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The impact of laissez-faire leadership style on the intention to use artificial intelligence technology in lebanese banks: The role of perceived usefulness and ease of use

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Abstract While transformational leadership style is commonly linked with innovation adoption, this paper focuses on the effect of laissez-faire leadership on AI adoption intentions. Drawing on the technology acceptance model, this study examines whether a hands-off leadership approach impedes the formation of perceived usefulness and ease of use. In Lebanon, there is a lack in adopting AI, and there is scarcity in studies which tackle this issue and discover the reasons behind it. The gap exists in the ignorance of what affects the intention to use AI, and what are the variables that influence the decision to adopt AI. The research is conducted to enhance this gap. A quantitative, deductive research methodology was employed, utilizing a questionnaire distributed to Lebanese banking leaders. A total of 250 valid responses were collected online. Reliability and validity of the measurement model were assessed using SPSS, Structural equation modeling with AMOS was applied to evaluate the hypothesized relationships. The findings reveal that laissez-faire leadership does not significantly promote perceived ease of use, negatively impacts perceived usefulness, and may even foster uncertainty and resistance. Additionally, perceived usefulness and perceived ease of use both exhibit a positive and significant influence on the intention to use AI. Furthermore, perceived ease of use positively affects perceived usefulness, reinforcinginterconnectedness of TAM constructs. This paper emphasizes the risks of passive leadership in the digital age, and highlights the need for Lebanese banks to adopt a user-centric and leadership-supported approach to digital transformation that ensures that employees not only see the value of technology but also feel confident and competent in its use.

Keywords: digital transformation, technology acceptance model, innovation adoption, employee engagement, behavioral intention

1. Introduction

In the banking sector, artificial intelligence (AI) is becoming a rapidly growing force that is changing many elements of operations, customer-facing aspects, and communications (Karthiga et al., 2024). Digital innovations are increasingly necessary for financial institutions to deal with a more competitive market and changing customer expectations in today's banking environment; they are no longer optional (Eren, 2021).

Since AI is becoming increasingly common in the banking industry, financial institutions need to evaluate how internal stakeholders perceive the advantages of implementing AI, the significance of leadership, and a variety of other factors that impact the organizational adoption of AI (Fares et al., 2023). AI has been the driving force behind the development of numerous new digital technologies in the current banking age, which have led to creative disruptions of banking channels, services, and solutions (Dobrescu, 2018).

Although the adoption of internet banking has been the subject of numerous studies, there is a dearth of factual data that reflects the purpose of technology-based banking application usage (Yuan et al., 2019; Alsajjan et al., 2010; Alwan al., 2016). Therefore, in the financial services industry, especially in banking, flexibility is essential for staying relevant and competitive. Additionally, cutting-edge banking technology needs to satisfy the demands of the contemporary customer, supply marketplaces that are pertinent, benefit the client, and be simple to utilize and accessible (Tabash et al., 2019).

Moreover, technical developments have greatly expanded the opportunities for AI to simplify company operations (Tarafdar et al., 2019); however, many corporate executives lack expertise in the strategic use of AI. Ransbotham et al. (2017) reported that only 39% of business leaders had a strategic plan for using AI because they lacked knowledge about its

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implementation in their company, and 85% of business leaders believe that AI is necessary and represents a key tool to provide companies with a sustainable competitive advantage.

In addition, most technology adoption models have not been extensively evaluated in developing nations, particularly Lebanon (Tarhini et al., 2014a) and Arab countries (Zhao et al., 2012). Notably, no study has examined the connection between behavioral intention and AI adoption in Lebanon. While the use of chatbots in customer service is increasing, research in this area is still limited, especially within the banking sector, where consumers often exhibit apprehension and reluctance to engage with chatbots. Furthermore, the banking sector recognizes the necessity of investing in various enterprise systems to maintain a competitive edge in today's business landscape and has committed substantial resources to this endeavor (Sidani et al., 2023).

Studying Lebanese banks offers valuable insights into how leadership style and the Technology Acceptance Model interact in a banking environment that is both highly traditional and rapidly modernizing. The Lebanese banking system presents a unique case due to its strong reliance on personal relationships, hierarchical structures, and its position as a regional leader in adopting financial innovations.

One of the most important parts of leadership is the idea of leadership styles, which summarize the various methods and techniques that leaders use to communicate with their followers (Yukl, 2013). Leadership style influences organizational practices and fosters an atmosphere that supports innovation, which in turn encourages and facilitates the innovation process (Jia et al., 2018).

