

Unveiling challenges and insights in cloud Enterprise Resource Planning systems adoption: A case study of the Oracle Fusion Cloud ERP

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Abstract. *The migration from legacy systems to cloud Enterprise Resource Planning systems is driven by technological advancements and competitive pressure, prompting companies to seek more agile and scalable solutions. Although developers and vendors aim to ease the adoption process, significant challenges persist and can lead to potential disruptions to business operations and affect the organisations' reputation. Starting from a qualitative approach, this study aims to explore and uncover the difficulties faced by end users across different roles and industries. An inductive examination of these challenges is undertaken using a thematic approach, focusing on one of the most acclaimed cloud Enterprise Resource Planning solutions, Oracle Fusion Cloud ERP. Continuing with a quantitative examination, the study comparatively analyses the challenges in terms of industry and their evolution from 2020 to 2023. The research sheds light on the breadth and depth of issues faced by direct beneficiaries, demonstrating that even highly regarded solutions exhibit a myriad of challenges. Therefore, our research provides valuable insights for businesses, practitioners, and researchers, enhancing their understanding of the subject and providing insights into strategic decisions related to adopting and using cloud Enterprise Resource Planning systems. Acknowledging and addressing these challenges is crucial for companies navigating the complexities of cloud Enterprise Resource Planning adoption to achieve the full potential of solutions and achieve sustainable competitive advantages in today's fast-paced business environment.*

Keywords: cloud Enterprise Resource Planning, challenges, user's reviews, insights, Oracle Fusion Cloud ERP.

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Introduction

The evolution of Enterprise Resource Planning (ERP) systems from on-premises to cloud prompts companies to move from outdated legacy systems to cloud ERP (CERP) solutions. This shift enables organisations to gain competitive advantages through real-time data insights and improve the overall business performance (Jayeola et al., 2022; Nguyen et al., 2024). According to Accenture (2020), approximately 70% of UK companies currently use some form of cloud computing technology in their ERP systems.

Cloud computing models significantly benefit both small and medium-sized enterprises (SMEs) and large enterprises (LEs). CERP solutions enable savings on initial capital investment for SMEs, thereby allowing companies to focus more on business operations. For LEs, in addition to cost savings, the capabilities of CERP systems in terms of flexibility, agility, scalability, and improved productivity can be used as an enabler of business value (Marinho et al., 2021).

A thorough understanding of the benefits and associated challenges is critical to the success of migrating to a CERP solution, given the numerous options available to organisations (Thanh, 2022), as the appropriate choice will address the stakeholders' needs while improving information, financial, and material flows (Naveed et al., 2021). In recent years, there has been considerable interest in this topic (Mahmood et al., 2020; Şahinaslan et al., 2023). However, further research is needed due to the ever-evolving nature of technology, diverse organisational contexts, and changing business processes. Therefore, Paulsson and Johansson (2023) argue that CERP systems should be examined from a socio-material perspective, as this approach, unlike technological determinism and social constructivism, considers the relationship between CERP systems and organisations in a more nuanced way and provides a better understanding of the challenges involved.

Although the previous research provided important insights into this topic, most studies focused on either SMEs or LEs and used bibliometric analysis (Saif et al., 2021; Şahinaslan et al., 2023) and systematic literature reviews (Abd Elmonem et al., 2016). In the relevant literature (Ali et al., 2023; Huang et al., 2023; Mahmood et al., 2020; Paulsson & Johansson, 2023; Razzaq et al., 2020; Tongsuksai et al., 2021; Salih et al., 2022a), various studies have been conducted, concentrating on particular aspects of the obstacles that organisations encounter. Nevertheless, these studies have a restricted geographical scope and cover only a limited number of dimensions. Therefore, this study examines the issues highlighted by the end users of one of Gartner's most endorsed CERP solutions (2023a, b) after evaluating and positioning vendors within specific markets based on their completeness of vision and ability to execute.

Building on the institutional theory that "explain[s] how organizations implement and apply similar institutional policies, structures and practices" (Abobakr et al., 2023, p. 873) through mimetic isomorphism (DiMaggio & Powell, 1983), we identify the user-perceived challenges of the most endorsed CERP solution for both product- and service-centric enterprises, namely Oracle Fusion Cloud ERP, seeking to uncover the most common challenges of this type of cloud systems. As some of the expected benefits associated with the

adoption of CERP solutions are difficult to achieve due to the business context and the user's expectations, it is crucial to have a complete understanding of the associated challenges to adapt and improve the systems to address the users' disappointment (Barna, 2024; González-Murillo, 2021; Vukman et al., 2024). To achieve the research objective, we started with a qualitative approach based on a thematic analysis of end user reviews published between 2020 and 2023, identifying several categories and subcategories of challenges. We then continued to examine comparatively the challenges between the type of industry (product versus service-centric) and their evolution during the examined period. Therefore, this study contributes significantly to the research on the challenges of CERP adoption by revealing the issues faced through a user-centric approach, helping decision makers to understand the potential drawbacks of the solutions that meet high standards of performance and capability.

The paper is structured into four parts. The first part reviews the relevant literature on the topic, focusing on the challenges associated with CERP adoption. The subsequent part describes the methodology used, focusing on collecting and analysing secondary data. Section three presents the results and discusses the findings, whilst the final part presents the conclusions, limitations, and future research directions.

Literature review

The evolution of ERP systems in the last decades has been crucial in developing almost, if not all, business fields. In the context of Industry 4.0, ERP systems have a significant role in supporting the horizontal and vertical integrations, being considered at the core of the modern enterprise (Isip, 2024; Lozano-Almansa et al., 2023; Rathnayake, 2022).

