



Challenges of Implementing Enterprise Resource Planning and the Role of Knowledge Management: Evidence from the National Youth Development Agency

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ABSTRACT

Using the National Youth Development Agency (NYDA) as a case study, this paper considers the challenges of implementing enterprise resource planning (ERP). Data was collected from management and employees using both qualitative and quantitative research techniques. The study established challenges beyond the technical issues, these included: misalignment of the system to the organisation processes, product quality and unavailability of the system's helpdesk, lack of top management support, and lack of pilot testing, insufficient end-user training, resistance to change management, lack of processes integration, poor technology planning and security and risk matters. Furthermore, the management process that resonates on knowledge transfer, knowledge management, and change management poses a complex challenge in the implementation of ERP. The study recommends the alignment of the user environment, effective change management, and knowledge strategies that are essential to drive ERP. It is also recommended to close the gap between what ERP offers and what end users want and can do.

Keywords Enterprise resource planning, ERP implementation, public sector organisations, ERP challenges, knowledge transfer, knowledge management, change management

Categories • Information systems ~ Information systems applications, Enterprise information systems, Enterprise resource planning

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1 INTRODUCTION

Organisations are investing significant capital in information systems that facilitate remote work and cloud networking. Organisations prefer systems that offer all the tools required for information resource management. Of the available systems, enterprise resource planning

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(ERP) systems are the most implemented system due to their advanced features that surpass those of other systems in the market (Alieva & Haartman, 2021). An organisation must leverage its rich tapestry of knowledge to better implement ERP systems. Knowledge management (KM) is the backbone of modern technology adoption, providing managers with the information necessary to customise ERP systems to meet organisational needs (Alieva & Haartman, 2021).

As information technology (IT) has become one of the foremost cornerstones of an enterprise's ability to successfully compete within the global marketplace nowadays, no organisation can fully function without taking technology needs into consideration (Kiran & Reddy, 2019). In the early 90s, companies implemented customer relations management (CRM) and business process re-engineering (BPR) as the main software that could hold all the functions of organisations and keep them afloat (Sheik & Sulphay, 2020). With ever-changing technological innovations, one system does not have a long life-expectancy in the technological environment (Markus & Tanis, 2000). As a result of its ability to recognise the year 2000, ERP software inched ahead of other software in terms of popularity among organisations (Markus & Tanis, 2000).

To automate its business processes and improve its operational efficiency and effectiveness, the National Youth Development Agency (NYDA) deemed ERP as appropriate for its operations. All the business processes within the organisation were running manually and separately from each other, each with its policies. The flow of information was very slow and collecting in-time information was problematic as information was either with a certain person or locked somewhere. Such a situation was the major cause for delay in decision-making and further implementation. Even solving complaints was a problem, and therefore the organisation's effectiveness was tarnished. In 2018, through a vendor, NYDA developed and designed an ERP system that was tailor-made to meet the needs of the organisation instead of buying an off-the-shelf ERP solution.

The adoption of technology by any organisation requires a management process that calls for effective knowledge management (KM), knowledge transfer, and change management (Zuma & Sibindi, 2023). This paper presents ERP, its uses, and the risks associated with ERP, and before discussing the technology acceptance models, the research methodology is presented followed by the findings, discussions, recommendations, and conclusion.

2 ERP AND ITS BENEFITS

Enterprise resource planning, referred to by its industry acronym, ERP, refers to the automation and integration of an organisation's core business and storing it in a cloud network where anyone who has access can use it (Alieva & Haartman, 2021). Kang et al. (2020) explained that any organisation that prefers to adopt ERP systems aims to accelerate productivity, efficiency, and organisational competitiveness to realise a competitive edge.

Kang et al. (2020) defined ERP systems as software that allows information to be communicated more effectively and consistently within the organisation, while being kept in a secured

cloud and accessible by all the users, via a shared database. ERP guarantees a shorter communication time between departments and quickens the time required to complete business transactions (cycle time) and delivery is shortened further, making it quick to meet customer needs while providing easier access to information by all departments and sub-departments within an organisation, and reducing redundancy (Kang et al., 2020). In this highly automated, IT-led business environment, companies are forced to stay up-to-date with innovative technologies to remain competitive (Alieva & Haartman, 2021). Innovative technology adaptation by organisations puts them in a competitive position, allowing them to gain a reasonable market share compared to their competitors (Sheik & Sulphrey, 2020).

