

Understanding User Perceptions of AI-Enabled ERP Systems: A Qualitative Study

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Abstract

As AI reshapes enterprise systems, its success lies not in algorithms alone but in the eyes of those who use it daily. This study investigates how professionals perceive AI-enabled ERP systems, what makes them trust, hesitate, or adopt. Through semi-structured interviews with experienced users in different managerial positions, we explore how explainability, usability and automation inform user confidence and perceived value. Participants voiced optimism about automation's ability to reduce errors and enhance performance, but insisted on clarity, auditability, and human oversight as non-negotiable values. Trust, we found, is neither instant nor absolute; it builds through repeated exposure, transparent logic, and peer validation. Our conceptual framework, grounded in TAM and enriched with trust and transparency theories, served both as guide and lens throughout the inquiry. The findings highlight that intelligent systems are adopted not because they work, but because they are understood, trusted, and made to work with people..

Keywords

AI-enabled ERP, Explainability, Usability, Automation, Trust, Technology adoption, Qualitative research

1. Introduction

Enterprise Resource Planning (ERP) systems have long served as the digital backbone of organizational operations. Today, they are undergoing significant transformation through the integration of artificial intelligence (AI), which adds new layers of automation, adaptive features and predictive capabilities [1]. Building on this evolution, AI-enabled ERP systems are not only optimizing workflows and supporting informed decision-making, by making processes more intelligent, agile, and efficient [2][3], but as they gain autonomy and complexity, they can also become less transparent and intuitive, bringing new concerns about usability, transparency and user trust [4]. In this shifting landscape, these systems' effectiveness hinges not just on technical capabilities but on how users engage with and make sense of these technologies in everyday practice [5]. Although existing research has focused on algorithmic performance, it tends to overlook the lived experiences and perceptions of professionals who interact with these systems routinely. To address this gap, this study explores how users perceive AI functionalities in ERP systems, and how factors such as explainability, usability, and automation shape their trust, perceived value, and adoption behavior. Grounded in the Technology Acceptance Model (TAM) [6] and insights from trust and transparency research, we developed a conceptual framework to guide our qualitative inquiry. Through interviews with experienced users, this study investigates the conditions under which intelligent ERP technologies are adopted, not just for their technical capabilities, but because they are perceived as clear, trustworthy, and effectively aligned with everyday practices.

PoEM2025: Companion Proceedings of the 18th IFIP Working Conference on the Practice of Enterprise Modeling: PoEM Forum, Doctoral Consortium, Business Case and Tool Forum, Workshops, December 3-5, 2025, Geneva, Switzerland

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2. Theoretical foundations and conceptual background

2.1. Artificial intelligence integration into ERP systems

The integration of AI into ERP systems marks a profound reimagining of enterprise technologies, not just in what they do, but in how they behave, learn, and collaborate with their users. ERP systems are evolving into intelligent ecosystems that respond dynamically to organizational complexity. AI doesn't only enhance these systems; it reshapes their purpose, pushing ERP from a back-office record keeper [1] to a proactive decision support agent, capable of autonomous process execution [2].

The enhancements AI brings aim to make enterprise systems more responsive, less labor intensive, and more strategic in scope [3]. As Yathiraju [4] emphasizes, AI models learn from historical and real time data, optimizing performance across tasks and enhancing operational foresight.

Despite these benefits, the complexity of AI models introduces significant interpretability issues. AI often operate as a "black box", relying on complex and non-linear algorithms that obscure their decision-making processes.

2.2. Explainability as a driver of perceived transparency and trust

Within AI-Enabled ERP systems, explainability has emerged as a foundational quality attribute. It is about making the system's reasoning visible and understandable, and its ability to provide meaningful explanations for its outputs, allowing users to comprehend how decisions are made or actions are carried out [5]. When users can follow the logic behind, the system becomes easier to trust. Recent research emphasizes that explainability is not only a technical feature but a critical enabler of perceived transparency, which reflects the openness, visibility and interpretability of AI processes from the user's perspective [5].

