What are the requirements of a successful ERP implementation in SMEs? Special focus on Southern Africa

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Abstract:
Many international Enterprise Resource Planning (ERP) systems were developed based on the best practices of organizations in which they were developed. These organizations are usually large, and in developed countries. However, small organizations in other parts of the world are also implementing ERP. Implementing a system based on different practices that differ from yours is certainly bound to come with issues. The objective of the study is to identify challenges experienced by SMEs when implementing ERP systems, and to suggest requirements of achieving successful implementations in SMEs in Southern Africa. A thematic analysis methodology was used to explore identified challenges from fourteen SMEs and to identify themes within the data. The study suggested that a successful ERP implementation requires sufficient and appropriate training, reliable internet connection, involvement of end-users, change management, as well as sufficient demonstration of the prospective ERP system.

1. Introduction

Enterprise Resource Planning (ERP) continues to be adopted worldwide. It has become an essential part of organizational practices, guiding the operations of many organizations. ERP is known to improve efficiency, performance as well as productivity, and it is regarded as a strategic resource by organizations, providing competitive advantage and a strong market position [1]. It integrates the functional areas via a common database, which also results in an increase in organizational productivity [2]. ERP implementation can however be a costly and complex exercise as it involves large investments, which are usually doable only by large corporations [3].

Even though ERP was often implemented by large organizations, it is now being adopted by companies of all sizes. However, ERP is not a one-size-fits-all solution, because companies of different sizes and qualities do not have the same characteristics. Companies in other regions such as Africa and Asia are also adopting ERP, but they have different organizational culture [4]. In addition, their needs are not the same. For example, their business practices are carried out differently. The IT maturity and computer culture vary from country to country [2] and hence, there are often operational deficiencies. Also, telecommunications, internet and public database systems in developing countries are not as advanced as they are in developed countries, and this also negatively affects ERP implementation in these countries [2]. Some of ERP adopters are small and medium sized enterprises (SMEs). SMEs usually have informal structures, and they have limited resources [5]. However for many reasons they also choose to adopt ERP. ERP is known for efficiency improvement in businesses, cost reductions as well as integration of business processes [6]. These are all drivers for ERP implementation by companies of all sizes.

Even though many success factors have been pointed out by many researchers in studies of Enterprise Resource Planning (ERP) adoption, most of these studies have focused on large enterprises [1], [7]. However due to the differences in how organizations operate, the findings from large organizations cannot be applied to SMEs. The aim of this study is to identify requirements of a successful ERP implementation in the developing countries, focusing on Southern African context. A thematic analysis methodology was used in this study to identify themes across different challenges that SMEs experience when implementing ERP. This provided the authors with a scope to investigate the challenges further and to attempt finding solutions to them. Based on the identified challenges, the study offers guidelines that can help SMEs in the African context to make good decisions when implementing ERP.

The research focuses on SMEs. In order to achieve the aim of the study, the following questions were formulated:

1. What issues do African SMEs experience when implementing ERP?

2. What is required for the implementation to be successful?

The paper is structured as follows: the following section will look at the literature review, section three explains the research methodology, section four presents the findings, section five discusses the findings, and finally section six concludes the study.

2. Background and Related Work

2.1 ICT development in Southern Africa

According to the United Nations (UN) scheme of geographic regions, the Southern African region consists of ten countries, namely [8]: Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia, and Zimbabwe. In 2001, a declaration of information and communication technologies was passed, with a mission to bridge the digital divide between Southern Africa and the rest of the world [9]. In 2012, about 68,000 km of submarine cable was laid over 615,000 km of national backbone networks in Africa, and this has greatly increased connectivity across Africa. Countries such as Botswana and Namibia acquired high-speed and reliable connectivity via this cable system [10]. With this rapid growth and opportunities that come with ICT, Southern Africa needs to harness the power of ICT, in order to address the challenges that it faces in its development.