ERP systems provide significant advantages to companies who adopt them as they integrate business applications using real-time information and provide cloud storage ready for retrieval of that information. Businesses stand to gain from cloud computing services (de Oliveira & de Almeida, 2019), as they can get access to infrastructure and software at affordable rates. cloud computing offers businesses the opportunity to improve their IT capabilities in a way that they previously could not (Paksoy et al., 2021). ERP systems provide the means for management to respond to the increasing business needs in effective and efficient ways better than any previously implemented IT solution (Wang et al., 2021). The successful adoption of the 4th industrial revolution relies on the commitment of governments, businesses, and citizens to support transformation and be ready to adapt to change, have the willingness to learn, and have enough resources to do so.

2.1 Features of ERP

Business intelligence (BI) is software that can transform raw data into meaningful metrics reflective of historical, current, and predictive business operations and performance (Secundo et al., 2023). In other words, BI is a user-oriented process of extracting, exploring, interpreting, and analysing data, which managers use to expedite and rationalise the decision-making process (de Oliveira & de Almeida, 2019). Organisations need BI for real-time information to help them make intelligent decisions in the short and long term (Ain et al., 2019). Organisations using BI have the advantage of better analysis and real-time decision-making with the provision of robust analytical capabilities, such as access to reports and dashboard management and advanced analytical features that allow users to view data from diverse sources.

Data aggregation and analysis ERP systems are known for their ability to generate enormous volumes of data in a short period, saving an organisation in finance (Chaushi et al., 2018). Integration of ERP with BI enables businesses to draw in-depth insights from their data directly within their ERP platforms. Businesses need data that is gathered and represented in a summarised form, for purposes including statistical analysis. This allows the organisation to track its performance against the annual targets and minimise performance problems.

Customisation is when an organisation makes code modifications to the software to better fit the needs of the organisation's processes and product delivery. This cannot be done virtually and needs human labour while the margin for error is virtually non-existent (Wang et al., 2021). Customisation must be done correctly for the ERP system to benefit the organisation. Each organisation team generates the reports and dashboards needed to meet their sub-division targets and objectives while working towards a common organisational goal when the BI-ERP systems are tailor-made and well-integrated to incorporate the needs of the organisation.

Predictive capabilities The ERP is enabled to detect and react to both risks and opportunities for the future by smartly combining real-time data, as well as planning, prediction, and simulation data (Gupta et al., 2019). These predictive capabilities help to make processes more efficient and intelligent and offer new opportunities for the organisation in the future. COVID-19, as a global pandemic, has helped organisations steer their enterprise through rough waters and has given them the agility to react to ever-changing environments quickly.

e-Commerce features ERP platforms have pre-built functionality which makes them very worth having as an organisation but should not be the end-all-be-all software search. A vendor should always provide a buying organisation with easy integration with e-commerce functionality through add-ons or modules that speak to what the organisation does (Kujala & Halonen, 2019). This pre-built functionality allows for repetitiveness; data integrity; elimination of productivity gaps; efficiency; developed business growth; better customer support and service; and improved brand loyalty.

Customer relationship management (CRM) CRM-infused ERP software and tools are mostly needed to make vital information available across an entire organisation (Perez-Estebanez et al., 2017). CRM enables users to see the entire organisation's data across departments through the common dashboard. Millions of clients' information is stored and accessed by authorised access while it keeps a record of who last did what and when on the system.

Improves security and manages cyber risks The rapid development and application of new digital technologies and organisations working on cloud networks have opened new opportunities for more efficient management of technology and organisations' processes, which has led to a significant increase in security threats, phishing, fraud, and increasing the vulnerability of businesses and organisations to cyber criminals (Rani et al., 2021). ERP systems provide security as an important aspect of the entire system that is properly maintained to achieve reliable and secure operation of the entire system, because if corrupted, the whole organisation will suffer the consequences.

Add-on facilities A tailor-made ERP system provides add-on modules that can be purchased from different vendors, which is considered a competitive approach (Ruivo et al., 2020). These add-ons include invoice automation facilities, supply chain management, inventory

management, and human resources management, which make it easier for the organisation to stay paperless and easily operational.