This relationship is significant because transparency functions as a channel to trust, and a transparent system helps build user confidence, especially in areas where trust in the system is key [4]. This link is reinforced by the work of Esmaeilzadeh [11]. In contrast, unclear systems that operate as "black boxes" can increase uncertainty and hesitation, which eventually can hinder users' engagement and acceptance.

Thus, explainability strengthens transparency, which in turn fosters trust, together creating a pathway toward user acceptance and adoption of AI-Enabled ERP systems.

2.3. Usability and user perceptions: ease and usefulness

Usability goes beyond interface design quality or visual layout; it reflects how intuitively users can navigate and interact with a system. Being a factor closely tied to user experience, usability feeds directly into two core concepts from the Technology Acceptance Model (TAM) [6]: how easy the system is to use, and how helpful it appears to be for accomplishing tasks. Moreover, Mlekus et al. [7] highlight that when a system is easy to operate, use, understand, and trust lead users to assess them as both less effortful and more beneficial to their work performance.

This connection is also supported by findings from Harsanto et al. [13], who applied the TAM framework to digital services adoption, and found that systems perceived as user-friendly and adequate to practical needs, were more likely to be adopted and retained. Their empirical model confirms that intuitive design makes a system easier to use and makes it easier to see the value in using it.

In this sense, usability impacts the users' assessment of AI-enabled ERP systems, and contributes to their acceptance and adoption intention.

2.4. Automation level of AI functionalities and perceived usefulness

The level of automation in AI-enabled ERP indicates the ability of the system to handle tasks or make decisions without any human intervention or input. This feature changes the perception of users regarding a system's usefulness level. As shown by Na et al. [14], the more a system provides help with operations' efficiency, decision making, and workload reduction, the more it is seen as valuable and useful. It boosts satisfaction and encourages adoption. Also, the participants of the research pointed out that automation is a key driver of efficiency, especially in an environment where heavy data is being processed.

Moreover, According to Bademosi and Issa [15], automation or autonomous technologies are appreciated when they deliver concrete benefits such as cost reduction, and smoother processes. Nevertheless, they insist that automation has strong potential only if it is perceived to be reliable, trustworthy and specific to the context it's being used in.

These findings point to a common thread, automation provided by AI functionalities strongly contribute to users' evaluation of usefulness. Systems that provide balanced levels of autonomy and user control are more likely to be perceived as useful, particularly when users recognize tangible improvements, accuracy, and support.

2.5. Perceptions and trust as determinants of acceptance and adoption intention

Perceiving a system as useful and easy to use is a fundamental condition for its acceptance. Yet, when it comes to systems marked by autonomy and high impact, trust is just as essential. As AI functionalities are expected to take on greater responsibilities in enterprise processes, trust operates alongside perceptions that determine user acceptance. Together, perceived usefulness, ease of use, and trust shape user perceptions and influence behavioral intention [8] [9], while models like TAM focus on usefulness and usability as key drivers of adoption intention. However, recent research shows that those positive perceptions alone are not sufficient for acceptance, but it is also important to establish trust to reduce uncertainty and encourage actual use [10] [11].

3. Conceptual framework of the study

This study is guided by a conceptual framework that structures the exploration of how users perceive AI-Enabled ERP systems. Grounded in the Technology Acceptance Model (TAM) and complemented by the theoretical background delineated in the previous section, the framework aims to emphasize the mechanisms through which three technological features, namely explainability, usability and automation level, shape users' perceptions and acceptance. Rather than testing this framework quantitatively, it serves as a sensitizing structure for the qualitative inquiry, informing the design of interview questions and guiding the thematic coding process. This framework articulates how users interpret the functionalities of AI systems in ERP settings and how these interpretations translate into acceptance or resistance.

3.1. Overview of main concepts

The model identifies three primary technological characteristics of AI-Enabled ERP systems:

- **Explainability**, defined as the degree to which the system's logic and decision processes can be understood by users, is hypothesized to shape perceived transparency [10].
- **Usability**, reflecting how easy and functional the system is for end users, influences perceived ease of use [12] [13].
- **Automation level**, referred to the extent to which the system operates independently without user intervention, is a factor expected to affect perceived usefulness [15] [14].