Several models have also been proposed (Venkatesh et al., 2012). Among them, the Technology Acceptance Model (TAM) has garnered the greatest attention. This model posits that people's desire to use a new technology is determined by how they perceive it and that intention, in turn, influences actual technology use (Davis et al., 1989). Specifically, the intention to use a technology is contingent upon two beliefs: perceived ease of use, defined as the degree to which an individual believes that using an IT will be effortless, and perceived usefulness, defined as the degree to which an individual believes that utilizing an IT will improve his or her job performance. Furthermore, the model considers how these two fundamental beliefs moderate the impact of external factors (Venkatesh et al., 2008).

In light of research background and the existing gap in previous literatures, the current research tries to achieve the following objectives:

1- To build on the technology acceptance model by adding leadership style as external factor.
2- To test the role of laissez-faire leadership style in enhancing PEOU and PU of AI in Lebanese banks.
3- To test the role of perceived usefulness in enhancing the intention to use AI in Lebanese banks.
4- To test the role of perceived ease of use in enhancing the intention to use AI in Lebanese banks.
5- To test the role of perceived ease of use in enhancing perceived usefulness of AI in Lebanese banks.

2. Literature Review

2.1. Technology acceptance model (TAM)

Davis (1989) first presented the Technology Acceptance Model (TAM) in Figure 1, which has since been widely used in many different fields to evaluate users' acceptance of information technology. It has been used to investigate the uptake of a variety of technologies, including websites, telemedicine, email, spreadsheet programs, and web browsers. The TAM states that perceived utility and perceived ease of use are the two main factors that influence a user's intention to use IT (Davis et al., 1989; Dajani and Yaseen, 2016; Kitsios et al., 2021). According to a study by Dajani and Yaseen (2016), the strength of the TAM lies in its capacity to be applied to a wide variety of technical contexts and circumstances.

Numerous studies have examined the variables influencing users' intentions to use mobile payments (De Sena et al., 2016; de Luna et al., 2019; Kim et al., 2010; Liébana-Cabanillas et al., 2020; Cao et al., 2016; Shankar & Datta, 2018; Singh et al., 2020).

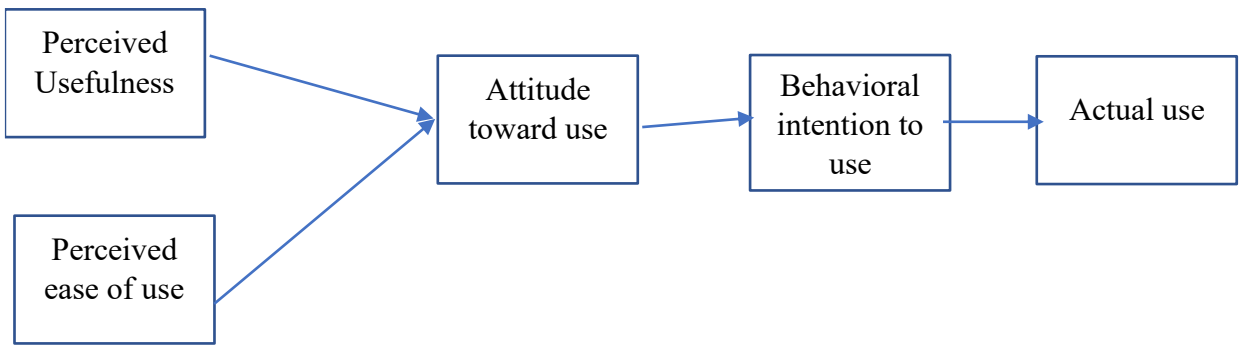

Figure 1 The original technology acceptance model.
Source: (Davis, 1989).

TAM was developed as an adaptation of the broader theory of reasoned action (TRA) and was later refined to incorporate both technological and organizational behavior dimensions (Davis et al., 1989). At its core, the TAM identifies perceived usefulness (PU) and perceived ease of use (PEOU) as the two key determinants of technology acceptance. Shroff et al. (2011) assert that system developers can predict users' behavioral intentions and actual system usage by manipulating these two variables, thus gaining more control over users' attitudes toward the technology.