In assessing the factors that lead to the adoption of cloud computing solutions and CERP systems, the relevant literature (Ahn & Ahn, 2020; Ali et al., 2023; Barbieri et al., 2023; Cheung et al., 2023; Dima et al., 2022; Marinho et al., 2021; Morawiec & Sołtysik-Piorunkiewicz, 2023; Øverdal et al. 2022; Qutaishat et al., 2023; Tongsuksai et al., 2021) mainly focuses on two major theories: the diffusion of innovation (Rogers, 2010) and the technology organisation environment (Tornatzky & Fleischer, 1990). These theories provide the context for innovations' adoption and constitute a holistic approach to study the CERP phenomenon through a set of variables targeting the technological, organisational, and environmental contexts. The technological dimension focuses on the benefits, complexity, compatibility, and technological readiness. In contrast, the organisational dimension considers the company's competence, size, and top management support, while the last dimension targets regulatory compliance, competition, and supplier support (Marinho et al., 2021).

The migration from legacy and traditional IT infrastructure to a CERP system is considered significant due to the uncertainties involved (Paulsson & Johansson, 2023), not only in terms of the IT architecture but also in terms of the organisational processes and workflows. Therefore, it is necessary to carefully address these concerns and mitigate the associated risks and potential disruptions to the business model at the enterprise level.

The challenges faced when adopting or migrating to a CERP may vary depending on the organisation's size, with previous research suggesting that implementation-related challenges are more common in LEs than in SMEs (Haddara et al., 2022). After conducting a

systematic literature review, considering research studies published between 1999 and 2018 to examine ERP challenges, Mahmood et al. (2020) argue that CERP solutions face several specific issues, while the general issues are much more complex, focusing on project management, human resources, organisational and managerial aspects, as well as technical characteristics.

Following the examination of the relevant literature on the challenges associated with CERP systems, as shown in Table 1, the most common issue is data security and privacy, since in this context the vendors have a higher level of control and, depending on the implementation model, the cloud customer may give up all control.

Table 1. CERP challenges identified in the literature

Challenges	Phase	Source
Data security and privacy	Onward and upward	Al-Amin et al. (2023); Ali et al. (2023); Haddara et al. (2022); Jiang & Wang (2022); Mahmood et al. (2020); Marinho et al. (2021); Øverdal et al. (2022); Paulsson & Johansson (2023); Salih et al. (2021)
Network dependency and disruptions	Onward and upward	Ali et al. (2023); Paulsson & Johansson (2023); Salih et al. (2021)
System mobility	Onward and upward	Paulsson & Johansson (2023)
Vendor lock-in	Project chartering	Haddara et al. (2022); Marinho et al. (2021); Øverdal et al. (2022); Paulsson & Johansson (2023);
Scalability	Onward and upward	Paulsson & Johansson (2023)
Service level agreement issues	Project chartering	Mahmood et al. (2020); Kedziora (2022)
Performance	Onward and upward	Haddara et al. (2022); Jiang & Wang (2022); Mahmood et al. (2020)
Cloud awareness	All phases	Ali et al. (2023); Mahmood et al. (2020); Salih et al. (2021); Malaquias et al. (2023)
Subscription costs	Onward and upward	Ali et al. (2023); Jiang & Wang (2022); Mahmood et al. (2020); Tongsuksai et al. (2021); Salih et al. (2021)
Limited interoperability and compatibility	Configuration and rollout, Shakedown testing, Onward and upward	Ali et al. (2023); Marinho et al. (2021); Tongsuksai et al. (2021)
Improper governance and organisational issues	Shakedown testing	Ali et al. (2023); Tongsuksai et al. (2021); Salih et al. (2021)
Customization	Project chartering	Haddara et al. (2022)
Compliance	Configuration and rollout	
Integration		
Data extraction		
Readiness		
Reliability	Shakedown testing	Haddara et al. (2022); Salih et al. (2021)
	Onward and upward	
		Haddara et al. (2022)

Source: Authors' own research.

Although scalability is one of the most frequently cited benefits of the CERP solutions (Marinho et al., 2021), Paulsson and Johansson (2023) question the status quo after analysing

the related challenges with a focus on architecture by arguing that this feature could pose a problem if there is a sudden increase in demand for scalability.

These studies provide important insights into the challenges of CERP, highlighting the topic's importance and the need for a comprehensive understanding of the issues. In this regard, we propose the following research questions:

RQ1. What are the specific challenges end users encounter when wielding a CERP solution?

RQ2. Are the challenges consistent in terms of the end users' industry?

RQ3. How have the challenges evolved during the analysed period?

Methodology

This study examines the challenges faced by end users, who are the direct beneficiaries of the systems, in the context of a leading CERP solution for both product and service-centric organisations. To achieve this objective, we employed an inductive archival research approach, followed by a quantitative analysis, seeking answers to the formulated research questions derived from the study's main scope.

The first step focused on identifying the most endorsed CERP solution based on relevant market reports. The second phase of the research involved collecting end user reviews, which were used in the subsequent steps as outlined in the research design (Figure 1).

