

Improving Supply Chain Management Processes through Digital Transformation of ERP Systems in the Oil and Gas Industry

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Abstract

This research investigates the changes caused by cloud computing Enterprise Resource Planning (ERP) systems in the oil and gas industry at different levels of organisational structure, processes, supply chain management, and employee management processes across an entire organisation. This research improved on the use of digital transformation and Enterprise Resource Planning (ERP) and its impact on supply chain management with a desktop study approach. This study aims to enhance how ERP integrated software package for the oil and gas industry is implemented in supply chain management operations. The study uses a qualitative approach to establish high-performance operational processes and administers questionnaires to oil and gas companies. Data collection was carried out through questionnaires. The researchers implemented cloud ERP after giving survey questions to managers in the supply chain of oil and gas firms and assessing their responses. The results show a positive impact that will come with cloud ERP implementation in oil and gas companies. Since the result is higher than 0.70, as evidenced by the analysis's 0.81 Cronbach Alpha reliability co-efficient score, the qualitative analysis' output is homogeneous. Oil and gas firms may maintain complete control over storage costs while instantly satisfying consumer demands thanks to the supply chain management system.

Keywords: enterprise resource planning, supply chain management, digital transformation, oil and gas industry, industry 4.0

Introduction

In the early 1950s, most industrial sectors used Material Requirements Planning (MRP), created by J.I Case, a producer of tractors and construction equipment in collaboration with IBM. It was regarded as a killer app, sparking widespread adoption of the business software. Computers were required to run said software (SAP, 2021). According to Will (2022), to change program material requirement planning (MRP) feature, the list of the features such as raw materials, and sub-assemblies are required to be completed within the project timeline. The MRP played an essential role in the supply chain sector by converting a plan into a list of the parts, materials, and subassemblies needed to finish a project on schedule. It also assisted producers in understanding inventory needs while balancing supply and demand in the oil and gas industry. Since MRP focused on the materials, ERP was introduced in the late 1950s. Both MRP and ERP work together to streamline corporate processes; these

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technologies significantly impact the oil and gas industry sector by helping to boost productivity and efficiency while shortening the production cycle.

An ERP system for the oil and gas industry supports the management of finances, projects, manufacturing, and operations, including human and natural resources. Oil and gas operations must be able to connect with current procedures systems and spot-check all supply chain concerns early in the setting up processes (Aroba *et al.*, 2023a; Aroba *et al.*, 2023b; Bristol, 2022). Additionally, oil and gas industry ERP systems can help businesses automate business processes to increase efficiency and service quality. Combining all relevant data into a single system simplifies the management of the methods and duties required to keep a business running efficiently (Miller, 2022).

ERP supply chain management systems give firms targeted tools that boost efficiency, responsibility, and customer happiness. It can be challenging for a company to maintain control when all the participants in the supply chain are considered, including the manufacturers, suppliers, distributors, retailers, and customers. It takes rigorous and diligent planning, execution, control, and continued supply chain activity monitoring to keep everything in check (Bristol, 2022). Supply chain management methods are made possible by ERP software. It also keeps track of the business processes and informs various departments on the productivity outcomes of every transaction within the business. Doing this ensures that the company continues to work typically, even when supply chain disruptions occur. Due to the industry's dynamic transition in the oil and gas supply chain management sector, it is difficult for businesses to ensure that scalability is built in, which results in a high cost for organisations to adopt and install proprietary SAP ERPs (Aroba *et al.*, 2021a; Aroba *et al.*, 2021b; Aroba *et al.*, 2020).

Every oil and gas company must undergo digital transformation to embrace the fourth industrial revolution (Industry 4.0) fully. Artificial intelligence, big data, market intelligence, and other technologies are used in digital transformation in procurement to build self-learning systems to purchase goods and services. This is often referred to as procurement 4.0 or cognitive procurement (Nia *et al.*, 2021; Anwana and Aroba, 2022). Digital transformation is a prominent and substantial impact-maker that extends beyond the oil and gas sector to include all businesses globally. Accelerating innovation and utilising a practical knowledge base transform how companies operate. This ultimately increases productivity and efficiency (Parsoya, 2021; Aroba, 2022). Therefore, this study investigates the changes caused by the use of cloud computing enterprise resource planning systems in the oil and gas industry, from demand and planning to procurement, production, and shipment.