Several governments such as that of Botswana have recognized the importance of ICT in its national development, and it has therefore invested in the government expenditure on ICT [11]. The Government of Namibia has also recognized the importance to be a part of the global information society, and it has therefore committed to utilizing ICT in order to reach the objective of moving towards the information society [12]. Despite the poor infrastructure in Lesotho and Swaziland, the governments of the two countries have also taken crucial steps in ensuring the improvement of ICT access within its communities [13]. Even though South Africa is categorized as a developing country, it also has characteristics of an advanced economy, therefore the social and economic development in South Africa is more advanced in comparison to the rest of Southern Africa [14]. The ICT Sector of South Africa continues to grow significantly.

However, despite the big improvement, about 80% of the population is still not connected, and the services are also expensive [15]. There are also high costs associated with telecommunication services [10]. Another issue that Southern Africa faces is the fact that there is still lack of electricity in several rural areas [16], hence it is difficult to make use of technology.

2.2 SMEs in Southern Africa

There is no single definition of an SME. It differs from country to country, and from organization to organization. For example, South Africa defines their SMEs based on sectors in which they belong. The agriculture's small business comprises of 50 or less employees and a turnover of 185 000 euro or less, while a medium sized company consists of equal to or less than 100 but greater than 50 employees and a turnover of less than or equal to 308 000 euro but greater than 185 000 euro [17]. This is not the same for other sectors.

The European Commission defines an SME as "a small and medium-sized organization that employ 250 employees or less and have an annual turnover or less than 50 million Euro [18]. This definition does not differ among different sectors and it is therefore better to use. This study adopts this definition. Table 1 shows a more detailed definition according to the European commission.

Table 1. SME Definition [18]

Company category	Staff headcount	Turnover
Medium-sized	<250	≤ € 50 m
Small	<50	≤ € 10 m
Micro	<10	≤ € 2 m

SMEs have become an economic backbone globally. Many have extended their domestic activities across national boundaries in order to grow their businesses. However, they often face difficulties in their operations. Financing from financial institutions is one of the main difficulties they experience, and this affects their development [19]. For example, SMEs in South Africa are likely to get financial assistance from banks only when they are in their later stage of development [20]. The lack of access to resources is one of the reasons why the business of SMEs often discontinues, as they often do not have adequate collateral that is required to obtain financial help.

In addition to the limit to market access is lack of efficient channels of distribution. This leads to less purchasing power of customers in comparison to their large enterprises counterparts that have access to wider markets [21].

Developing countries have to endure problems such as unemployment, poverty and weak economic growth [22]. This leads to unstable business environments. Due to several reasons related to the weak economic growth, many people open SMEs in order to be able to sustain themselves financially. A survey conducted in Namibia has revealed that the two main reasons for establishing an SME are the inability to find employment, as well as the motivation to pursue own businesses [23].

2.3 ERP in SMEs in Southern Africa

There are many SMEs in Southern Africa, and the number continues to grow [15]. These organizations are taking advantage of ICT applications and software in order for them to be efficient [15]. However, technology is often too expensive for the majority, and some may not have access, nor the knowledge about ICT. This is more so in rural areas, many of these areas are marginalized.

There are several SMEs that have implemented ERP [24]. There are also many studies that have been carried out in companies that have implemented ERP. For example, Lechesa et al. [25] has looked at the reasons of low SaaS ERP adoption in South Africa, SMEs specifically looking at barriers that affects SaaS ERP. They have identified security concerns, network limitations and cost constraints as the main barriers of SaaS adoption.

Similarly, Faasen et al. [26] did a similar study that looked at the adoption of SaaS in South Africa. IT has looked at the factors that influence the intention of adopting SaaS ERP, as well as barriers that limit the intention. Lack of vendor trust, satisfaction with existing systems, risks of data security, limitation of customization were all found to contribute to the slow adoption [26].

Hasheela et al. [27] also looked at factors that contribute to the reluctance of SaaS ERP adoption in SMEs in Namibia. The results were quite similar to the South African findings. But one barrier that stood out was the fact that there was lack of ERP knowledge among SME owners, despite the benefits that an ERP implementation could bring.

Hasheela [28] has also identified several challenges of implementing ERP in SMEs. The study found many drawbacks and issues that are specific to the developing world such as: network unreliability, poor IT infrastructure, lack of vendors in the region and expensive consultants, etc.