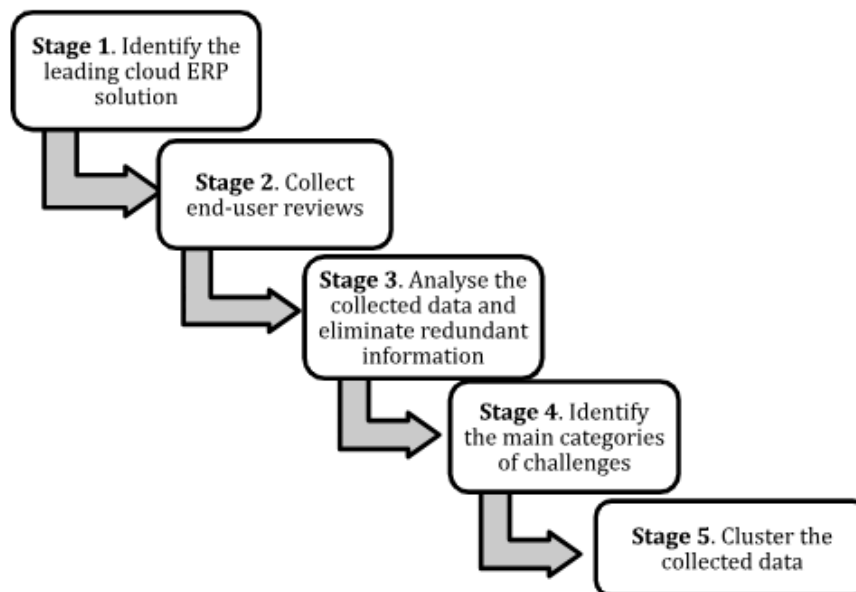


Figure 1. The research design of the inductive analysis

Source: Authors' own processing.

Case selection

The selection of the CERP system was based on the reports provided by Gartner (2023a, b), a leading technology research and advisory firm (Pollock et al., 2022), whose evaluation framework ranks IT solutions based on their ability to execute and completeness of vision. According to the latest reports, the leading CERP solution for both product and service-

centric companies is represented by Oracle Fusion Cloud ERP, a modular and configurable CERP designed for organisations in the upper mid-market and LEs. Moreover, the Oracle Cloud ERP represents a benchmark for generativity (Sun et al., 2021), managing to assume a pioneer role in the disruptive innovations field "while not abandoning the needs of its customers with respect to traditional products" (Fuzes, 2020, p. 45).

Data collection

To investigate the challenges that end users face when dealing with a CERP solution, we wielded the reviews available on the Gartner peer insight platform, which is considered a reliable source of unbiased expert opinion (Dahabiyeh, 2021; Bhatt et al., 2022; Liang & Kim, 2022).

The reviews available on the Gartner's Peer Insight platform mainly include an overall comment on the products, the perceived benefits and challenges of using the CERP solution, details about the reviewer (job title and role), organisation data (industry, size, and country), and the factors that influenced the purchase decision. Other more comprehensive reviews also include insights into the business needs that prompted the purchase decision, reflections on the organisation's past actions, and recommendations for potential customers considering the CERP solution.

From a total of 364 end user reviews as of 9 January 2024, we collected all reviews (169 ratings: 57 for the product-centric enterprises and 112 for the service-centric enterprises) posted between 2020 and 2023. By not excluding any of the reviews posted in the mentioned period, we eliminate the potential bias that might have been determined by particular industries. Thus, we argue that the sample size is representative across industries. Most of the analysed reviews were published in 2020 (50.29%), with 84 reviews recorded between 2021 and 2023, as shown in Figure 2. Unlike the Oracle competitors from the leader quadrant, during the examined timespan, the Oracle Fusion Cloud ERP solution was placed in the leader quadrant for both product-centric (Oracle, 2023) and service-centric enterprises (Oracle, 2022).

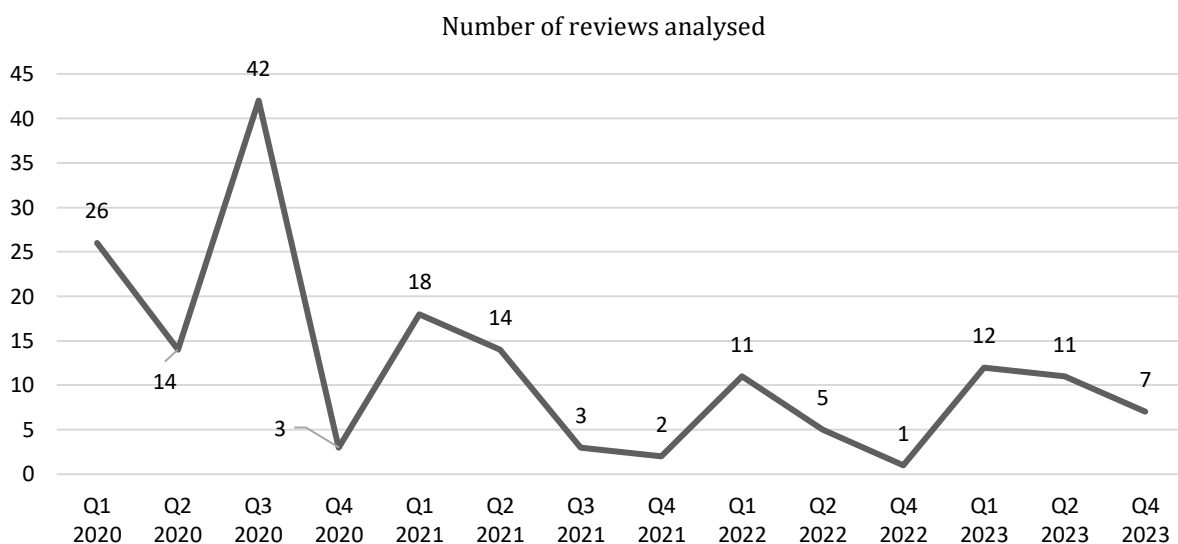


Figure 2. Number of reviews by quarter.

Source: Authors' own processing.

In terms of the financial size of the organisations, most of the reviewers work for companies with an annual turnover of between USD 50 million and USD 500 million (43.20%). Of the total, 166 are private companies, while only three are public organisations. In terms of industry, most end users work in the IT sector, followed by manufacturing and services, as indicated in Table 2. The reviewers come from various professional backgrounds, including accounting, information technology, management, business development, engineering, quality assurance, and other miscellaneous roles, with the majority being IT professionals.