Problem Statement

Several contemporary technologies in today's company operations are part of Industry 4.0. The researchers examined several of them and their varied uses or applications. In the cloud ERP, or any other company-wide software program, a gas company has inventory management challenges; both excess and inventory shortages can be disruptive and challenging in different ways. The supply chain industry experienced exceptionally high levels of volatility in 2020. In turn, supply chain management interruptions and problems impact a business's bottom line (Saha *et al.*, 2022). Human error and data repetition are incredibly likely to occur, which results in a staggering number of inefficiencies in any firm. Re-entering data and performing additional rounds of quality assurance not only consumes valuable time that could be spent concentrating on activities that generate revenue, but repetitive information can also be confusing, lengthen order times, result in compliance problems, and create customer service and chargeback issues (Aires and Abrantees, 2022). In the oil and gas industry, where the most seasoned workers are ready to retire in the next five to seven years, one of the significant issues is finding and keeping the most remarkable people in the workforce.

Traditional Enterprise Resource Planning (ERP) was initially created to schedule and plan materials. However, cloud ERP has gone beyond its original purpose and transformed into the most enormous, intricate organisational framework capable of delivering superior business development and management. According to Ghobakhloo *et al.* (2021), humans are part of the limitation (human errors) to traditional ERP in the oil and gas sector. The solution is cloud ERP since it can operate independently. Pre-sales activities include contacting potential customers, tracking customer orders from when they place them until the materials are shipped, creating sales invoices, and collecting payments from customers. The following is a list of the primary duties of traditional ERP softwares: customer mindset, process flow, and change management. Almost all oil and gas companies that invest in cloud ERP systems do so to increase their control over their financial processes (Robert and Richard, 2021).

Literature Review

An ERP is a type of business management software with integrated applications that enable an organisation to gather, manage, store, and understand data from various business activities, hence, facilitating the efficient operation of the company (Panjwani, 2021). An organisation's internal staff installs and maintains a traditional ERP system on PCs. A cloud-based ERP is a technological architecture in which the servers are located off-site in a data center and the business accesses the ERP online (Mandziuk, 2022). Similarly, the efficiency of businesses' daily operations

has increased due to the growing deployment of SAP ERP technologies. However, this expansion has not come without several challenges for the small and medium business sectors. Adopting and implementing proprietary SAP ERP is expensive for businesses. Second, due to the dynamic shift in the SME market, companies find it challenging to ensure that scalability is developed. This shows that the South African small and medium-sized enterprises (SME) market is not utilising widely available, affordable open-source SAP ERP.

Furthermore, the difficulties and effects of COVID-19 on African women-owned oil and gas supply chain enterprises have an adverse influence on the 17th target of the African Union (AU) Agenda 2063 because it was the supply chain business that was most significantly impacted during COVID-19. With the introduction of ERP, processes, and systems will be improved (Anwana and Aroba, 2022). Studies show that cloud ERP is a valuable software platform for increasing efficiency in the oil and gas industry. Extensive sectors and organisations, however, have transformed the realm of modern communication. The requirement for large commercial organisations in the oil and gas industry determines the use of this advanced software. The internal hardware and software of the organisations now implements some traditional ERP systems. There are many examples of cloud ERP software in use. There are gaps in the industry's technology integration because there is a gap in the market for oil and gas firms. A limited group of top vendors, such as Oracle, Microsoft, and SAP, are necessary when implementing a cloud ERP solution. Competition has been drawn to the corporate environment due to the intricacy of commercial activities. Planning and decision-making are essential to support integrating and optimising different businesses related to the system. Cloud ERP deployment gives the oil and gas industry a new dimension by enabling a seamless transition between the traditional ERP application in the sector and its consequences on the economy. Utilising efficient software, the oil and gas industry can manage crucial activities involving inventory and human resources (Mishra and Mishra, 2009).