2.2 ERP Implementation: Management issues

Knowledge management (KM) refers to the processes and activities that support an organisation in generating, acquiring, discovering, organising, using, and disseminating knowledge among its employees (Perez-Estebanez et al., 2017). This knowledge is transformed into information and experience which can be applied in decision-making, problem-solving, learning, and strategic planning (Abusweilem & Abualous, 2019; Oliveira et al., 2020).

Effective management processes of both tangible and intangible assets are crucial for organisations (Kianto et al., 2020). To achieve this, the integration of KM and ERP is essential. However, the explicit theoretical perspectives on the relationship between KM and ERP have not been well-established in previous studies. Although some studies have highlighted the relationship between KM and ERP (Andreeva & Kianto, 2012), they have mainly focused on identifying the successes and failures of such integration.

Effective use of knowledge management in ERP implementation accelerates the process while producing positive effects on ERP usage for organisations to enhance their implementation. ERP implementation in existing literature identifies change management as the critical success factor. Organisations must collaborate with end-users to avoid resistance to ERP implementation during the final stage of implementation (Beydoun et al., 2019; Holland & Light, 1999). It is important to explain the benefits of ERP implementation compared to the traditional system to employees. Effective change management is a second necessary factor as it can determine the success or failure of ERP implementation, depending on employee acceptance (Albarghouthi et al., 2020; Azima et al., 2019). Thus, organisations should manage change effectively and inform employees of any changes in advance during ERP implementation. change management is, therefore, an essential aspect of ERP implementation.

Effective knowledge transfer is another essential aspect for the successful implementation of ERP. An organisation needs to share knowledge with vendors and allow end-users to have input in the implementation of the system. By doing this, an organisation can reduce the costs associated with correcting mistakes caused by the lack of information transfer and improve clients' service delivery while gaining competitive business advantages through effective product and process innovation (Markus et al., 2000). Thorough awareness and identification of the knowledge required for any implementation are at the core of ERP implementation. ERP implementation should be able to integrate an organisation's information regarding its resources to create interactions with business partners and enhance operational performance to enable an organisation to gain a competitive advantage in the market.

3 TECHNOLOGY ACCEPTANCE MODELS

How new technology is accepted by the members of the organisation and the organisation as a whole has received attention from both management and IT scholars. Three categories of models attempt to explain the behaviours of technology acceptance by organisations and individuals. These categories emerge from psychology, social science, and IT.

From the psychology strand, three models emerge: the Theory of Reasoned Action (TRA), the Theory of Planned Behaviour (TPB), and Decomposed Theory of Planned Behaviour (DTPB). Ajzen (1991) advanced the TRA model to explain how attitude and subjective norm influence the behaviour of individuals towards technology. The TPB model extended the TRA model by adding the perceived behavioural control construct to explain intention and acceptance behaviour (Ajzen, 1991). DTPB decomposes the TPB to explain acceptance behaviour through multi-dimensional belief constructs (Taylor & Todd, 1995). Drawing from the Innovation Diffusion Theory (IDT) concept, the DTPB model includes relative advantage, compatibility, and complexity variables to explain the behaviour (Taylor & Todd, 1995). The psychology models attempt to predate and explain the behaviour of technology acceptance.

Modelled around social behaviour, the sociology models are anchored on motivation. Self-Determination Theory (SDT) (Deci & Ryan, 1985) has been used to explain extrinsic and intrinsic motives for using technology (Davis et al., 1992). The Social Learning Theory (SLT) advanced by Bandura (1989) places importance on social influence and its effect on external and internal social reinforcement. According to the model, the previous experience of an individual informs behaviour change. The SLT model has been used to measure self-efficacy and expectations in IT (Compeau et al., 1999). Weeger and Gewald (2013) used SLT to explain IT anxiety and emotional reactions. The IT-centred models such as the Technology Acceptance Model (TAM) measure technology variables such as perceived usefulness and perceived ease of use (Davis, 1986). This study is grounded on the combination of constructs advanced by the models that emerge from the three fields identified.

4 RESEARCH METHODS

This study is based on a single case study in a public sector organisation, the NYDA.

This methodology was adopted to generate an in-depth, multi-faceted understanding of a complex issue in its real-life context. The case study was incorporated into mixed-method research using both qualitative and quantitative data collection instruments to seek a more complete understanding. The case study is an established research design that is used extensively in a wide variety of disciplines, particularly in the social sciences (Aberdeen, 2013). Despite various studies that have been conducted to explain different factors affecting ERP implementation, there is a lack of research conducted in public sector organisations in South Africa. Semi-structured interviews of the top management and a survey were used for data collection from the end-users who are the junior staff members and the implementors of the products and services at NYDA.