Apart from the few studies that have specifically looked at SMEs in Southern Africa, there are several others that looked at ERP implementation in the general African context. For example, a study by Mutongwa and Rabah [29] found lack of knowledgeable trainers who really understood the business processes. It also identified lack of technical and project knowledge, as well as lack of support from top and middle management. Users did not understand the system but they were expected to use it. The training offered is often not specific to users' processes but was very broad and covered many tasks from different processes. It is usually an all in one training that comprises of loads of information, which results with too much information and little knowledge since their processes are not adequately covered [30]. Munkelt and Volker [30] further stated that too much time lapses between training and operating the actual system. Even though this study was done in a large Kenyan organization, it shows similar challenges experienced in other African countries.

2.4 Critical success factors for ERP implementation

There are several studies that identified success factors for ERP systems implementation. Tchokogue et al. [31] identified a clear vision of the ERP project role, committed top management, involvement of knowledgeable technological experts in the project, training of employees to become instructors as well as adequate management skills as the success ERP factors. Gupta et al. [32] also identified the support of top management, effective change management, effective training as well as effective projections management as the top success factors for ERP implementation. Furumo and Kimberly [[33]41] has identified lack of in-house human resources with project management skills, conflict of interest among shareholders, lack of functionality in the ERP system that supports existing business processes, lack of commitment to change management and insufficient technical knowledge as impediments that hinder ERP success. The study further suggested that allocation of adequate financial and human resources to IT projects as well as careful management of the change process should be a priority in order to achieve a successful implementation.

There are other several studies that looked at ERP implementation success factors. There are summarized in Table 2. But majority of these are done in developed countries. However, there is a difference between developed countries and

developing countries. Some of the main differences are found in culture, infrastructure and the economy [32]. These differences therefore also lead to differences in implementing ERP in countries from the two categories.

2.5 Gaps in research

It is evident that there is lack of research in the area of ERP implementation in Southern African SMEs. There are still questions that remain to be answered. With all issues experienced within the ERP lifecycle, how can they be eliminated in order to reach successful implementation? What is required to make implementation successful? These questions are what this study entails. The research aims to find requirements of a successful ERP implementation specifically in Southern African SMEs.

Table 2. Critical Success Factors for ERP implementation

Top Management Support	[25]–[31]
Training	[25]–[29]
Communication	[29], [32]–[34]
Monitoring & Evaluation	[35], [36]
Business Process Requirements	[37], [38]
User Involvement	[25], [32], [33], [36], [39], [40]
Project Management	[30], [36], [40]
Change Management	[29], [36], [41], [42]
Selection of a good ERP package	[29], [41], [42]
Clear Vision & Efficient Business Plan	[30], [36]

3. Research Methodology

In order to answer our research questions, our study has started with getting information about SMEs implementation experiences by carrying out face to face interviews. For this study, we have used the thematic analysis, a qualitative analytic method that is used to identify, analyze and report themes within data [34]. The process of thematic analysis according to Braun and Clarke [34] starts with searching for meanings and interesting patterns in the data after having read the entire data, as this will help with understanding it. After being familiar with the data, the production of generating initial codes from the data commences [34]. The flexibility of this research methodology allows a researcher to develop themes that are either data driven or theory driven [34].

When coding the data, the researcher writes notes on the analyzed data to indicate identified potential patterns. After coding the data and having a list of codes, the next step is to sort the codes into different themes. At this stage, a researcher analyses the codes and sort them into different themes that are motivated by similarities in the codes.

The next step involves reviewing the themes, dissolving those do not seem necessary after all, and collapsing others within other themes that seem similar to each other and can be merged into one theme. In the next step the researcher has to define each individual theme and write a detailed analysis about it. The final step is to write the report that consist of the final analysis with fully worked out themes [34]. Thematic analysis was chosen because it allows to sort out identified issues into different themes that can be further analyzed.