Conventional ERP has several problems that can provide industrial businesses much information. Sales and logistics are linked with organisational duties in the cloud ERP's integrated structure. The bigger the industry, the more critical ERP systems are. Cloud ERP systems have impacted the oil and gas division, which have affected the oil and gas division. The system's integration and optimisation of multiple business processes helps the organisation. The accuracy with which cloud ERP systems adapt to resource management has increased their popularity (Cruz, 2022). The client-server system helps with corporate automation. These systems are regularly employed as part of corporate strategies that affect how the oil and gas industry functions.

The Use of ERP in Oil and Gas Industries

The oil and gas industry depends heavily on Enterprise Resource Planning (ERP), enabling end-to-end production reporting and allowing companies to watch the entire process. Through better administration, cost savings, and compliance requirements, ERP systems can raise worker safety standards. An oil and gas ERP system offers a complete picture of all activities and can spot supply shortages and bottlenecks before they become problematic (Miller, 2022). According to Kathryn (2022), the technical side of cloud ERP focuses on improvement through innovation. Transformation is considered in terms of analysing the existing operations and what value new technology solutions delivered as a result of its implementation. Traditional ERP involves one-time installation and deployment costs for businesses and specialist personnel to maintain and enhance server and database security. However, cloud ERP is built on a back-end cloud server, allowing for product upgrades without disrupting users' normal operations (JustPro, 2021).

Bristol (2021) states that ERP systems were created with networks in mind. This is especially true of the oil and gas sector, which relies on various administrative and technological support networks. For instance, oil and gas enterprises require physical infrastructure, people, and funds in addition to networked data sources and physical infrastructure. Users of ERP systems in the oil and gas sector can frequently identify difficulties and take immediate action to address them. Software alerts can be set up to intercept field system messages that might indicate a problem and escalate them to the relevant team for resolution; explicitly setting up automated warnings for any field activities that are delayed may be conceivable, given that drilling operations can take quite some time. One of the most crucial features of ERP systems for the oil and gas industry is interdepartmental collaboration because it improves the coherence of various procedures. Process modifications, creating upgrades, testing teams, and other things are examples of process collaboration in this industry. In other words, the operational staff and upper management must approve these procedures. These should be fully supported by an ERP system, including the workflow necessary to automate the approval processes.

Bristol (2021) states that cloud computing ERP is an advantage to the oil and gas industry in terms of streamlined information and integrating corporate processes. As a result, the oil and gas industry will benefit from improved coordination between multiple departments, including the ordering warehouse, accounting division, and client database. Order fulfillment is simpler to control with these branches in synchronous communication. Billing managers may process several orders at once thanks to cloud ERP. Additionally, the oil and gas truck drivers can ship

more orders in a single day and predict delivery times more precisely. Customers benefit from business' exceptional service and order delivery. However, JustPro (2021) says that traditional ERP's decentralised deployment is an advantage to the oil and gas industry as it dramatically improves operational efficiency. With the help of cloud-based ERP, oil and gas companies may reduce costs and better use the time typically devoted to process coordination. With cloud ERP, companies can increase efficiency and carry out tasks more quickly and easily.

With the time saved using cloud-based ERP, companies can invest those hours in business development which can help grow the oil and gas industry in ways they never would have thought possible. For instance, the oil and gas industry may focus more on customer service and arrange employee meetings to talk about how to do better in this regard. Also, businesses might spend more time, money, and effort on projects like online outreach and product development.

Limitation of Digital Transformation in Oil and Gas

When deploying a conventional ERP, there is a tendency to over-customise, especially if the day-to-day activities of the system differ significantly from those of the cloud ERP system. Customisation has benefits, no doubt, but expanding excessively in that way can have adverse repercussions that exceed the benefits (Panjwani, 2021).