4.1 Population and Sample

NYDA has several branches throughout South Africa, employing over 460 employees and 24 managers and is currently launching the ERP system throughout its different branches across the country. The organisation has 44 districts and centre offices in all South African provinces with its head office in Gauteng province. The ERP implementation is in the developed stage with ongoing organisation-wide training since it has gone live. Several individual purposeful interviews were carried out with the organisation's senior employees and surveys were used to collect data from the junior employees. All the participants had been through the training and were impacted by the ERP implementation process. For employees, participants were randomly selected as their roles and standing are more-or-less the same (quantitative). As for managers, a convenient sampling technique was used depending on their availability for interviews.

4.2 Instruments

The measurement items for the quantitative instrument were drawn from studies that have considered the challenges of ERP. [Appendix A](#) summarises the instrument items and their sources and gives examples of questions. For the qualitative interview guide, the study informed by the literature grouped the interview into three segments as follows: ERP package knowledge, ERP training, and outputs and expectations. [Appendix B](#) summarises the interview guide.

4.3 Response Rate

Out of the population of 24 selected for qualitative data collection, data saturation was reached after the 14th participant, resulting in a 50% response rate. According to Aberdeen (2013), reaching saturation after interviewing 12 participants is acceptable, especially for studies aiming to understand commonalities within a homogeneous group. Saunders et al. (2023) further suggest that researchers should continue collecting qualitative data until data saturation is reached. In this study, 14 semi-structured one-on-one interviews were conducted, and it was concluded that data saturation was reached after 12 interviews. However, questioning continued until the adequacy of the information obtained was verified.

The quantitative data was collected by administering survey questionnaires to junior staff members of the NYDA, with a target population of one hundred and ninety-eight (198). One hundred and fifteen (115) staff members responded to the survey, comprising twenty-one (21) coordinators, sixty-six (66) officers, twenty-five (25) administrators, and three (3) general workers, all of whom play a direct role in the utilisation of ERP to implement the organisation's products. The survey questionnaires were administered seven months after the initial invitation, and the response rate was 58% of the sample. Mugenda and Mugenda (1999) recommended that response rates above 50% are adequate for surveys and can be considered representative of the population. Therefore, the response rate of this study is sufficient to use the collected data for generalisation and concluding.

5 THE CHALLENGES

The study established that ERP end-users experienced several challenges throughout the implementation process, leading to a delayed and not fully functional system. Most of the issues were experienced by the users during the “go live” period set by the vendor and the management of the organisation. The training is amongst the challenges that were experienced leading to the ERP system’s initial “go live” date being delayed. Most challenges identified by the end-users were being addressed while the system was meant to “go live”. The challenges experienced are comprehensively explained in the section below.

Misalignment of the system to the organisation processes

The vendor’s misunderstanding of the requirements of the ERP in the organisation may have a high risk in the business performance post-implementation (Gavidia et al., 2021). This was the case with the NYDA ERP implementation; there was a failure to manage change properly as employees were not prepared for the changes that the system would bring. The vendor, when asked to add some tasks to the system, wanted to add more costs which led to time overruns as well as the lack of an effective methodology. The organisation must redesign its traditional processes to fit to purchase of an ERP system for the smooth running of the newly implemented system (Huang & Yokota, 2018). With organisations purchasing the changed off-shelf software, it is not easy to convert it into a tailor-made ERP system to fit current processes, and that is a costly and time-consuming venture most vendors are not prepared for. This has been the biggest ERP implementation risk for the NYDA.

Product quality and unavailability of the system’s helpdesk

Irrespective of the ERP systems becoming increasingly similar in functionality and more relevant to most organisations’ operations, their quality and ease of implementation differ (Jenab et al., 2019). The stability and functionality of the new system may not be guaranteed in quality and implementation ease. The NYDA’s case portrayed the same challenge. The system developers were unable to produce a quality and easy-to-use system, so the postponement of the “go live” took place on more than one occasion. This was due to the system processes skipping most of the vital interactions in the product being worked at and skipping some employees’ roles, which could have led to incomplete product delivery or product output. While the employees were noticing this, there was a lack of a helpdesk to guide them and solve the technical problems that were arising.