3.1 Research Instrument

The research instrument used consists of six sections. The first section of the interview consists of general questions such as the interviewees roles in the organization and in ERP. The second section comprises SME specific questions, in relation to the organization environment and its management. The third section consists of questions regarding the ERP system and the reasons behind its implementation. The fourth section is concerned with the people involved in the implementation process such as the external consultants, and any conflicts experienced with the people. The fifth section includes questions related to the experiences with the system, for example: the effects of customization, systems deficiencies, etc. The final section deals with developing countries' related questions, e.g. mismatches between the system and the companies culture.

3.2 Data Collection

Data was collected by carrying out interviews with SME owners and IT specialists. The data was recorded from 14 companies. The respondents ranged from company owners, IT Managers to Programmers. The companies ranged from the size of 14 to 260 employees. All interviews were recorded. The interview duration ranged between 40 to 60 minutes. The aim was to gain enough data in order to create a clear picture of what companies perceive as a successful implementation and how it can be achieved. To complement interviews, an open ended questionnaire was also carried out and sent to South Africa and 5 responses were received. Table 2 presents the information about the respondents.

Table 3. Participants in the study

Company	Company Size (employees)	Role of the Interviewees	Industry
A	120	IT Manager	Motor Vehicle Fund
B	24	Manager: Systems & software	Civil Engineering
C	200	Business Analyst	IT Consultancy
D	240	IT Director	Education
E	90	ERP Manager	Mobile e-Payments
F	200	System Analyst	Auditing
G	50	ERP Manager	Mobile e-Payments
H	260	CEO	Finance
I	14	IT Manager	Reinsurance
J	150	Software Development Head	IT Consultancy
K	170	IT Manager	IT Consultancy
L	200	Operational Manager	IT Consultancy
M	230	Executive Manager	Finance
N	30	Principal Engineer	Civil Engineering
O	200	Owner	Pharmacy
P	250	Head: ICT	Education
Q	190	Programmer	Mobile e-Payments
R	200	Financial Accountant	Finance
S	220	Programmer	IT Consultancy

3.3 Data Analysis

The data was analyzed using thematic analysis. First, we transcribed the data. Then we looked for interesting features in the transcripts. We gave codes to those features and collated them into different themes. We defined the themes inductively according to the coded texts in the data. For example, in this data extract "*There is <u>lack of certified consultants</u> here, and we had to source one from South Africa to assist us on an HCM module, and it was very expensive. There is also <u>lack of technical staff.</u>*" The codes of interest have been underlined, and put under one theme "ERP Actors". The following themes were identified: Business environment, ERP system, ERP actors and Training.

4. Findings

This section looks at the themes that were identified.

4.1 The business environment

The business environment refers to the environment in which ERP is being adopted. It refers to internal and external factors that have an effect on the implementation and the operation on the system. It may include economic factors, legal factors, technical factors, demographic factors which can all have an effect on the company [35]. Business environment differs from country to country, because there is a variation in values and priorities by people from different places [35].

An issue was raised regarding power cuts, which allegedly affect business operations. However, only two of the interviewees raised this issue, and they also stressed that it does not happen often.

> "*When blackout happens, you have to start over because the computer goes off. The work is also affected. You have to login again.*" Programmer, Company Q.

Another issue found within the business environment is unreliable internet connections, which affects operations that require internet. The participants expressed their dissatisfaction with their internet services and stated that it affects their services that require an internet connection.

> "*Our main problem is that we sometimes experience internet cut offs when Telecom has problems, we also experience electricity cuts.*" CEO, Company H.

> "*Our web services are sometimes interrupted by slow internet, and sometimes the internet is completely disconnected for some minutes.*" IT Manager, Company K.

Another issue identified was that SMEs usually focus on their line of business. For example, in an engineering company, the employees have only engineering expertise. The managers overlooked the need to recruit anyone with right kind of experience, from which followed that the company lacked understanding of business process engineering. No one even had reliable project management skills. In the end, the lack of necessary expertise led to the ERP system being entirely outsourced to external consultants.

4.2 ERP System

This theme includes issues that are related to the ERP system itself. There were complains about misfits between the systems' built in processes and company processes. All the interviewed companies have implemented pre-packaged ERP systems, and all of them were international, as there are no local ERP systems available. However international ERP systems come with standard business processes and they are not a one size fits all.