According to Panjwani (2021), a big desire exists to adapt the cloud ERP system to existing procedure. However, this hardly ever happens. Neither choice is simple. In the majority of businesses, it is very challenging to modify old or existing procedures and tailoring the cloud ERP system to match current processes is an expensive and time-consuming endeavor. This, in the researcher's opinion, poses the most significant risk to the deployment of cloud ERP. Since the market rates for cloud ERP specialists are high, many firms have discovered that finding and keeping these professionals is challenging. Developers from the top ERP vendors, including SAP, Oracle, Microsoft Dynamics, and Infor, are in high demand and frequently switch between consulting projects. Therefore, not finding an internal ERP expert could be a significant risk for cloud ERP installation.

Critically, Stranfagen (2020) cites support for collaboration requirements, supporting intelligent human management of conveyor systems, reducing system opacity, giving aid towards adaptations, and supporting operators' non-technical skills as the five challenges of integrating digital transformation and supporting resilience in these systems. The study demonstrates that for activities to be robust, persons must interact with machines. Local differences in personnel control systems

are necessary to maintain safe operations while juggling competing goals like safety, efficiency, and quality. The study's planned oil and gas disruption assessment procedure is described in this section. The primary variables and factors involved in the disturbance must be recognised to assess the oil and gas supply chain disruption accurately. The following processes were used to determine these parameters: First, a comprehensive review of the literature was conducted, and seven critical factors associated with OGSC interruptions were identified, along with expert opinions. In the second step, each key OGSC disruption factor's sub-factor characteristics were determined using qualitative and quantitative techniques such as recent statistics, historical data, the frequentist approach, and expert opinion.

Solutions to the challenges and limitations of ERP.

According to Ghobakhloo *et al.* (2021), pre-sales activities include contacting potential customers, tracking customer orders from when they place them until the materials are shipped, creating sales invoices, and collecting payments from customers. The following is a list of the primary duties of cloud ERP: human resources, finance, management, and many more. Traditional ERP was initially created for the scheduling and planning of materials, however, cloud ERP has gone beyond its original purpose and transformed into the most extensive, intricate organisational framework capable of delivering superior business development and management. Humans are part of the limitation (human errors) to ERP in the oil and gas sector, but they are also needed for solutions since the machinery cannot operate by itself. Almost all oil and gas companies that invest in cloud ERP systems do so to increase their control over their financial processes.

Lui (2021) states that a growing number of businesses have actively used blockchain technology. In addition to the financial industry, supply chain management and logistics have also demonstrated the usefulness of the blockchain, which has received substantial coverage in scientific literature. While technically challenging and costly, adopting blockchain in logistics and Supply Chain Management (SCM) is necessary. Its distribution in various nations around the world is uneven in this sense. The strategic evaluation of energy's digital transition of ERP is essential in the supply chain management process in oil and gas: (1) The digital transformation improves energy scheduling and efficiently allocates resources; (2) Current vulnerabilities and potential threats are the key obstacles along with uncertainty; (3) The combined action of institutional, economy, technology, and behavior components achieve an effective plan to support the digital transformation of the energy industry.

Research Objectives

The nation's economic growth depends on the oil and gas industry. However, the value of cloud ERP solutions in the oil and gas sector cannot be disputed. This study aims to determine how cloud-based ERP systems use impacts this industry's output and efficiency. According to the questionnaire survey analysis, oil and gas sectors should deploy cloud ERP systems to accelerate growth across the board, supported by Welp Magazine (2020).

The research objective is to evaluate the effectiveness of cloud enterprise resource planning (ERP) software in the oil and gas industry. Secondly, to determine the limitations and challenges of ERP in the oil and gas supply chain industries. Thirdly, the study uses Cronbach's Alpha to analyse the responses from the survey.

Questions	Strongly agree	Agree	Moderate	Disagree	Strongly disagree
1. The cloud ERP system had a positive impact in oil and gas operations.					
2. ERP offers more effective ways to manage Procurement and supply of goods.					
3. Cloud ERP system is more relevant than Traditional ERP system in terms of Production processes cohesiveness.					
4. Cloud ERP system improved the service delivery- shipping being on time.					