Lack of top management support and pilot testing

The top management’s availability to render support to the end-users is crucial for accomplishing any project objectives in an organisation. The senior managers of the NYDA were very much available to sponsor the project but failed to share and transfer information for a

better understanding of the new system for the users. The organisation did not pilot test the system which could have helped spot the deficiencies earlier before the whole organisation went live. The other option that could have worked was for the NYDA to nominate super users who would be trained to train other users for the ease of transition into the new system; unfortunately, this did not happen either. Allocation of sufficient financial and human resources is needed to fully support the ERP implementation to prevent ineffective knowledge transfer and vendors rushing the implementation. The top management of the organisation should identify the ERP need and appoint a vendor who can align the system to the organisation's strategic decisions (Sheik & Sulphrey, 2020).

Insufficient end-user training

Training and re-skilling the employees for the newly implemented system should always be a priority for the organisation. Although this is the most expensive investment for an organisation, the organisation should always plan and be prepared for the costs as the ERP implementation comes with deadlines that need to be met. The case with the NYDA is that it was hard for the vendor to physically train the end-users and they resorted to pre-recorded training which did not give the users skills and the know-how of the system. The end-users' performance was affected for at least three months after the system was implemented.

The managers' open communication lines and their team-building skills are much more important when the ERP is introduced in the organisation (Badewi et al., 2018). The organisation should always involve the end-users in the ERP project to enable the vendors to be aware of users' requirements and to address users' concerns at the initial stage of the implementation (Ullah et al., 2020). The NYDA failed at involving the users of the system and that affected the transition. Users were reluctant to use the ERP as they had no skills to utilise the ERP system and were unaware of the impact the ERP project would have on their responsibilities. To prevent this, organisations should develop a communication plan, a demo, a video of training, and issue regular reports to keep users informed (Caserio & Trucco, 2018).

Lack of process integration

The adoption of the ERP is meant to ease the traditional processes and innovate the outputs while quickly delivering to the clients. The main processes that the ERP should be able to integrate include prototyping, functionalities of all products and services, and all subdivisions of the organisation. ERP features should enable all the technical aspects of the subdivisions of the organisation to work towards one objective. System integration is the major issue for organisations during ERP implementation and no application may do everything for any organisation to fulfil its needs (Kenge & Khan, 2020). With the NYDA, only the human resource sub-division was able to fully adopt the system with all its functions and incorporate them for the required outputs. All other divisions are still today not fully functional on the ERP due to poor integration of business processes and gaps in the product delivery process. Although the organisation may purchase different modules from different vendors and integrate them with

other business systems to have a full ERP system (Kurnia et al., 2019), the NYDA has to this day failed to integrate some products.

Resistance to change management

A lack of communication and knowledge of formalised business processes and ERP systems during the ERP implementation process may make the users more resistant to change. Top management failing to give their subordinates a chance to participate in BPR, a lack of use of the ERP system, and inferior quality of data entering the system may be the main causes of this resistance.

Most employees face difficulties with alterations or transformations, which mostly affects the status quo in the organisation. Ali et al. (2022) noticed that middle managers mostly resist the ERP implementation process, and the results may be that the ERP implementation faces internal resistance from the middle managers who are reluctant to give up the old ways of working or feel that the system will replace them. The NYDA employees felt that the change was forced upon them; there were too frequent changes regarding new technological solutions, their responsibilities were not clear in the system, and they were tired of coping with the constant change. Consequently, they were unwilling to accept any new system as they had “no choice”.

Poor technology planning

A lack of adequate technical expertise and adequate technology infrastructure for supporting project requirements is a risk factor when implementing new software (Kohansal, 2019). Having a new project scope, new users, application complexity, and failure of technology to meet specifications may be a huge financial risk for the organisation. A lack of adequate technical expertise and technology infrastructure may be the biggest contribution to escalating time and cost overruns and may cause the rejection of the whole project by the organisation (Kohansal, 2019). In this study, most of the respondents had mentioned a lack of resources such as laptops and mobile connectivity, and yet the organisation is adopting the ERP system, which requires one to only use a laptop and no paperwork. The staff morale is already affected by being expected to deliver without having a laptop.

