of analysis. In order to evaluate with what validity data may be stated to indicate any conclusions, relationships or differences supporting or contradicting an original or new hypothesis should be subjected to statistical tests of significance (Kothari, 2004; Joseph, 2014).

Prior to conducting the analysis, data cleaning was done to assure the accuracy and dependability of the information gathered. In-depth analyses of the events were conducted using both quantitative and qualitative methods. Both qualitative and quantitative data were evaluated using content analysis and descriptive statistics, respectively. Tables, percentages, and figures have all been used to present the results.

3. RESULTS

Challenges of ERP implementation

Utilizing a questionnaire, respondents were asked to list any difficulties they had using ERP or general remarks on how they view project implementation. Based on content analysis, difficulties were identified, summarized, and tabulated below (Table 1) with the frequency and percentage of occurrence among the responses of 32 respondents.

Table 1 Challenges of ERP implementation in the organization

Organization challenge	Frequency	Response count	Percentage (%)
Inadequate of qualified ERP professionals	23	32	71.88
Ineffective IT infrastructure in the country.	27	32	84.38
Electricity power supply not reliable and expensive.	20	32	62.50
More involvement of IT team than functional team	8	32	25.00
Poor technical support from technical team	10	32	31.25
Additional costs; investment on technical infrastructures	28	32	87.50

The three biggest issues were increased costs (87.5%) brought on by the purchase of new technology, inefficient IT infrastructures in the nation (84.38%) and a shortage of competent ERP personnel (71.88%).

Challenges of ERP implementation

The purpose of this section of the study was to examine the difficulties the organization encountered when purchasing the ERP system and carrying out the implementation procedure. Regarding the acquisition and usage of ERP, respondents from every department of the firm were requested to indicate all problems they encountered in the questionnaire provided, along with their general thoughts on how they saw the project's implementation being carried out. Table 1, which clearly displays the frequency and its percentages of the issues mentioned by all 32 respondents, summarizes the challenges that were identified and listed by the respondents based on content analysis.

According to the survey results, 87.5% of respondents said that the biggest issues they faced was extra costs, which were primarily brought on by the investment in recently acquired technology. This indicates that substantial financial expenditure is required for the purchase and upkeep of this ERP system, increasing the organization's investment expenses and decreasing earnings. Fewer organizations were able to obtain this technology due to the access restrictions placed on many companies. The results also show that 84.38% of respondents said that the country's IT infrastructures are insufficient to support new technologies and operate as necessary, making it difficult for many organizations to invest in this kind of technology.

In a similar vein, Khaparde, (2012) demonstrates that while implementing ERP, internal and external impediments to a company must both be taken into consideration. It demonstrates that big businesses and SMEs are where ERP hurdles are most

frequently seen. There are many factors that can cause obstacles to arise when implementing ERP, but the ones that are frequently seen are high software costs, poor planning or management, lack of perfection, a lack of training and predetermined corporate goals, a lack of reliable vendors, a lack of risk assessment, a lack of strategy, a lack of data models (support), a lack of benefits from ERP systems, poor system performance and a lack of hierarchical attribute structures. Additionally, the results show that 71.88% of the ERP system's performance and acquisition were hampered by a lack of competent ERP specialists, which was also supported by Bitsini, (2015).

In order to increase the number of IT professionals, it is necessary to encourage young people to enrol in IT programs at universities and colleges. This argument is valid because few students in higher education choose to specialize in information technology. Additionally, it is crucial to increase IT staff members' capacity building, particularly in new technologies, so that they can keep up with new developments and adapt to them. Guo Chao and Miguel Baptista Nunes, (2008) found that managers in Chinese SOEs frequently believed system barriers to be most important to ERP exploitation, but they appeared to ignore the fact that organizational barriers are the primary triggers of the intricate network of ERP barriers and are therefore in reality more important than the system ones. This finding supported the study findings above.

According to the study's findings, there is a higher chance of success when management accountants are involved in the implementation of an ERP system. There was a lot of frustration during the installation phase because the task is not simple. But in cases where deployments are effective, data quality improves, information is available more quickly and decision-making is enhanced. Additionally, the activities performed by management accountants significantly change as a result of a successful ERP implementation. Instead of the routine reporting chores that are now carried out automatically by the ERP software, the management accountants get more closely involved in corporate decision-making and carry out additional value-adding functions.

In examining the difficulties, the business had when purchased and implementing an ERP system. The findings, which were tabulated and displayed in table 1 and reflect the frequency and its corresponding percentages, were identified and enumerated by the respondents and summarized based on content analysis. Since it is still a new technology, the stated obstacles were connected to the high cost of installation, which was supported by 87.5% and acts as a barrier for many enterprises to access it. The results also show that 84.38% of respondents claimed that the country's IT infrastructures are not reliable and capable of supporting the installation of cutting-edge equipment like ERP systems. The results also show that a lack of qualified ERP professionals hindered the performance and acquisition of the ERP system.

In order to overcome the issues that have been noted as potential barriers to subsequent ERP adoption and guarantee successful ERP system implementation in Tanzania's mining industry. The respondents put forth the following; First and foremost, in order to increase the number of IT experts, the government should support the industry by enhancing IT infrastructures that will create a welcoming environment for integrating new advanced technology systems like ERP. It should also encourage and foster a conducive environment for youth and young people to enroll in IT programs at universities. This recommendation received a score of 87.5%. Second, the respondents said it's important to boost capacity building by providing end users with different types of training. Staff employees will become constantly aware of new technology thanks to frequent training. This is crucial for any new systems or technologies because it will make it easier to have qualified project management teams, as shown in the table by its score of 71.88%. As a result, the organization will increase and improve the quality of production and services, which is crucial for the socioeconomic change of the country and received a score of 78.13% from respondents' perspectives as shown in table 1.

4. CONCLUSION AND RECOMMENDATION

Based on the data, the following conclusions are made in light of the major research goals; Examining the organization's performance after acquiring an ERP system, the study's findings indicate that the system's implementation has boosted the organization's performance by fostering better collaboration and teamwork among workers from all departments, as well as improved information sharing and data security. It has also been successful in enhancing the decision-making process with regard to administrative and production difficulties. Additionally, the investment in ERP has sped up and stream lined work, reducing production costs. Additionally, it has increased performance effectiveness and succeeded in raising customer satisfaction. As a result, it is crucial that the system be accepted and used in many economic sectors, not just the mining industry. Any firm that decides to deploy ERP, for whatever reason, needs to understand that it is a large and sophisticated system that requires a lot of resources, work and money. It would have to integrate ERP within the company. After reading the papers in the literature and examining the empirical case studies, the government and other stakeholders must support the purchase and implementation of ERP systems in the mining industry and other economic sectors in order to motivate and support numerous youth and young

people to enroll in IT courses at colleges and universities and to increase the number of professionals who are able to adapt to new technologies and be innovative.

In addition, the government should foster a favourable climate by enhancing IT infrastructures that can support ERP systems and other cutting-edge systems that will be discovered in the near future. This will boost organizational performance. The requirement for entrepreneurial abilities is highly crucial, as is the growing importance of business expertise. To put it another way, the management accountants must be able to interact with the management team and effectively summarize and explain the outcomes (the impact of the financial data). Management accountants must work in collaboration with managers. This will occasionally lead to the management accountants supporting important choices by steering managers in the appropriate direction through a careful and well-reasoned analysis of the material.

Informed consent

Not applicable.

Ethical approval

Not applicable.

Conflicts of interests

The authors declare that there are no conflicts of interests.

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Data and materials availability

All data associated with this study are present in the paper.

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