These perceptions in turn influence trust [11] [4], and ultimately shape acceptance and adoption intention [6] [18] [19] [17].

3.2. Conceptual relationships and logic

Fig. 1 shows the conceptual framework of our study. This framework draws upon both classical and contemporary foundations of technology acceptance, relevant to AI-enabled ERP systems. It follows a layered logic, where explainability serves as the foundation for transparency [10], which in turn conditions trust in the system. Trust subsequently acts as a mediator in forming favorable user attitudes [19] [17]. Similarly, usability conditions perceptions of ease [12], while automation contributes to perceived usefulness through efficiency and reduced operating burden [15].

While Davis’s (1989) [6] original theory remains fundamental to understanding technology acceptance, recent developments, such as the integration of explainability and automation, reflect the specific affordances and risks of intelligent systems. This model acknowledges that newer elements such as transparency and automation level modify these classical constructs in the AI context. Ultimately, all intermediate perceptions converge toward influencing acceptance and adoption intention, which remains the central focus.

3.3. Role in guiding the exploration

The framework served as an analytical lens to inform data collection and interpretation. Interview protocols were structured to capture users’ subjective experiences related to system transparency, ease of interaction, perceived utility, and trust. During data analysis, it enabled a theoretically informed coding structure while still allowing inductive insights to emerge.

Instead of limiting the scope of findings, the framework served to anchor the study in real user experiences while building on established theory. In this way, this model is a flexible tool for organizing and interpreting the complexity of user perceptions in a dynamic technological context.

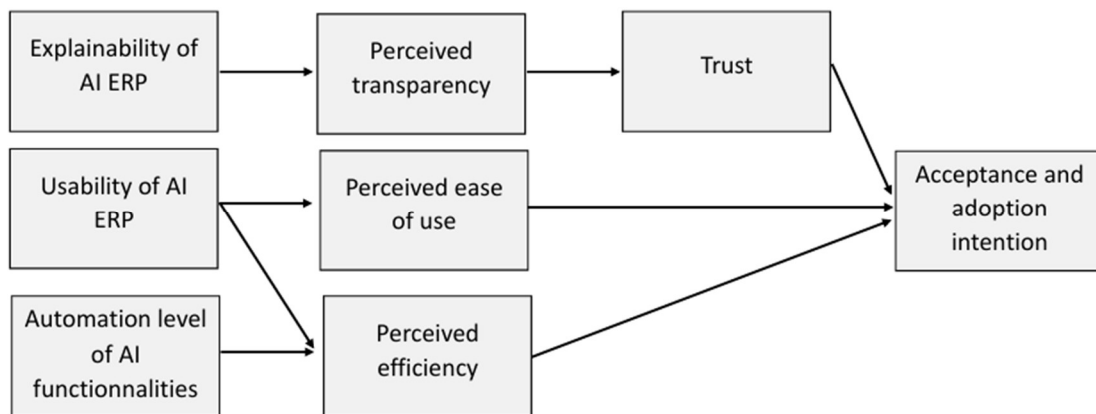


Figure 1: Conceptual framework of the study.

4. Methodology

4.1. Research design

This study adopts a qualitative, exploratory research design to investigate user perceptions of AI-Enabled ERP systems. Given the novelty and complexity of integrating AI into ERP systems, qualitative inquiry is well-suited to capture how users interpret, evaluate, and respond to these evolving technologies. The goal is to build rich descriptions of the realities of organizational practice.

According to the formulated framework, the research question of our study is formulated as follows:

RQ1: How do users perceive and experience the explainability, usability, and automation of AI functionalities in ERP systems, and how do these perceptions shape their trust and willingness to adopt such systems?