Security risks/data security

In cloud ERP, tenants of the same vendor share their data storage and other code processing which might raise significant security risks. Organisations need to prioritise data access protection as it is a vital component in cloud ERP security. An assurance of the safety of data against unauthorised access, use, and disclosure should always be the top priority. A comparison of the traditional IT systems to the ERP system shows that there are more threats and security risks in cloud ERP because of its dependence on distributed databases (Mahmood et al., 2019). The NYDA is still using traditional security mechanisms like passwords, firewalls,

and antivirus software, which no longer serve to assure the security of corporate information in a scenario where employees own and have total control of their devices. According to Mahmood et al. (2019) one of the main security challenges of ERP is the risk of loss of data or loss of the device which can lead to sensitive data landing in the wrong hands. Biometrics, face reading security access to the system, and any other contemporary security measures are not available at the NYDA, weakening the organisation's security.

6 KNOWLEDGE MANAGEMENT AND SUCCESSFUL IMPLEMENTATION OF ERP

The results from the mixed-methods study revealed that effective utilisation of knowledge is crucial for successful ERP implementation in a public sector organisation. The quantitative survey revealed a significant positive association between KM and ERP implementation, indicating a strong relationship between the two variables. Participants expressed the need for top management involvement and knowledge sharing to ensure the successful implementation of the ERP system. The importance of top management expertise in the implementation process was also emphasised by interviewees. Both methods support the idea that knowledge management activities, such as knowledge creation, sharing, and transfer among organisational members, contribute positively to ERP implementation and enhance the organisation's competitiveness.

The finding aligns with Salloum et al. (2018) suggestion that knowledge transfer occurs when knowledge owners, who are usually the top management team, deliver knowledge to knowledge seekers, who are typically subordinates. It also supports the findings of Leoni et al. (2022) who found that successful knowledge transfer leads to the construction of fully functional systems that are well understood by all employees instead of a particular group. Successful knowledge transfer requires the combination of appropriate people and techniques that contribute to the successful implementation of an ERP system.

The successful implementation of ERP is critical for an organisation's change management. This is supported by the study's findings, which reveal a positive correlation between ERP implementation and an understanding of changes by the employees in an organisation based on the surveys conducted. The results from the quantitative study demonstrate that positive change management can improve ERP implementation. The qualitative study also shows a positive association between change management and ERP implementation, as revealed by the respondents. Korenková et al. (2019) confirm that an organisation's ability to manage change is bound to offer an organisation a smooth and successful ERP implementation. Furthermore, Bellisario and Pavlov (2018) argue that innovation adoption is crucial for an organisation's change management in today's business environment.

The qualitative findings further support this, with respondents highlighting that better application of change management in the ERP implementation facilitates ease of adaptation to the system. These findings are consistent with Park (2018) who stressed the significance of making employees aware of the changes in business processes that the ERP would introduce and aligning their duties to the capabilities of the ERP. Mahmood et al. (2019) also underlined

the importance of synthesising the ERP with change management and business process changes following its implementation.

7 DISCUSSION AND RECOMMENDATIONS

The first anticipated theme pertains to the importance of top management support and knowledge sharing, which can greatly impact the successful implementation of an ERP system in the organisation. The second anticipated theme relates to end-user training aimed at promoting change management, which can also significantly impact the success of ERP implementation. The third anticipated theme highlights user involvement during the ERP implementation process to improve staff morale. The fourth anticipated theme underscores the significance of effective communication and knowledge transfer for successful ERP implementation. The fifth anticipated theme focuses on ERP organisation strategic alignment and data accuracy, which facilitate knowledge transfer and help ensure successful ERP implementation. Finally, the sixth anticipated theme involves post-implementation performance monitoring to improve organisation performance.

The interview responses confirm the importance of all these themes in facilitating successful ERP implementation. Therefore, management must ensure that all these themes are given proper attention and adhered to during the ERP implementation process. The theme of top management support and knowledge sharing is consistent with Jayeola et al. (2020) who posit that the involvement of top management in ERP implementation positively affects implementation success, particularly if they are willing to share knowledge to improve organisational performance. Given that ERP implementation leads to changes in the organisation, senior management involvement is necessary to resolve conflicts. Without a commitment from senior management, ERP implementation is at a high risk of failure. All participants emphasised the importance of knowledge sharing in the processes following the implementation of the ERP solution.