Methodology

This study was conducted using a qualitative desktop approach. Using Cronbach's alpha to determine the internal consistency and reliability of the items included in the questionnaire, the researchers had to inspect how things operate in the oil and gas companies, developed a questionnaire survey, and observed how cloud ERP had an impact on the industry. The subject of the investigation is a prospective oil and gas supply chain industry professional, the methods used to collect survey data, and the methods used to deliver the findings.

To gain a deeper understanding of the perceptions, beliefs, and values of the oil and gas supply chain industries regarding traditional cloud ERP, in comparison to the new way of doing things, and because it is suitable for addressing this medium as was anticipated in the current research, a desktop and mixed method approach was chosen. Since their inception, questionnaires have played a significant role in the PISA survey. By providing data on the national learning contexts and standalone reporting indicators in addition to merely providing the background for reporting, they have significantly increased in relevance. To further this study, questionnaires were submitted to supply chain managers at different oil and gas companies. The number of managers that participated in answering the questionnaire was 55.

Research Questions

Questions that were part of the project focused on the following.

- i. Has the cloud ERP system positively impacted oil and gas operations?
- ii. Does ERP offer more effective ways to manage the Procurement and Supply of goods?
- iii. Is the Cloud ERP system more elevated compared to the Traditional ERP system in terms of Production process cohesiveness?
- iv. Did Cloud ERP improve the service delivery within the turnaround time?

For each question, each person was given five options to choose from, which determined whether a person agreed, disagreed, or is moderate regarding all the questions asked.

Data Analysis

The use of cloud ERP appears to have a positive impact on the operations of oil and gas companies. However, everyone concurs with the inquiries listed in Table 1, below. To gather additional opinions and information about potential changes that a cloud ERP system might have brought about

in the oil and gas industry at various levels of supply chain management, questions from the pilot questionnaires were presented, to which 55 respondents from different operational supply chain management units adequately responded.

After administering the survey, it was found that people had different perspectives toward the newly implemented cloud ERP system and the traditional ERP system. Based on the study, some people still preferred the traditional ERP system in the oil and gas industry. However, other employees from operational units of supply chain management were happy with a cloud-based ERP system. The figure below, Table 2, leads the percentage quarter from Q1 to Q2 results from 55 employees working at different supply chain management operational levels.

This study also conducted a reliability analysis to confirm the internal consistency and reliability of the items included in the questionnaire, as shown in Tables 2 and 3. According to Pallant (2007), Cronbach's Alpha coefficient for the scale, which shows that the items are homogeneous and measure the same constant, should be 0.70 or above for anything to be considered reliable.

Table 2: Cronbach's alpha coefficient outlier result

Cronbach Alpha and Related Statistics				
Items	Cronbach Alpha	Std. Alpha	G6(smc)	Average R
All itmes	0.8138	0.8148	0.7803	0.5238
Q1 excluded	0.7884	0.7921	0.7232	0.5595
Q2 excluded	0.7433	0.743	0.6663	0.4908
Q3 excluded	0.7646	0.7695	0.6904	0.5267
Q4 excluded	0.7637	0.7634	0.7004	0.5181

The reliability test result for the measuring scale is 0.81 in Tables 2 and 3. It can be concluded that all of the items for each construct have excellent reliability because Cronbach's alpha reliability score for all of the constructs is more significant than 0.70 (Nunnally, 1978). Consequently, the questionnaire is an accurate measurement tool.