4.2. Data collection

Data were collected through semi-structured interviews with five participants selected through purposive sampling. All selected participants (1) had established experience in their roles, (2) regularly used ERP systems, and (3) held managerial or decision-making positions (see **Table 1**). These inclusion criteria ensured participants had sufficient expertise and contextual familiarity to offer informed reflections on AI functionalities within ERP environments. An interview guide was developed around the key dimensions of the conceptual framework. Interviews were conducted via secure online platforms. Each session lasted 35-50 minutes, and were transcribed and anonymized with the participants' consent. An excerpt of the interview guide is shown in **Table 2**.

Table 1

Demographic characteristics of participants

Participants	Age	Gender	Sector	Position
Participant 1	29	Female	Transportation and Logistics	Process Lead
Participant 2	28	Female	Transportation and Logistics	Senior Accounting Specialist
Participant 3	27	Male	Financial services and Insurance	Accounting and reporting specialist
Participant 4	26	Male	Transportation and Logistics	Category buyer
Participant 5	27	Male	Basic materials and chemicals	Controller

Table 2

Excerpt from the semi-structured interview guide

Theme	Examples of questions
Trust in AI functionalities	<ul style="list-style-type: none"> • What factors would make you trust AI functionalities embedded in ERP systems? • Are there any concerns or doubts you have when it comes to trusting AI decisions in ERP?
Explainability and Transparency	<ul style="list-style-type: none"> • How does the transparency of AI decision-making in ERP systems affect your confidence in using them? • How important is it for you to understand how the AI functionalities make decisions within the ERP system?
Usability and ease of use	<ul style="list-style-type: none"> • What would you expect regarding the ease of use if AI functionalities were added to your ERP system? • Have you found current invoice processing interfaces efficient? How could AI improve, or complicate that experience?

4.3. Data analysis

The interview data were examined using thematic analysis, following the six-phase approach outlined by Braun and Clarke (2006) [20]. The process involved familiarizing with the data, coding inductively and deductively, identifying and refining themes, and linking them to the theoretical framework. Manual coding offered flexibility to capture unanticipated insights and allowed the analysis to evolve in response to the data.

4.4. Ethical considerations

Before data collection, participants were informed about the study's objectives and procedures, and about their rights of withdrawing at any point during the interview process.

5. Findings

5.1. Thematic overview

The qualitative analysis of five participant interviews revealed six major themes that reflect user perceptions of AI-enabled ERP systems. These themes represent critical factors shaping the user experience and influencing trust, perceived value, and adoption intention. Participants, who occupy managerial roles and actively use ERP systems in their day-to-day work, offered diverse yet converging perspectives on the integration of AI features into enterprise processes. The developed themes are shown in **Table 3**. These themes emerged both deductively from the conceptual framework and inductively through user narratives. The frequency and salience of each theme are reflected across participants' roles and experiences.

Table 3

Summary of emerging themes

Theme	Subthemes	Description
Explainability and transparency	Understanding logic, algorithm visibility	Users need to understand how AI makes decisions to build trust and ensure accountability
Usability and interface simplicity	Simplicity, clarity, intuitive interaction	Users favor systems that are easy to navigate and reduce cognitive load
Perceived usefulness of automation	Efficiency, time-saving, workload relief	Automation is appreciated when it reduces manual tasks and enhances productivity
Trust, oversight, and risk concerns	Human validation, error tolerance, control, system opacity	Trust in AI depends on consistent performance, the ability to verify actions, and confidence in oversight mechanisms. Users also voiced concerns about errors and unclear responsibilities
Adoption conditions and expectations	Training, transparency, override options	Adoption depends on explainability, training, managerial support, and system configurability

5.2. Theme 1: Explainability and Transparency

A central theme across all interviews was the importance of explainability. Participants consistently highlighted the need to understand how AI makes decisions within ERP systems, particularly when those decisions impact financial, operational, or compliance processes.

Participant 1 clearly stated *“I need to see the reasons behind before trusting any decision... we need to have the explanation to the management team. We cannot only say that the system is saying that... I need to know the reasons behind any analysis or any decision.”* For her, transparency is not only about seeing outcomes but understanding the underlying rationale, what data was used, how it was processed, and how the conclusion was reached.