Table 2. Number of companies by industry

Industry	Number of companies	Industry	Number of companies
Banking	6	IT Services	38
Construction	6	Manufacturing	17
Consumer Goods	10	Media	5
Education	1	Miscellaneous	13
Energy and Utilities	3	Real Estate	2
Finance (non-banking)	9	Retail	9
Government	2	Services	15
Hardware	1	Telecommunication	9
Healthcare and Biotech	10	Transportation	7
Insurance (except health)	3	Travel and Hospitality	3

Source: Authors' own processing.

Data analysis and clustering

We conducted a thematic analysis based on the collected reviews to examine the issues presented under the section "What do you dislike most about the product or service?", following the process proposed by Braun and Clarke (2006). All users' review comments were manually analysed and open-coded. The statements were split into text units where more than one challenge was presented to better capture each issue under descriptive codes. Out of 169 statements, 32 review comments did not indicate any challenges, with users stating that they were mostly satisfied with the CERP solution. At the same time, for the remaining 137 observations we assigned 203 descriptive codes. Once each issue was identified, a process of clustering was used to group similar issues into broader, more general categories. The identified categories were then presented under general dimensions. This systematic approach allowed for a comprehensive understanding of the challenges encountered and facilitated the extraction of themes from the collected data. All co-authors iteratively conducted this process. When discrepancies were identified, we discussed the particular cases to reach a consensus. At the end of this process, no divergences were left unaddressed.

To address the other two research questions, we gave a score to each review across the identified dimensions. For example, if a user highlighted, in a comment, two distinct technical issues and one operational issue, the review would get a score of 1 for the operational dimension and a score of 2 for the technical dimension, with all other dimensions

receiving a score of 0. The reviews' scores were then used in wielding a quantitative analysis to explore the differences between the challenges in terms of industry (product-centric versus service-centric) and their evolution during the analysed period. Non-parametric tests were chosen to examine the data due to its ordinal nature, potential violations of normality assumptions, and differences between sample sizes.

Results and discussions

Specific challenges encountered by end users

Following the thematic analysis, which was conducted to address the first research question, namely, to identify the specific challenges end users encounter when utilising a CERP solution, four dimensions were identified. These were derived from the 17 categories of issues determined through the analysis and clustering process, as illustrated in Figure 3.

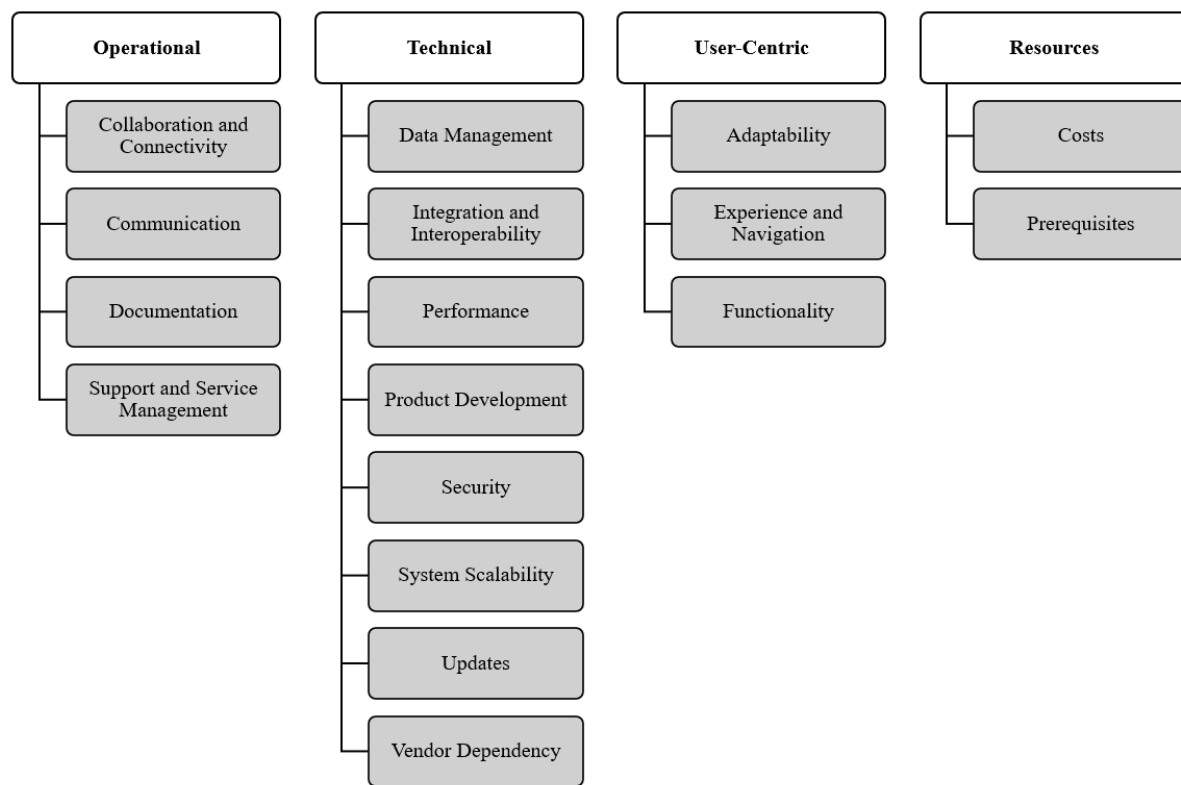


Figure 3. Dimensions and related categories of issues

Source: Authors' own processing.

Operational challenges

This dimension consists of 27 descriptive codes, focusing on the challenges highlighted by the end users, targeting the processes, procedures, and management aspects essential for the system's effective operation.