> "*Our business processes are not 100% satisfied by the processes found in the system. We found out only later that that the system did not provide some calculations we needed. For example, it cannot check whether you have enough money in your budget before you can create a purchase requisition.*" System Analyst, Company F.

The operational costs are also perceived to be very high. The consultants that assist with the implementation are perceived to be expensive.

> *"The consultants are not cheap. We used one company from Windhoek but their rates were exorbitant. But that was the cheapest we could get. And we have a contract with them to be taking care of the maintenance and upgrades."* IT Director, Company D.

The ERP system is also perceived not to be user friendly and users become hesitant to use it.

4.3 ERP Actors

ERP actors refer to all the stakeholders that have a major part to play on the ERP system, namely: the vendor, the implementing company and the consultant. The study found that top management in small organizations lack understanding about change management. This results in conflicts between management and end users. Many company owners specialize in their lines of business and management of organizations can be a challenge.

The study also identified dissatisfaction with vendors.

> *"They didn't make everything clear. I think they have mispresented the system. Have we known better, we would have chosen something much simpler."* Head: ICT, Company P.

Another significant issue was lack of in-house project management knowledge and skills. Similar to change management skills, project management skills are crucial. However, due to the same reasons of small organization specializing in their core business, many of the necessary organizational skills are missing. This results in external consultants taking over the project, including partaking in specifying requirements which they do not necessarily understand. This results in critical functionalities being not well defined. The consultants are also left to make big decisions that can affect the business.

> *"The document management system requirements were not properly understood, hence the system is not fully operational as expected. There were a number of critical systems functionalities that were not defined clearly and as a result not implemented. Some critical reports were also omitted."* ERP Manager, Company D.

> *"At the time of implementing ERP, there was no internal project management capability and hence an external consultant was hired to oversee and manage the implementation process."* CEO, Company H.

> *"There is lack of certified consultants here, and we had to source one from South Africa to assist us on an HCM module, and it was very expensive."* Operational Manager, Company L.

4.4 Training

Training refers to developing someone's skills and knowledge. Investing in internal employees and making them part of the implementation process will help organizations, as it will avoid the necessity to engage a third party consultant for even the smallest issues. The interviewed companies however reported unavailability of local training. This was especially so for SAP ERP, which was the most sought after ERP system.

> *"We had to send two of our people to South Africa for training, since we do not have any SAP training available locally. But this involves a lot of costs."* ERP Manager, Company E.

There were also complains in the study, that training was usually done at the end of the implementation after the system goes live, but this was perceived not to be sufficient and it led to lack of confidence in the end users. This caused anxiety among users, as there was no internal assistance to complement the training they initially received apart from manuals that do not always cover all scenarios. This also leads to additional costs to companies for hiring consultants.

4.5 Recommendations to other SMEs

We asked participants this question: "*If you were to advise other companies, what would you advise them to avoid or to do in order to maximize the ERP benefits*?", in order to extract ideas of what other SMEs should do in order to achieve successful implementations.

Communication among stakeholders is deemed crucial during implementation. This was a recommendation by some of the participants.

> "*Communication is vital to ensure all project stakeholders are involved.*" Head: ICT, Company P.

> "*Plan well in advance, communicate everything to Management Team as this is a big project. Include Line managers in the planning phase. Do a proper Analysis and have clear goals of your objectives. Communication to all staff members is also important. Have a working backup procedure in place. Consult with experts in this field.*" Manager: Systems & Software, Company B.

The participants have also emphasized the importance of training and involving everyone who will use the system in order to get their input as it can be useful.

> "*Training is crucial to the success of the ERP project to ensure maximum use of the system post-implementation. Ensure regular refresher training to ensure users are properly trained and able to use all the systems functionalities.*" Head ICT, Company P.

> "*Involve everyone who will be an end-user at the end, as they have valuable information that managers do not have.*" IT Manager, Company A.

> "*Also think about training for the users and consultants.*" Manager: Systems & Software, Company B.