Table 3: Cronbach's Alpha Coefficient

Construct	Cronbach's Alpha	No. of Item
Questions	0.81	4

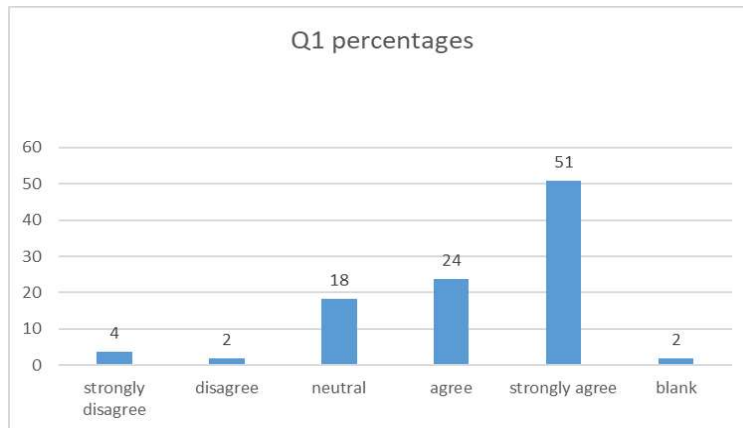


Figure 1: The impact on oil and gas operation

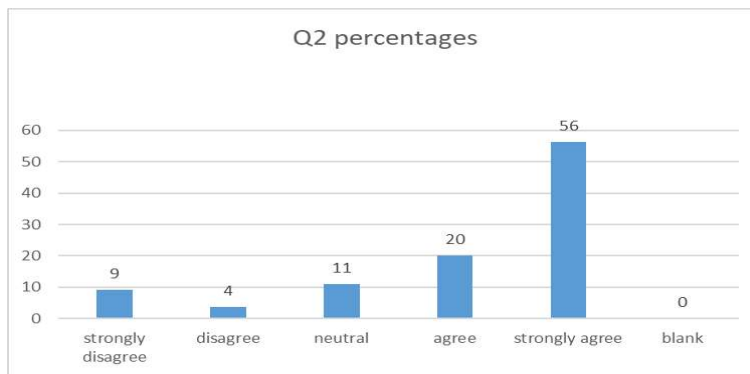


Figure 2: Effective management procurement of goods

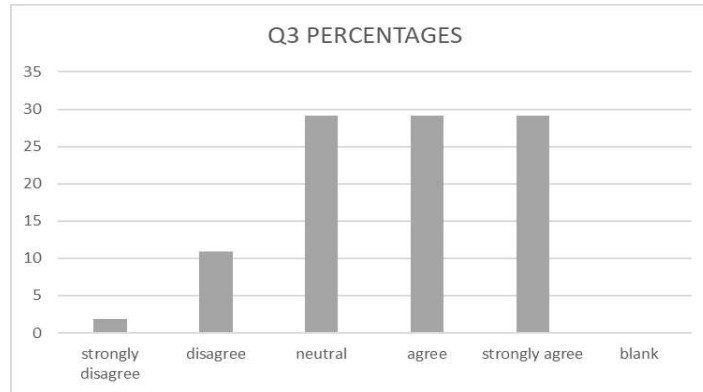


Figure 3: The ERP SAP System relevance

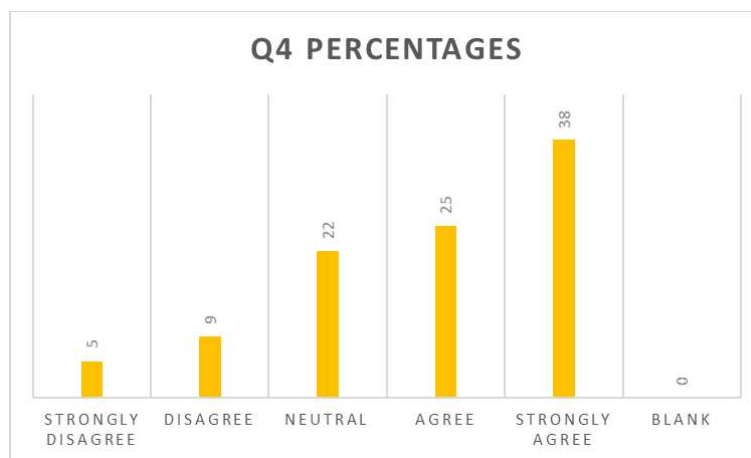


Figure 4: The ERP SAP system delivery

The bar graphs, above, are Figure 1 to Figure 4, represent the analysis of data shown from the questionnaire administered was displayed, and Figure 1's Q1 analysis shows that 51 percent strongly agree that the ERP systems have a significant impact on operational activities. In contrast, in Figure 2, Q2 figures show that 56 percent strongly agree that ERP is an effective, positive tool that enhances the procurement of goods and services. In Figure 3, Q3 figures show that 28 percent are both neutral and robust on the aspect of ERP. In Figure 4, Q4 figures show that 38 percent strongly agree that the ERP system improved service delivery in terms of shipping being on time within the supply chain.