The collaboration and connectivity category refers to the application's connectivity features. It highlights the users' need for more connectivity options for team members, stating that the current setting can hinder collaborative work and information sharing between departments. Haddara et al. (2022) also identified this issue in the case of SMEs, although previous research argues that CERP solutions can enable collaboration and

connectivity (Ali et al., 2023). Although we only identified two review comments highlighting this issue, it underlines the importance of robust data connectivity and collaboration capabilities within the CERP systems, regardless of organisational size or industry, to optimise operational efficiency and effectiveness.

The second category addresses communication issues with the implementation team and the vendor. The first category of challenges highlighted a limited understanding of business needs, while the latter suggested a lack of proactive communication, resulting in unexpected disruptions that impacted the operational activities. In this regard, one end user, from its role of integration manager, stated that companies are not always advised on time regarding major changes initiated by the software developers.

To address such barriers, Muhic et al. (2023) argue that management processes should be implemented, which could increase trust between the cloud solution's vendors and the end users.

As for the documentation-related issues, some reviewers state that the training materials available should be improved, especially for users who are less familiar with the technology. In contrast, others consider that the materials provided are insufficient in terms of either detail or language. Clear and user-friendly documentation can improve the users' experience. Given that the perceived ease of use represents an important determinant of the intention to continue adopting CERP systems and successful implementation (Kuo et al., 2023), developers and vendors should focus more on the clarity and completeness of the documentation. In addition, proper documentation can reduce the learning curve and the need for additional training, resulting in an improved user experience and increased productivity.

The service and support management category encompasses the largest number of statements (19 observations) allocated to this dimension. The end users indicated several different issues, from support team delays in assisting with queries to out-of-system escalations and tedious resolutions.

Having the right level of support enables organisations to minimise downtime and avoid potential business disruption. In addition, rapid issue resolution ensures the continuity of critical processes, allowing users to quickly overcome obstacles and continue to use the system to its full potential.

Limited support can be caused by several factors, including internal vendor processes, the volume of requests, the complexity of the systems, and even communication issues, such as language barriers between the users and support staff. However, one user' statement underlined the importance of user self-sufficiency and resourcefulness, emphasising that while vendor support is essential, a skilled and knowledgeable workforce can effectively manage technical challenges and maintain operational efficiency even without external support.

Technical challenges

This dimension covers 74 issues, illustrating the depth and breadth of the challenges end users face. Given their complexity and diversity, presenting them in a structured way is essential to facilitate a comprehensive analysis. Table 3 summarises and organises these

issues for ease of reading and comprehension, allowing a systematic examination of the different categories and sub-categories.

Table 3. Technical categories and subcategories of challenges

Category	Subcategories
Data management	Data validation complexities Mismatches in process handling
Integration and interoperability	Compatibility issues and integration difficulties Ill-time integration
Performance	Complex error handling High processing time Limited features Loss of service
Product development	Abrupt changes Additional developments needed Slow enhancements
Security	Time-consuming settings
System scalability	Limited scalability capacities
Updates	Bug-ridden updates Frequent updates required Limited control
Vendor dependency	Vendor lock-in

Source: Authors' own processing.

Cloud computing solutions have been promoted as a means of improving data management in the new era of IoT by providing a consolidated and consistent view of the company's data (Gupta et al., 2018; Petrasch & Hentschke, 2016). Although we only discovered two statements addressing this issue, improper data management, either due to the complexity of the dataset or inconsistencies, is a critical issue as it can lead to operational delays and reporting errors, directly affecting users' dissatisfaction and resistance.

In terms of integration and interoperability, 18 issues were identified, most of them concerning compatibility issues. Researchers have observed limited interoperability and compatibility issues in recent years, as presented in the literature review. Marinho et al. (2021) highlighted that this is a crucial factor in adopting CERP solutions.

The users point out a series of issues related to compatibility, which determines whether they should use APIs in order to use third-party applications or rely mainly on Oracle systems due to the difficulty of integrating other solutions.

Another issue identified in this category concerns untimely integrations. Users state that sometimes the initial setup can require a considerable amount of time and emphasise that the system works smoothly once the setup process is complete.

A total of 29 items have been allocated in the performance category, with the majority of issues concerning the long processing time for both the CERP platform and the associated mobile applications. However, as presented by reviewers, this issue is not widespread; instead, it targets only specific modules and reporting features available in the application. Another issue within this category is complex error handling. Several statements emphasised

the rigid processes and error-prone functionality within the CERP solution, indicating a lack of flexibility and time-consuming activities.

In terms of limited or inefficient functionality, users report difficulties retrieving reports and other documents and suggest potential improvements in available functionality, such as data analysis. These shortcomings can negatively impact the users' experience, leading to a decrease in efficiency and productivity while limiting the organisation's ability to gain insight from its data.

Another issue from this category, highlighted in a single review, is the loss of service due to frequent server downtimes. This can result in a disruption of workflow and decreased productivity. However, the user provided limited information and given the various factors that can lead to such a problem (Haddara et al., 2022), we could not identify the cause.

The system's quality and performance are among the most important enablers of the CERP implementation, as argued by Ali et al. (2023). With respect to product development, users mostly noted the length of time required to deploy new features, to integrate enhancement requests into the product, and the unavailability of related mobile applications for specific modules. Moreover, we identified one case where the enhancements resulted in several issues, which outlined the challenges and frustrations experienced by users during the transition to the new accounting standard.

Although the literature on CERP-related challenges primarily focuses on data security and privacy, we only identified one issue in the collected dataset. This issue pertains to the time required to set up the constraints rather than security and privacy concerns. While this finding indicates a difference between the perceived challenges discussed in the literature and the actual issues users face, it is essential to note that data security and privacy concerns should not be overlooked.

As noted in the literature review, scalability is considered a significant advantage of the CERP solutions. However, as Paulsson and Johansson (2023) argue, this can also present challenges. The dataset analysis revealed two review comments focusing on CERP's limited scalability. The users, one IT manager and one IT director, mentioned problems with large datasets, suggesting that the current capabilities for extracting or importing large volumes of data may be insufficient or inefficient. If not adequately addressed, this issue can impact the data-driven decision-making process, subsequently reducing operational efficiency and increasing the risk of errors caused by a lack of data integrity.