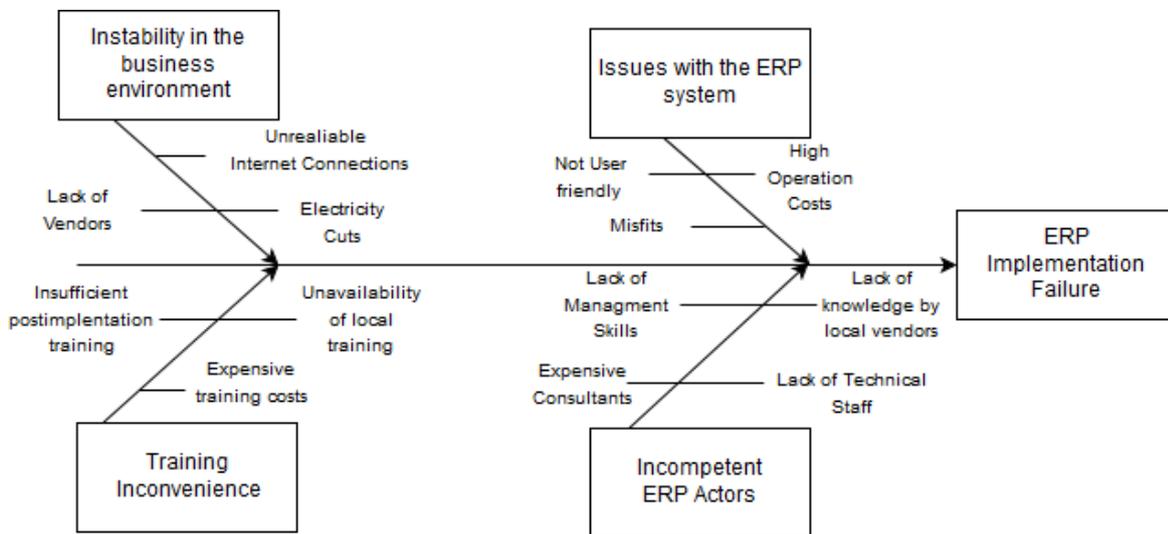Figure 1 shows a cause-effect diagram of the challenges identified.

Fig. 1. Cause-effect diagram of ERP implementation challenges in SMEs

Testing is also highly recommended to avoid going live prematurely, which can leave dire consequences such as functionalities not being implemented according to the requirements. Other recommendations include change management, thorough requirement gathering and analysis.

> *"Proper requirement gathering. Everything configured has to be documented. Involve the business in the unit testing. Ensure that all scenarios are tested."* Executive Manager, Company M.

> *"Spend enough time in the planning and plan well. Do thorough testing. Do not go live prematurely. Manage the Human resources properly. Stick to the project plan and only accept additions that are beneficial to the project. Record keeping of all documentations is important."* IT Manager, Company A.

> *"Change management is also a very important aspect that needs utmost attention to ensure buy-in across the organization."* Head ICT, Company P.

5. Discussion

The research problem of the study is "What are the requirements for a successful implementation in SMEs?" The problem was addressed by interviewing companies in Southern Africa to find out what they have perceived as challenges during and after their implementation, in order to figure out what might be required to solve the problems for future implementation. The study attempted to answer the following questions.

What issues do Southern African SMEs experience when implementing ERP?

One of the main issues we have identified is high implementation and operation costs. This is not unique to our study, as it is also a major challenge to many SMEs [24]–[27]. One of the reasons why especially operation and maintenance is so expensive for small companies is because they seldom have internal staff that can take care of maintenance. Usually ERP project including maintenance services is outsourced to third party companies, which are usually very expensive. It has also been suggested by Lewandowski [36] that SMEs should set up dedicated internal IT personnel. The availability of on-site support will reduce costs of always having an external party to consult [36]. Another finding was that there were misfits between the ERP system and the business processes. One of the reasons was the fact that these ERP systems are all international ERP systems. For example, SAP is originally developed in Germany [37], and Oracle E-Business Suite originates from United States. These systems were designed based on the best practices of companies in these regions. The processes are not one size fits all, and it is therefore not unusual that misfits can happen. Many times customization is necessary to be done to these pre-packaged systems. We have learned that vendor representatives often use their datasets when demonstrating the functionality of their ERP systems. But due to previous studies, this is not recommendable [38]. Seethamraju [38] in his study suggested that companies should only shortlist vendors that would use datasets given by the client company in order to demonstrate the functionality of the solution. This will help companies to decide if the solutions really suit their needs [38]. Haddara [39] also emphasized the importance of choosing the right vendor, one that understands the company's requirements or is keen enough to commit to an ERP project of a small customers. Vendors should also demonstrate their processes to the stakeholders and must be willing to demonstrate all suggested scenarios.