This traceability was echoed by Participant 5 as well, who explained: *“Of course transparency, is key. More the model is transparent more I will trust it. That includes where the data comes from and how it is processed and how it gets to the final results.”* He acknowledged that while technical transparency is not always essential for daily use, it becomes critical when AI recommendations diverge from expectations. *“If I can’t understand how or why a decision was made, it becomes very hard to rely on it with confidence”*, he noted.

Explainability was seen not only as a technical feature but also as a condition for transparency and ultimately trust. Several participants emphasized that explainability is essential for accountability, especially in contexts where the system’s recommendations might conflict with organizational policy or personal judgment as Participant 2 stated *“Yes, because I think everything in our daily tasks, need to be approved and reviewed by someone else. So, peer review is a must.”* These insights reveal a clear priority: users welcome AI but expect it to be transparent, traceable, and aligned with human logic. For them, explainability is not optional, but essential to responsible and trusted adoption.

5.3. Theme 2: Usability and interface simplicity

Participants expressed a strong preference for ERP systems that are intuitive, clear, and minimize the cognitive load. This theme was particularly salient among users who perform tasks under time pressure or handle large volumes of data. They also emphasized that while ERP systems may seem complex at first, they become manageable with familiarity.

Participant 1 shared: *“at the beginning, it may be complicated to get familiar with an ERP system... but then... it’s not that hard to know how to use the ERP”*. Similarly, Participant 2 noted: *“IFS 10 can be complex... and requires a proper training. But for now, I’m used to it, and I find it very simple... in my daily tasks”*.

AI was seen as a way to enhance usability, provided it reduces, and not adds, complexity. Participant 4 highlighted that *“three or four necessary clicks to reach... a window or a menu... can be modeled easier”* and that AI *“is an opportunity to make it easier... and user friendly”*. He added that it could *“eliminate the repetitive tasks or the repetitive clicks... it’s annoying a bit...”*, but concluded that if *“the tool is user-friendly and easy to integrate into what we already do... I’d be all for it”* as long as it *“adds value without creating more complexity”*.

Yet simplicity alone isn't enough. Participant 5 warned, *“only adding the functionalities is not sufficient, training people and engaging is more important”*.

Usability was also linked to the perceived ease of use, echoing the Technology Acceptance Model (TAM). Participants appreciated systems that offered clear dashboards, visual cues, and customizable views. Poor usability was seen as a barrier to adoption, regardless of how advanced the AI features were, as Participant 4 affirmed *“what’s really exciting is how AI is making ERP systems more user friendly and easy to use”*.

5.4. Theme 3: Perceived usefulness of automation

The perceived usefulness of AI-driven automation emerged as another major theme. Participants generally welcomed automation for repetitive or low-value tasks, highlighting benefits such as speed, error reduction, and operational consistency.

For example, one participant described AI in ERP as *“super helpful on the automation side of the transactional steps that any employee in any department needs to go through... it will be super, super helpful in that regard.”* (Participant 4).

Similarly, participants appreciated how AI could take over repetitive tasks. Participant 5 affirmed: *“Yes of course AI can help every job in his daily work, we all have some repetitive things where AI can play a pivot role.”*

Another participant expected *“time saving automation, since we have many repetitive tasks, improve accuracy, ... reduce manual invoice match and detect anomalies in vendor payments.”* (Participant 2).

However, participants stressed that automation must be meaningful and context-aware. Blind automation without business logic or adaptability was viewed as risky and frustrating.

5.5. Theme 4: Trust, oversight, and risk concerns

Trust was a recurrent concern throughout the interviews. While participants recognized the potential of AI, they were reluctant to rely on it without human oversight. Trust was closely tied to explainability, system performance, and the ability to intervene when necessary.

For example, Participant 1 admitted: *“At the beginning, I will not trust it, to be honest.”* Initial skepticism was tied to understanding how AI arrives at its outputs. Participant 5 noted that *“...if I can't understand how or why a decision was made, it becomes very hard to rely on it with confidence”*, highlighting the need for clear reasoning behind AI decisions to maintain trust.