Analysing the review comments that mention updates-related challenges, the focus is on both the frequency and the bug-ridden patches. As indicated by a senior vice president of financial operations working for a media company, users feel they have limited control and that updates generate a need for re-adjustment and learning. Although faulty updates can stem from various factors, such as software complexity, compatibility issues, rapid release cycles, or testing limitations, vendors should consider improving testing methodologies, enhancing quality assurance processes, and prioritising stability and reliability in software development practices.

Vendor dependency, specifically vendor lock-in, refers to the difficulty of switching to an alternative supplier, thus impacting the customer's flexibility and bargaining power. While this issue is common in the literature, only one user, a key account manager of a service-centric company, has addressed it in the reviews, focusing on limited integration with third-

party solutions and the difficulty of choosing another vendor in the future. Kinnunen (2021) suggests that this factor contributes to discontinuance, implying that vendors may intentionally create such scenarios.

While Paulsson and Johansson (2023) suggest that this issue can be at least partially mitigated by merging different cloud solutions that meet business needs, they also acknowledge that the relevant literature does not provide guidance on the pre-adoption phase to address these risks due to the complexity of the topic. Nevertheless, Haddara et al. (2022, p. 976) suggest that if such a risk exists, companies should "negotiate a service level agreement (SLA) [that] could help the two parties consolidate their expectations and understanding of the agreement".

User-centric challenges

The user-centric dimension is a crucial aspect of the system's design. It focuses on the characteristics essential for ensuring the user's satisfaction, productivity, and engagement by prioritising their needs and preferences. Of the total 203 codes, 54 have been assigned to this dimension within three categories that reveal potential issues that could impact the overall satisfaction of end users.

In the adaptability category, we identified ten review comments pointing to the lack of flexibility and adaptability of the CERP solution analysed. While some reviewers consider this to be the most significant issue of the solution, others believe that it is an area that can be improved, or they are attempting to find workarounds and rely on custom developments.

A high level of flexibility and reliable customisation of the ERP-based solutions is important to align the systems' capabilities to the business processes without altering the activities (Ibrahim et al., 2019). Examining the factors that impact the adoption of CERP solutions, Salih et al. (2021) discovered that add-ons and customisation represent critical success factors, allowing companies to integrate additional features. However, given that a high degree of flexibility and adaptability might generate additional risks and malfunctions in the system, this characteristic might be a double-edged sword. Therefore, some researchers (Parthasarathy & Padmapriya, 2023) consider that the level of customization should be minimal for an effective ERP implementation.

Ten statements regarding functionality were identified. Users' concerns are mostly related to the mobile application's failure to provide all necessary features and to the challenges posed by business-specific requirements. Limited functionalities may negatively influence the user's overall experience and satisfaction, leading to a decrease in continuance intentions. Therefore, addressing functional issues is critical to maintain operational efficiency and reduce resistance.

The category with the most frequent statements was experience and navigation, which primarily focused on the outdated and cumbersome interface, especially for users with limited exposure to CERP solutions. As noted in several comments, the visual design and aesthetics did not meet some users' expectations, and the lack of intuitiveness could lead to inefficient use. Furthermore, concise error messages are a particular concern when onboarding new staff, who should receive clear and informative error messages for guidance.

The topic of user experience has been extensively researched in light of human-computer interactions. This is not only because perceived ease of use contributes to the

continuance intention, as emphasised by Kuo et al. (2023), but also because it can improve learning and performance (Prasetyo & Soliman, 2021), thus reducing the overall learning curve and training costs.

Resources challenges

The resource dimension (48 observations) encompasses two main categories of issues: the costs associated with the CERP solution and adoption prerequisites.

Although cost-related issues should not be a problem for the companies analysed, given that the majority are LEs, 22 of the examined statements presented this aspect as one of the challenges associated with the CERP, especially if this solution is to be used by an SME. However, it appears that users appreciate the available features and consider the costs justified. Similarly, by examining the impact of the CERP solutions on the firm's performance, Hamad and Yassin (2022) found that the adoption increased the return ratio while also contributing to decreasing the cost ratio. Thus, although adopting CERP might initially lead to an increase in costs, it could also reduce operational costs in the post-implementation phase.

Several subcategories have been identified as prerequisites for using the CERP solution: a reliable internet connection, technical proficiency, support from the change management team, and adequate training. The solution is designed to be used online, so network dependency could be an issue, especially if the organisation does not have a fast internet connection.

Although the real-time data access and reporting capabilities are seen as an unquestionable advantage of CERP solutions, their proper functioning depends on Internet access, thereby creating a network dependency. While some vendors might offer limited online functionalities, the data cannot be synchronised.

Having practitioners with limited technical knowledge may pose a challenge when migrating to a CERP system; however, as highlighted in several reviews, the users' adaptability seems to play a vital role in overcoming this aspect. Inadequate user training and poor knowledge of ERP solutions can lead to implementation failure. In this context, Salih et al. (2022b) argue that ensuring an appropriate pre- and post-implementation training level will reduce users' resistance and create a positive attitude.

Comparative analysis results

To examine whether the challenges are consistent in terms of the end users' industry and their evolution during the analysed period (RQ2 and RQ3), we wielded in SPSS V.18 the Mann-Whitney U and Kruskal-Wallis tests after assessing whether the dataset meets the assumption of homogeneity of variance by using the Levene's test (tables 4 and 5), having for all cases a p-value greater than 0.05 and therefore accepting the null hypothesis that the homogeneity of variance assumption is met (Kerr et al., 2022).