Another significant finding is that users often become hesitant to use the system. We have learned that they usually receive training after the system goes live, they have expressed that the training that they receive is not sufficient. They perceive the system to be user unfriendly. This is because the ERP system is much more complicated in comparison to the legacy systems they are used to.

Studies suggested that it is important to engage users in the implementation process so that they feel that they are a part of the process. This will help avoid anxiety, as well as unwillingness to use to the system. The study by Hasheela [28] has found that large organizations often engage their users in the implementation processes. For example, employees are included in meeting discussions in their respective departments, meeting minutes are sent to everyone, etc., whereas meetings in SMEs are usually strictly for management only, and employees are not engaged during project

implementation. Additionally as suggested by Munkelt and Volker [30], the training is usually broad and covers lots of information and a lot of time lapses between training and operating the system. It is therefore important to have specific training for a specific area in order to avoid bombarding users with overwhelming information.

Another identified challenge is the lack of local training in ERP systems in many countries were ERP is implemented. All the interviewed companies have either implemented SAP and Oracle. In Southern Africa, training for both these are only done in South Africa, This is a challenge for companies in other countries because it is costly to send their people to South Africa each time they need training. However companies should work together to share costs to pay for costs for trainers from South Africa, then it could make training costs much lower. As training could be done at the same time for employers from different companies. In addition to sharing costs for bringing trainers locally, companies could also invest in eLearning training, which has a lot of advantage, as this training is available to the employees at any time. It is important to invest in ongoing training, as it boots the users' confidence in the system [40].

There were also complains about unstable internet connections. This contributes to companies not investing in Cloud ERP. Even though as we have learned that internet is expensive in Southern Africa [15], companies that are interested in Cloud ERP must be prepared to invest in reliable internet connection. There are several excellent internet providers that offer reliable solutions. This may be perceived to be costly, but it is more costly for the work to be disrupted than to pay for reliable internet.

This study has also seen that there are different actors of ERP, namely: the vendor, the implementing company and the consultant. Research has emphasized the importance of commitment these actors should display, and the importance of knowledge in their respective role. For example, it was learned that even though a consultant may have a know-how of configuring the ERP system and running an ERP project, it is important for the implementing system to involve users and train them to have some sort of understanding of their business processes better. It was evident in studies that when consultants or the vendor do not really understand the requirements and the business processes of the implementing organization, the result could be disastrous, as some of important requirements may be left out. Therefore, a workforce comprising of users is absolutely necessary. Also, employees should be engaged throughout the project implementation process to ensure acceptance.

In addition, it was observed that power concentration lies mostly with management, and therefore major decisions lie with management. Based on the characteristics of the main decision maker, and their knowledge about information systems, the company can either win or suffer. For example, it is important when they understand the value of continuous training in order to motivate it.

The study also found that costs constraints was one of the main challenges that were being experienced in SMEs. All companies deemed to find operation and maintenance to be very expensive. Lewandowski, Salako and Garcia-Perez [36] suggested that SMEs should set up dedicated internal IT personnel. As the availability if on-site support will reduce costs of always having an external party to consult [36]. In addition to the costs, it was also realized that sometimes SMEs buy pre-packaged ERP, but they only get to use a fraction of the functionality.

What is required for ERP implantations to be successful?

We have compiled the requirements together as following:

- Investment in reliable internet;
- Training of internal trainers to reduce costs of external consultants;
- Investment in eLearning for the employees to have access to continuous training;
- Training for employees according to the roles they will play;
- Involvement of users in the implementation process;
- Shortlisted vendors must be required to demonstrate their ERP systems using the client's dataset;
- Change management training for managers;
- Project management training for a selected number of internal employees.