Participants emphasized the importance of maintaining a human-in-the-loop approach. In parallel, concerns were raised about the possibility of system errors and the lack of clarity over who is ultimately responsible for decisions taken based on AI recommendations.

Participant 3 warned, *“The risks I associate with AI include false results... and relying too heavily on AI without a human review... we have to... keep a human level of control.”* In line with this, Participant 4 stated, *“Of course, I would worry about over-reliance on AI. You can't trust the suggestions that he gives 100%.”* Participant 2 likewise pointed to *“data security concerns or over reliance on automated suggestions, like losing the human oversight that is often critical in finance... risks would make me more cautious and ... rely on AI only as a support tool rather than a decision maker.”*

These concerns, especially around control and error management, often acted as barriers to adoption, signaling the need for clearer oversight mechanisms and the ability for users to retain final decision-making authority.

5.6. Theme 5: Adoption conditions and expectations

Finally, participants articulated a set of conditions under which they would feel confident adopting AI-enabled ERP systems. A common theme was the need for adequate preparation and user training.

Participant 1 explained that *“The phase of testing or training is very, very important because it can influence you to build the trust or it can guide you to not use these solutions at all. So, this is the first point of taking the decision to even accept to use this kind of solutions or not.”*

Participant 3 similarly emphasized that *“every new thing needs training to master.”* Participant 5 agreed that simply introducing AI is not enough, stating *“Only adding the functionalities is not sufficient, training people and engaging is more important... if these features are integrated but employees don't understand how to use them or don't see their value, they'll just be ignored.”* Ensuring users are well-trained, comfortable, and see the personal value in the new tools was viewed as critical for successful adoption.

In addition to training, participants expected to see tangible improvements and a smooth integration of AI into their workflows. For instance, Participant 4 said, *“Honestly, what would really push me to adopt them is seeing that they actually help me save time and improve how I work. If the AI can handle repetitive tasks, like processing standard POs, matching invoices, or generating quick reports, that’s a big plus.”*

Participant 2 recommended a careful rollout, noting *“I think AI adoption should be a gradual and accompanied by proper trainings and transparency first, and maybe for detecting anomalies, forecasting payments or even optimizing processes, it will be a great tool.”*

Rather than rejecting AI, users expressed a conditional willingness to adopt, dependent on institutional safeguards and personal empowerment.

6. Discussion

The study sheds light on the nuanced perspectives of ERP users facing the integration of AI features into their daily work routines. The findings reveal that participants across various roles expressed a cautious but growing interest in AI-enabled ERP systems, particularly in how these technologies can reduce workload and enhance operational efficiency. Many viewed AI as a valuable assistant in handling repetitive or time-consuming tasks, such as invoice matching, purchase order generation, and anomaly detection, or any task that currently demands manual effort and delay. For some, especially those in procurement and finance, AI’s ability to perform such actions in seconds rather than hours signaled a clear shift toward more agile and responsive processes. However, this optimism was balanced by a set of consistent concerns: AI must be transparent, explainable, and always under human control.

Rather than approaching AI as a replacement for human work, participants viewed it as a tool that must complement professional expertise. There was a strong preference for AI that supports decision-making, not one that attempts to fully automate them. This was particularly evident in areas like supplier negotiation or financial approvals, where context, nuance, and human interaction remain essential. One participant referred to negotiation as “an art” that AI should not replicate, suggesting that while AI can assist, it shouldn’t attempt to take over roles where human intuition and experience are key. The consensus was clear: automation should empower professionals, not sideline them.

A central condition for trusting AI recommendations was the ability to understand and explain them. Explainability was not treated as a purely technical feature but as a relational function, one that enables users to trace logic, justify actions, and feel confident in the outcome, especially in high-stakes or regulated environments like finance. Many stressed the need to see how data was processed and what logic drove the outcomes. When that transparency was missing, trust in the system quickly diminished. On the other hand, AI tools that made their process visible, or at least offered clues about the data and assumptions behind a suggestion, were considered far more trustworthy and usable.