Wijaya et al. (2018) discussed the importance of end-user training in embracing change management. The study's second theme, end-user training, was found to be a necessary attribute of ERP implementation, enabling employees to adapt to the changes that come with the system. Gill et al. (2020) confirmed that end-user training has a positive impact on the adoption of ERP. Participants noted that training users was critical to facilitating their acceptance of the system and enabling them to transact with ease by the "go live" date. Nguyen et al. (2021) identified the challenge of ERP implementation caused by differences in the package's functionality and the vendor's requirements, leading to barriers and decreased organisational performance.

Regarding the third theme of user involvement during the ERP implementation to improve staff morale, the study participants had a positive response regarding this theme's association with successful ERP implementation. Stone and Zhang (2021) suggested that for an organisation to achieve successful ERP implementation, it is crucial to involve end-users. While top management is responsible for steering the implementation, end-users are the key drivers.

The involvement of end-users, who implement the program, ensures that business processes driven by the new ERP align with the organisation's needs. Additionally, Vincent and Premkumar (2021) found that involving users improves communication with the developers, leading to a better understanding of organisational needs and increased user satisfaction.

In relation to the anticipated theme of communication and knowledge transfer, the study participants agreed that regular communication is vital for successful ERP implementation. Effective communication channels ensure that suppliers are kept updated, and employees are informed of the project's status. Given that ERP is a system that spans across the company and involves cross-functional teams, effective communication, and coordination among different departments are critical (Samiei & Habibi, 2019). Effective communication has a positive impact on implementation success, significantly influences system acceptance, and helps to reduce resistance (Vaghefi et al., 2018).

According to the study participants, strategic alignment and data accuracy are crucial factors in successfully implementing ERP in an organisation, alongside the facilitation of knowledge transfer from top management to subordinates. Data quality and validation are essential for a successful ERP implementation, as the migration of data from legacy systems to newly implemented systems must be accurate. As noted by Eryadi and Hidayanto (2020) strategic direction and leadership commitment are critical to positively impact the effectiveness of any organisation's ERP implementation. The top management must work with the organisation's human resources to align competencies and skills, leadership vision, and willingness to change, and involve employees in planning and innovation to ensure the organisation's competitive edge. Chofreh et al. (2019) also underscored the importance of strategic alignment and leadership involvement in realising the organisational benefits of ERP IT systems. As ERP systems are highly integrated, data quality is expected to be a critical success factor for implementation.

Finally, the post-implementation performance monitoring of ERP helps decision-makers to assess the alignment of the system with the organisation's processes (Pohludka et al., 2018). Monitoring the system can improve process quality, reduce waste, and prevent employee frustration. Furthermore, it ensures that customer satisfaction is prioritised.

8 CONCLUSION

Technology is advancing at a very fast pace giving rise to the growing commitment of public sector organisations around the globe to service delivery excellence. To achieve these business aspirations and goals, organisation's processes become interrelated and more complex, causing ERP implementations to be tougher and more challenging than ever. This poses challenges to any public sector organisation that wants to pursue ERP implementation to select appropriate ERP tools and vendors to match the available infrastructure, employees' skills, and selection of appropriate implementation methodologies. The appropriate selection helps the organisation achieve operational efficiencies and effectiveness to stay competitive.

This study presents a thorough review and analysis of the literature that has built up a comprehensive knowledge and expertise base and a deeper understanding of what ERP is and

the features that organisations look for in ERP. It reports on the various reasons that led to a delayed ERP system implementation at NYDA and provides a comprehensive insight into users' initial experience.

This research unveils several intra-organisational challenges to the successful implementation of an ERP system. Inadequate end-user training, lack of integration of business processes, knowledge transfer, lack of top management support, resistance to change, change management, security threats, and poor technology initiatives have been cited as major challenges to successfully implementing the ERP system at the NYDA. With NYDA being a large organisation with multiple branches throughout South Africa, contextualisation of ERP and customisation of the processes from the users' perspective and system configuration were key aspects that had to be considered for the ERP implementation process.

The facts collected from both the interview and the questionnaires showed that the vendor hardly encouraged the users' participation at the outset of the project, particularly during the requirement elicitation stage and the end-users believe that they failed them from the onset. The vendor usually contacted the top management team, who are not the implementors of the products on the ground and do not get involved in the processes of the product delivery rather than end-users. Such a situation caused a gap between what the users wanted and what eventually was delivered for the system they most interact with.