6. Conclusion

The purpose of this paper was to identify what is required for successful SME ERP implementation, with a focus on Southern Africa. It has looked at challenges that SMEs in Southern Africa experience and how they can overcome them.

Our study has found that incompetent ERP actors such as the technical staff as well as incompetent local vendors contribute to ERP failure. Our study has also found that insufficient training after implementation and failure to invest in ongoing training leads to resistance by users from using the system.

The study has suggested requirements that can help guide small organizations in developing countries when implementing ERP systems. The study has suggested that organizations should invest in reliable internet connections. This is especially important for companies that want to implement Cloud ERP. Companies should also invest in internal trainers to avoid the extensive costs of external consultants. They should also invest in eLearning so that employees can have access to continuous training. It is also important that training is customized for employees according to their roles. The study also suggested that users should be involved during the implementation process, managers should undergo change management training, and a selected number of internal employees should undergo a project management training to avoid incurring costs of hiring external consultants to manage project management in ERP projects. The study further suggested that prospective vendors need to demonstrate their systems using the datasets of the potential client.

6.1 Validity of the research

It is crucial to address any validity threats a study may hold. Validity refers to the degree to which the researchers results can be trusted [41]. First, the methodology chosen might have pitfalls, which might have affected the results. Secondly, our findings are based on interviews from mostly SME owners and managers, which may be biased and self-centered around the individuals. Thirdly, the findings are based on the Namibian and South African context, which may have different financial conditions from other countries in Southern Africa. Restricting our analysis to these countries may fall short of representing a transparent picture of Southern Africa. It is therefore important that future research should replicate this study in other countries.

6.2 Limitations of the study

Getting results depends of getting access to people, however this proves to be a challenge because not many companies were willing to take part in the study. Only 14 out of 40 requested companies agreed to take part. People in the area were not that opened to interviews.

The second limitation is that, even though cloud ERP is quite common, we could not locate any company that has implemented it. Therefore, we could not learn about the challenges of implementing Cloud ERP, which limited the scope of our analysis.

In this study, we have only looked at commercial international ERP systems. But there is a variety of open-source ERP systems that are implemented by SMEs. It is therefore important for further studies to be carried out in this area, in order to understand challenges of open-source ERP and how they can be contained.

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Appendix A. Interview questions: Challenges of ERP Implementation, Empirical study in SMEs in developing countries

General questions:
- What is your role in the organization?
- How many people are in the organization?
- What is your role in ERP?
- How many people are involved in ERP projects?

SME specific questions:
- Is there any IT department in the organization?
- How is your internet facility in the organization?
- Who are the people involved in decision making?

Pre-implementation questions:
- What was the main aim for introducing ERP in the company?
- How were the following done? (Who were the parties involved?)
  - The decision to select this specific ERP
  - The evaluation process for different products
  - Requirement specifications
  - What challenges were experienced when specifying requirements?
  - What challenges were experienced with evaluating different ERP systems?

Implementation questions:
- Who were the people involved in the implementation process? (Job titles)
- Were the any external consultants involved and what roles did they play?
- Would you say there were any conflicts experienced and how were they solved?

Post-implementation questions:
- Would you say the system is fulfilling its intended purpose?
- What are the main problems that you experience while working?
- Where there any customization done and what effects did they have?
- What would you say have not been met by the system in terms of what was expected?
- Is there any performance evaluation done and in this case how was it achieved?
- Who is responsible for the maintenance of the system?
- What would you say are the main challenges when it comes to maintenance?
- What else would you like to tell me regarding challenges with the ERP system?
- Would you say you are satisfied with the current system?
- If you were to advise other companies, what would you advise them to avoid or do in order to maximize the ERP benefits?
- What are deficiencies of your ERP system if any?
- What would you say about the following?
  - Top Management Commitment to ERP
  - Relationship Between different departments
  - Active participation of end users in the project
  - Necessary knowledge by users using the system
  - Funding dedicated for ERP
  - User training
  - Availability of technical support towards the system

Developing countries specific questions
- Are there any mismatch between the company's culture and the business processes in the system?
- How do you deal with them?

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