Table 4. Test of Homogeneity of Variance (based on company type)

		Levene Statistic	df1	df2	Sig.
Operational	Based on Median	.042	1	135	0.837
	Based on the Median and with adjusted df	.042	1	134.932	0.837
Technical	Based on Median	.272	1	135	0.603
	Based on the Median and with adjusted df	.272	1	127.907	0.603
User_Centric	Based on Median	.113	1	135	0.737
	Based on the Median and with adjusted df	.113	1	130.142	0.737
Resources	Based on Median	1.295	1	135	0.257
	Based on the Median and with adjusted df	1.295	1	134.452	0.257

Note: Levene Statistic – the Levene's test value; df1, df2– degrees of freedom; Sig. – the probability value for Levene's test.

Source: Authors' own processing.

Table 5. Test of Homogeneity of Variance (based on review year)

		Levene Statistic	df1	df2	Sig.
Operational	Based on Median	2.481	3	133	0.064
	Based on the Median and with adjusted df	2.481	3	118.493	0.064
Technical	Based on Median	.362	3	133	0.780
	Based on the Median and with adjusted df	.362	3	127.645	0.780
User_Centric	Based on Median	1.444	3	133	0.233
	Based on the Median and with adjusted df	1.444	3	125.144	0.233
Resources	Based on Median	2.497	3	133	0.063
	Based on the Median and with adjusted df	2.497	3	110.004	0.064

Note: Levene Statistic – the Levene's test value; df1, df2– degrees of freedom; Sig. – the probability value for Levene's test.

Source: Authors' own processing.

By employing the Mann-Whitney U test, we assessed whether there are differences between the challenges encountered by Oracle Fusion's users in terms of the company type: product-centric enterprises (PCE) versus service-centric enterprises (SCE). The results are presented in Table 6, revealing no significant differences in the challenges faced by product-centric versus service-centric enterprises ($p > 0.05$ across all categories).

Table 6. Results of the Mann-Whitney U test

	Operational		Technical		User_Centric		Resources	
	PCE	SCE	PCE	SCE	PCE	SCE	PCE	SCE
Mean Rank	68.34	69.35	73.16	66.76	68.83	69.09	64.05	71.67
Sum of Ranks	3280.50	6172.50	3511.50	5941.50	3304.00	6149.00	3074.50	6378.50
N	48	89	48	89	48	89	48	89
Mann-Whitney U	2104.500		1936.500		2128.000		1898.500	
Wilcoxon W	3280.500		5941.500		3304.000		3074.500	
Z	-0.206		-1.016		-0.043		-1.357	
Asymp. Sig. (2-tailed)	0.837		0.309		0.966		0.175	

Source: Authors' own processing.

Although some nuances may be specific to products and services-centred enterprises, this result highlights that the type of activity does not influence the challenges users face. The outcome might be determined by the similarities of the solutions, the business standard practices, and other external factors. Another possible reason could be the fact that the reviewing users have similar CERP skills, although, as presented in the methodology, their backgrounds are diverse.

We used the Kruskal-Wallis test to examine whether the typologies of challenges changed during the analysed period. The results are centralised in Table 7.

Table 7. Results of the Kruskal-Wallis test

	Year	N	Mean Rank	Chi-square	df	Asymp. Sig.
Operational	2020	53	63.25	7.206	3	0.066
	2021	37	66.61			
	2022	17	79.68			
	2023	30	76.05			
Technical	2020	53	65.03	1.649	3	0.648
	2021	37	74.47			
	2022	17	71.03			
	2023	30	68.12			
User_Centric	2020	53	70.95	4.722	3	0.193
	2021	37	62.23			
	2022	17	61.82			
	2023	30	77.97			
Resources	2020	53	71.87	5.953	3	0.114

	2021	37	69.05			
	2022	17	79.29			
	2023	30	58.03			

Source: Authors' own processing.

As in the previous comparative analysis, the Kruskal-Wallis test revealed no significant differences in the CERP solution' challenges between the analysed periods ($p > 0.05$ across all categories). Given that during the examined time span, the company maintained its status as a leader for both product-centric and service-centric enterprises, this outcome suggests that the challenges might arise mostly from the business models, users' expectations and skills, and the industries' specificities.

While previous literature on the critical success factors of successful ERP implementations did not succeed in generalising the findings in terms of product versus service-centric enterprises (Salih et al., 2022b), the findings indicate that there is no statistical difference between these two types of industries. The stability of the user challenges during the analysed period suggests that the issues encountered by users are not simply implementation errors but are related to the software company's approach. Consequently, under the institutional change perspective, these outcomes indicate that technology may act as an agent of change on a broader level (Schiavi et al., 2024).

Discussions

The present research examines end users' challenges in the context of CERP solutions by answering three research questions. Firstly, using a dataset of review comments, we examined the specific challenges that practitioners from different sectors face when using a CERP solution. Secondly, we investigated whether the challenges are consistent across industries (service versus product). Finally, we analysed the evolution of the challenges over time.

The first point addressed in this research highlighted the existence of four main categories of challenges, with the most common issues being recorded under technical aspects. This result is in line with the research carried out by Haddara et al. (2022) and Paulsson and Johansson (2023) while extending the results for large companies by focusing on real business scenarios. Uncovering the user-centric dimension, the second most common category of challenges from the dataset, which has received less attention in the relevant literature, highlights the importance of end users in the seamless integration of CERP solutions. Consistent with the findings of Kuo et al. (2023), the continuance intention can be predicted by the user self-efficacy, perceived ease of use, and the solution's quality in terms of information provided, system functionality, and service.