Operation of Cloud ERP

Everything seems to be running smoothly after the implementation of cloud ERP. When orders are received, an ERP system designed for supply chain management can automatically generate demand. The ERP system improves supply chain management, as illustrated by Figure 5, below, as it allows for more efficient task scheduling. As a result, supervisors may see in real time which resources are being used and which are being consumed. A cloud ERP system designed for SCM provides a more efficient approach to manage the acquisition and supply of goods, services, and other resources across the supply chain. The ERP system's solutions handle all aspects of the supply chain, from managing manufacturing and warehouse resources to controlling transportation and execution processes.



Figure 5: Oil and gas supply chain distribution (Wang and Saputra, 2028)

Figure 1 also shows that, following the start of production, all records for machine and labor resources are created and updated in real time. For proper supply chain management, all shipping documents are recorded through the ERP system, eliminating errors caused by manual processes. After the item has been shipped, the ERP software can generate an invoice, which must then be sent to the customer. To ensure that items are delivered on time, an ERP system helps to maintain a central repository for customer shipments and all delivery details.

Discussion

In terms of managing operational data and boosting business effectiveness, ERP applications have long offered reliable tools. Traditional ERP has been disadvantageous in the oil and gas industrial sector since it must be updated frequently, and the hardware needed to run them must be purchased. The integration of ERP systems in the oil and gas industry has become more important for ERP systems in assisting the clients throughout the lifetime and in presenting the correct, accurate information required to make better decisions more quickly (Omni Account, 2022).

Earl (2021) states that cloud-based Enterprise Resource Planning (ERP) has quickly established itself as a critical component of company infrastructure in the oil and gas industrial sector. Accounting, warehouses, databases, papers, and spreadsheets are just a few examples of previously separate operations and sectors that can now be condensed in a shared interface for fast, all-encompassing access by authorised workers as organisations compete in the online marketplace. While most businesses believe that streamlining business processes is beneficial, few have done it.

There is quite a large number of Cloud ERP systems that have contributed to and resolved many issues that oil and gas industry organisations were struggling to solve in past decades, namely Oracle NetSuite, SAP Business by Design, SAP Business One ERP, Sage Intact. Many small and mid-sized oil and gas companies have chosen Oracle NetSuite as their ERP system. NetSuite ERP provides full functionality for oil and gas companies, that includes accounting, human resources, billing, asset management, customer relationship management, and sales order management. The SAP Business Design is a cloud-based ERP solution that is widely used by companies in the oil and gas industry. Because of its broad integrated functionality and localisation in more than 80 countries, SAP Business Design can handle growing oil and gas companies without requiring a substantial investment (Artsy, 2022).

Many small and mid-sized oil and gas enterprises have chosen SAP Business One as their ERP solution. Healthcare organisations can benefit from SAP Business One's broad features in the areas of finance, human resources, billing, asset management, CRM, and sales order administration. Sage Intacct is a great fit for businesses in the oil and gas industry thanks to its emphasis on billing and people-centric business processes. Sage Intacct offers financial management, billing, and human resources as a cloud ERP system designed for a minimal upfront cost (Muhammed, 2010). After the integration of a cloud ERP, there have been several documented problems that affect the oil and gas industry which were discovered that the cloud ERP system could not fix. The main drawbacks are security concerns, unforeseen expenses, ownership, and internet connectivity. The risk of providing access to organisational data is the main disadvantage of cloud-based solutions. Sensitive data is accessible to many companies, however, necessitating high clearance. This justifies defense and aerospace vendors' widespread use of on-premises systems.

There is a danger that hackers could steal clients' information if the data is available from everywhere. Although most cloud services have sophisticated security measures, Meg Robertson, a cybersecurity specialist at a website that rates writing services, constantly advises weighing advantages and potential hazards (Mandziuk, 2022).