This study helped to understand different challenges relating to the implementation of ERP solutions at the NYDA. It is clear from the facts collected that the vendor started development work with minimal understanding of the business processes of the organisation and was not concerned about the involvement of end-users during requirement elicitation. This has led to an extensive gap between "what ERP system delivered and what users want, and all are at a stand-still". With the delivery of the first full release in December 2020, the users could not perform a single product from the beginning to the end due to huge gaps between the processes. The ERP system was not in line with their current business process, and the system was not used by the organisation for almost the full year of that initial delivery leading to its disappointment. The research findings show that top management hardly realise the importance of user involvement and their training in the system usage and did not encourage their participation at the outset of the project. Due to a lack of management support, the users were not enthusiastic about being part of the implementation process and that resistance to change led to low staff morale, affecting the organisation's performance. Consequently, the users pretended that the system is not user-friendly, so they did not use it.

The vendor was unable to understand and align the ERP to the processes of the NYDA for them to integrate and perform well. It seemed to be complex for the vendor to deliver business processes of the NYDA as it was their first experience developing and implementing such a large, complex, and public sector ERP system. Lack of vendor experience affected the quality of the final product, consequently leading to project cost overrun and being behind schedule. The ERP system under study was outsourced, so was developed and implemented by a multi-national vendor. The findings showed a lack of user involvement, lack of top management support, lack of vendors' experience and support, and lack of change management as

impediments to ERP's successful implementation.

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A QUANTITATIVE INSTRUMENT

Table 1: Benefits of cloud computing

Item	Source	Example of question
Alignment	Ranjan et al. (2016) Sumner (2000) Menon et al. (2019)	- What is the association between ERP and your work?
Product Quality and Support	Al-Mashari et al. (2006) Ranjan et al. (2016) Sumner (2000) Menon et al. (2019)	- Rank the usefulness of the support given.
Top management support	Ranjan et al. (2016) Sumner (2000) Menon et al. (2019)	- Indicate the management support given.
End-user training	Ranjan et al. (2016) Sumner (2000) Menon et al. (2019)	- Indicate the type of end-user training that you received. - Training was adequate. - The training was practical with all relevant materials.
Change management	Ranjan et al. (2016) Sumner (2000) Menon et al. (2019)	- Organisational readiness to change was regularly assessed. - How prepared were you to use ERP? - ERP was easily adaptable to business changes. - There was clear communication during the implementation stages.
Process integration	Ranjan et al. (2016) Sumner (2000) Menon et al. (2019)	- ERP brought easy processes to all deliverables. - How long did it take you to migrate? - Migration of data from the traditional system to ERP was easy.
Technology Planning	Ranjan et al. (2016) Sumner (2000) Menon et al. (2019)	- The technological changeover was smooth. - The technology used matched my duties. - Was the technology infrastructure adequate? - Level of technological expertise.
Risk and security matters	Ranjan et al. (2016) Sumner (2000) Menon et al. (2019)	- Risk of failing to perform your duties when using ERP.

B INTERVIEW GUIDE

ERP package knowledge

- Do you think the ERP implementation process was handled in a correct manner?
- Was the introduction of staff members handled completely?
- Which area of the ERP system do you find most challenging?
- How do you plan to overcome this challenge? How was your experience?
- Was there prior communication regarding the need for ERP in the organisation?
- Do you think the ERP is fit for the organisation?

Training for ERP

- Do you think it is necessary to have training for the system before its implementation?
- Was there any training given for the system?
- Was the training enough to understand the system?
- Do you have any platform to direct any queries or difficulties experienced when using the system?
- What is the significant difference between the ERP and the traditional system?
- What were the main challenges you experienced during the ERP implementation stage? Were they resolved?
- Do you think your morale ever changed during the implementation phase of the ERP?
- Was it a negative or a positive change?

Outputs and expectations

- Do you think the system meets your expectations? Does it do what it was meant for?
- Have you had any projects completed using the ERP system? How was your experience?
- How is the efficiency of the system compared to the traditional system the organisation had?
- Has the average time taken to complete the project changed while using the ERP system as compared to the traditional system?
- Are there any significant changes you have noticed since using the ERP system on the delivery, of services in the organisation?