Usability itself emerged as a critical component in this relationship. Participants did not separate ease of use from system credibility. ERP platforms are already known for their complexity; adding AI features that are difficult to navigate or understand would only make adoption harder. AI integration was most welcomed when it simplified processes, reducing unnecessary steps, anticipating user needs, or highlighting relevant data without requiring extensive manual queries. Some described ideal scenarios in which AI could automatically detect missing invoice fields, suggest corrections, or even generate pre-structured communication for suppliers, seamlessly, without complicating the interface. In such cases, usability was not considered a bonus feature but a necessary condition for acceptance.

As AI systems take on more autonomy, users increasingly feel the need to stay in control. Many participants spoke about starting with a cautious approach, double-checking every AI suggestion before relying on it. Trust didn’t come instantly; it had to be earned through repeated, accurate results over time. For some, trust was a gradual accumulation of positive experience, not something that could be assumed from the outset.

In the end, adoption of AI-enabled ERP systems was not described as a purely technical issue. It was shaped more by user alignment, transparency, usability, and usefulness of the automation tools themselves. Participants were not asking for perfection but for clarity, and a design approach that keep the human user at the center. When these conditions are met, when AI is accurate, explainable, easy to use, and framed as a collaborative tool, users are not only willing but eager to adopt it.

7. Threats to validity

Following Wohlin et al. [21], four validity dimensions were considered to ensure the rigor and credibility of this study. Construct validity was addressed by designing the interview guide based on the Technology Acceptance Model (TAM) and recent AI-TAM extensions (trust, explainability, usability, automation). Terms were clarified and piloted to enhance consistency, though self-reported data may introduce minor interpretive variation. Internal validity was strengthened through neutral questioning, consistent protocols, and concrete examples, yet contextual factors such as company culture or prior ERP experience may still have influenced responses. External validity is limited due to the small purposive sample; however, the findings aim for analytic rather than statistical generalization, offering transferable insights into TAM and trust-based adoption. Conclusion validity was reinforced by systematic coding, triangulation of statements, and use of participants' own words to minimize bias. Interpretations remain cautious, describing observed patterns consistent with prior TAM and AI research.

8. Conclusion

As enterprise technologies grow more autonomous, their success will rely not only on performance but on their ability to align with users' expectations, workflows, and values. This study highlights that the adoption of AI-enabled ERP systems in managerial contexts depends on more than technical sophistication. Core system attributes shape users' perceptions of transparency, ease of use, and efficiency, which in turn influence trust and ultimately the intention to adopt. Trust emerged as a critical bridge between system design and user engagement, which stresses the importance of making AI functionalities understandable, reliable, and supportive of human judgment. This calls for a design that must remain fundamentally human-centered, transparent, responsive, and accountable.

Future research may further explore sector-specific dynamics, longitudinal changes in trust, and the role of institutional culture in shaping AI adoption trajectories. Studies could also expand these insights by examining how these adoption factors evolve over time, particularly as users become more familiar with AI-driven systems. Additionally, comparative research across industries or cultural contexts could shed light on how sector-specific needs and organizational norms shape the adoption intention. Finally, including perspectives from IT developers may also clarify where strategic and technical priorities align or diverge in AI integration.

Acknowledgements

The research work behind this paper was conducted with the support of the Centre National de la Recherche Scientifique et Technique CNRS under the "PhD Associate Scholarship - PASS" program and within the context of an Erasmus mobility program, both of which contributed to the successful completion of this work. This work was also supported by the project PID2024-156019OB-I00 under funding schema MICIU /AEI /10.13039/501100011033 / FEDER, UE. We also extend my sincere gratitude to all interview respondents, whose time, insights, and openness were invaluable to the empirical phase of this research.

Declaration on Generative AI

During the preparation of this work, the authors used ChatGPT, for language editing, including grammar and spelling correction and minor rephrasing. The authors reviewed and edited the content and take full responsibility for the publication's content.

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