The fact that cloud ERP solutions can cost more over time is another issue. Since many of these systems are modular, the more modules that are active, the higher the costs. In addition, these costs may be more than the initial investment they would have to make for on-premises solutions if they paid monthly fees for a long enough time. As a result, the supplier applies any updates consistently, whether they like it or not. Even while many firms might need to provide personnel with additional training to prepare for changes, there is no time for preparation with cloud-based software (Artsyl, 2022). Not to mention, the reliance on the reliability on stable internet connection increase if an organisation uses a cloud ERP system. They must carefully select an internet provider because they need a reliable internet connection to access the system. Future studies should overcome and resolve these abovementioned issues by implementing new resolutions.

Blanchard (2022) states that the new modules are being added to the cloud ERP market. Even though a company might not require every ERP tool available, they're probably sure to find one that will have a favorable effect. Supply chain management efficiency optimisation is a crucial business operation that must be carried out. Due to the large number of moving elements, supply chain management is frequently challenging. This is where ERP solutions are practical as business operations are well-managed. It offers a complete perspective on financial facts and this visibility is invaluable. According to Chen (2021), a cloud ERP system for accounting management includes time-saving solutions, including built-in processes that automate accounting and speed up data entry. It also improves financial management, resolves problems with cash flow, and streamlines the challenging accounts payable and accounts receivable processes. The cloud ERP software's finance and accounting module makes gathering, tracking, and analysing financial data from numerous departments simple. It may also produce several kinds of financial statements, such as balance sheets and profit and loss statements. With all of this automation, gathering data from around the company and using it to enhance business management is relatively easy.

A cloud ERP system for manufacturing offers many valuable operational and financial benefits in the oil and gas industry, at both the micro and macro level. The most notable benefits of cloud ERP for manufacturing companies are that it:

- Reduces duplication and automates procedures to boost efficiency.
- Improves production procedures to increase output.
- Allows for better inventory management, warehousing, transportation, and supply chains
- Lowers risk and boost compliance assurance.
- Offer clients better service.

- Consolidates departments and compare metrics across the organization.

The technology can also keep tabs on the efficiency of staff onboarding procedures. Such data is valuable and can be applied to future hiring processes. A vital element of the company's resources and a critical factor in its success is its workforce (Henriqson *et al.*, 2020).

All personnel matters no longer require an RHR team to produce reports as the database of the ERP system contains all the necessary data. With a few clicks, management may retrieve data on a single individual, an entire department, or the whole workforce. This ease of this regulated information access makes for better situational management and human resource planning. An ERP system can provide organisations the tools they need to tailor new-hire training to the company's unique requirements. The system can identify areas that require the most attention in regard to training and development by analysing the performance of prior and current employees. All employees' career development will be improved by using an ERP system because they can track their development and its implementation from the beginning (Pingkou and Lu, 2021).

A cloud ERP system also assists organisations in creating equitable shift schedules for every employee, considering leave, vacations, illness, and other special occasions. All adjustments to shifts or work-related events can be recorded to ensure fair compensation. Companies need to get the most out of their human resource management solutions if they aim to expedite the process, minimise paper files, and save time. With an ERP system, they can achieve this in the most equitable, effective, and organised way possible (Swati, 2022). The goal is to pay due attention to these attributes and ensure that the project is delivered on time and within budget, which appeals to the original business drivers.

Conclusion

In summary, digital transformation refers to enterprises reimagining themselves by adopting digital technologies. In this process, digital tools are adopted to create new or modified processes, cultural environments, organisational structures, and customer experiences to accommodate novel and demanding circumstances. The most crucial step in this process has been converting from traditional ERP systems, out-of-date versions of ERP, to cloud ERP systems, freshly integrated ERP systems. Thanks to the cloud ERP system, the oil and gas industry now operates more effectively, efficiently, and profitably. The demand and planning, procurement, production, and shipment processes, from supplier to consumer, are made simpler through cloud ERP. Finally, an ERP cloud solution for supply chain

management enables oil and gas companies to meet consumer demand while maintaining complete control over storage costs.

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