In terms of the frequency of codes, the third dimension is represented by costs and requirements. While most end users seem to have a general understanding of the costs involved, this factor is less important in the context of their companies compared to SMEs (Tongsuksai et al., 2021). The most unexpected finding in the dataset's context was that companies sometimes lack technical competence, support from the change management team, and adequate training. Although such factors have been identified in the case of SMEs

(Tongsuksai et al., 2021), given that most end users work for large companies, this result paves the way for more detailed research into how companies address these factors.

Even though the lowest number of challenges was recorded under the operational dimension, this finding should not be disregarded, given the limited attention it has received in the relevant literature. The items clustered in this dimension are critical to successfully implementing CERP solutions.

By uncovering the challenges faced by the end users of the most endorsed CERP solution for both product- and service-centric organisations, we were able to contribute to the existing research by overcoming the limitations of the industry (Vukman et al., 2024) and addressing the critical gaps highlighted by the relevant literature (González-Murillo, 2021). Moreover, given the end users' diverse professional backgrounds, we captured the distinct perspectives of IT and non-IT professionals, which enabled us to identify a wide range of difficulties across different functional roles within organisations. This outcome allows a better understanding of the factors that can affect the users' satisfaction with the solutions and enables organisations to address these issues to improve both the continuance intention and individual performance. Furthermore, by examining the most endorsed CERP solution through the theoretical lens of mimetic isomorphism, the findings provide a deeper insight into the challenges of most CERP solutions (Abobakr et al., 2023).

The results regarding the consistency of challenges across industries and over the analysed period point to a number of factors that could have led to such results. The first element could be related to the fact that companies have defined their business processes to reflect the capabilities of CERP solutions, indicating a harmonisation of practices across industries. Secondly, the lack of change over the analysed period suggests a generalisable set of challenges. To our knowledge, this is the first study to examine these aspects comparatively and longitudinally.

Based on these findings, we argue that companies should focus on a series of factors when migrating to a CERP solution. Among the most important aspects, as revealed by the end users, is the thorough understanding of the business requirements. The "one size fits all" approach may be the root cause of several of the identified challenges. Therefore, when considering a CERP solution, it is important for companies to conduct a comprehensive analysis and invest resources in understanding the impact of such a change on the company's business model and end users. In addition, the research findings highlight the importance of selecting the appropriate CERP solution. As a higher degree of customisation may present unexpected challenges, companies should evaluate whether modifying their business processes to accommodate the new solution is beneficial or if developing in-house solutions that align more closely with their specific requirements would be a more optimal approach.

Conclusion

Building on the institutional theory, namely on the mimetic processes that argue that the industry imitates the best practices employed by leading competitors, this study investigated the challenges encountered by end users of Oracle Fusion Cloud ERP, the leading CERP solution for both product and service-centred enterprises. Through an inductive research approach based on review comments from professionals using this solution, we identified a wide range of challenges. Based on the inductive analysis results, we also adopted a

quantitative approach to examine whether the types of challenges are influenced by the industry type (product-centric versus service-centric enterprises) and how these have evolved during the analysed period.

Wielding a thematic analysis, the 137 reviews were open-coded and clustered into more general categories across four main dimensions: operational, technical, user-centric, and resources. This illustrated the depth and breadth of challenges faced by end users. The reviewers' diverse backgrounds and roles within their respective organisations provided valuable insights for businesses, practitioners, and researchers.

The study's first finding relates to the diversity of challenges encountered, revealing that the business models and the direct beneficiaries further extend the complexity of CERP systems. The operational dimension indicates that the collaboration and connectivity features can sometimes be limited and affect information sharing and teamwork, while the communication and documentation categories point to issues that can disrupt business operations. Upon examining the support and service management challenges faced by end users, which represented the majority of issues in this category, it was observed that specific improvements could be made. Additionally, it was noted that the users' self-sufficiency and resourcefulness are essential components. The second dimension effectively conveys the technical challenges, covering various issues such as performance, data management, integration, interoperability, product development, scalability, and updates. It is evident that even the most widely accepted CERP solutions are not immune to these issues. Additionally, we have found that some users are aware of the risks associated with vendor dependency. After investigating the user-centric aspects, it is clear that the experience, navigation, and limited flexibility are important factors that not only impact the intention to continue using the product but can also result in additional training costs and a steeper learning curve. Finally, regarding resources, the main challenges are the costs, which might be a concern for some organisations, and the need for training, technical proficiency, and support from the change management team.

The study's second finding relates to the diversity of the reviews. It was found that the issues highlighted by end users are not overwhelmingly focused on one element but rather reflect various challenges that seem to vary depending on the practitioner's background and the business's specific aspects. Given the wide range of industries in which the companies operate, specific challenges seem to emerge, even though the CERP solution is available for both product and service-centric enterprises.

The third finding highlights that during the analysed period, there were no significant changes in the issues encountered by the end users and that the industry type did not influence their taxonomy. The factors behind the issues are most likely related to the business models and complexity, expectations and experience of end users, and external factors.

By reconfirming most of the common issues related to CERP solutions addressed in the literature and extending the list by analysing one of the most advocated solutions, this study extends the knowledge on this topic and provides important insights. The potential bias of the end users represented an uncontrolled factor. However, as the Gartner Peer Insights platforms receive reviews from a diverse set of users across different industries, roles, and regions and we have collected all the reflections without eliminating any review from the analysed period, we consider that we managed to address the potential personal

bias issues. Another limitation is the difficulty of conducting additional robustness checks to include external factors potentially influencing CERP-related challenges. As the reviewers only disclosed the industry and the company's size where they are using the CERP solution, we could not identify any indirect factors. However, by focusing on factors within the company's control, we have been able to provide practical guidance on how to overcome the specific challenges faced by companies. Finally, as this study is limited to the leading developer of CERP solutions, in light of the institutional theory and mimetic institutional pressures, it does not consider other systems that are also in the leaders' quadrant in second or third place. Nevertheless, this could be a potential area for future research.

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