TAM2 was developed by Venkatesh and Davis (2000) and introduces two additional variables: social influence and cognitive instrumental processes. Social influences include subjective norms, whereas cognitive processes encompass factors such as job relevance, output quality, demonstrability of results, and perceived ease of use. These new variables help refine the understanding of technology acceptance, whereas perceived ease of use remains a key predictor of perceived usefulness from the original model. Experience and volunteering were introduced as moderating variables in TAM2. Interestingly, TAM2 does not include the attitude variable, marking a key distinction from the original TAM (Wu et al., 2011). Venkatesh and Davis (2000) reconsidered the role of subjective norms in the TAM2 extension, addressing their earlier omission in the TAM.

TAM3, introduced by Venkatesh and Bala (2008), further enhances the model by expanding the importance of perceived ease of use. New dimensions, such as computer playfulness, computer anxiety, external control perception, and computer self-efficacy, were incorporated. Subjective enjoyment and objective usability were added as additional adjustment variables. Venkatesh and Bala (2008) conceptualized TAM3 as a synthesis of prior TAM research, focusing on four key categories: individual differences, social influence, facilitating conditions, and system characteristics (Howard et al., 2010).

TAM is used frequently to measure users' intention to use technology in different domains. In health care, Holden et al. (2010) used TAM and concluded that TAM predicts a substantial portion of the use or acceptance of health IT but that the theory may benefit from several additions and modifications.

In the educational domain, Granic et al. (2019) show the TAM's application in the fields of learning and teaching for a variety of learning domains, learning technologies and types of users and prove that the TAM's core variables, perceived ease of use and perceived usefulness, are antecedent factors affecting acceptance of learning with technology.

TAM is also used to test users' intention to use technology in the Metaverse, which is considered the next generation of internet use (Aburbeian et al., 2022). It has also been explored in studies focused on the efficiency of enterprise resource planning (ERP) systems (Elkhani et al., 2014).

Moreover, TAM is used to assess users' intention to use technology in mobile payments in the banking sector (Koksal et al., 2016, Singh et al., 2020, Rahman et al., 2023), Internet of Things (Gao et al., 2014), and gas and oil (Aziz et al., 2020).

2.2. Perceived Usefulness

Perceived usefulness (PU), as defined by Davis (1989), refers to the extent to which an individual believes that using a particular technology will enhance their job performance or daily activities. It is a central construct in the Technology Acceptance Model (TAM) and is consistently recognized as one of the strongest predictors of the behavioral intention to adopt new technologies (Al-Maroof et al., 2018). Users are generally more inclined to adopt technologies that offer clear benefits such as increased efficiency, reduced effort, and time savings (Liébana-Cabanillas et al., 2020). PU often serves as both an independent and dependent variable in TAM research, as it is influenced by perceived ease of use (PEOU) and, in turn, predicts intention to use (ITU) (Lee et al., 2003).

Several empirical studies have confirmed the significance of PUs across various sectors. In education, for example, PU has been used to evaluate students' behavioral intention to use AI tools such as ChatGPT in Spain, where findings revealed that PU was a critical determinant of user behavior (Romero-Rodríguez et al., 2023). Aldraiweesh et al. (2025) reported that PU is significantly influenced by perceived educational, cognitive, and emotional support, which also impacts users' attitudes and intentions toward adopting AI technologies. Similarly, Rahman et al. (2025) demonstrated that both PU and PEOU significantly affect students' intention to use AI chatbots for online learning. These findings emphasize the importance of designing AI systems that prioritize usability and incorporate emotional and instructional support to enhance adoption.

Beyond education, PU has proven essential in other domains. In healthcare, PU and PEOU are used to understand physicians' attitudes and willingness to adopt AI-driven tools, with the aim of developing tailored strategies for increasing adoption (Panagoulias et al., 2023). In a systematic review by Kelly et al. (2023), PU was found to significantly predict behavioral intention and actual use of AI across industries. In the consumer sector, PU was shown to positively influence users' continued use of smart speakers and AI assistants (Hsieh et al., 2021), as well as e-wallet services, where it also served as a partial mediator between the PEOU and the ITU (Kumar et al., 2025). Additionally, research by Kim et al. (2021) revealed that functional AI increased PU, leading to stronger positive attitudes and perceived realism. These results collectively underscore the critical role of perceived usefulness in driving the successful adoption and sustained use of AI technologies.

2.3. Perceived ease of use

Perceived ease of use (PEOU) is defined as the degree to which an individual believes that using a particular system will require minimal effort (Davis, 1989). It reflects the user's perception of how simple and straightforward a technology is to

operate. When individuals believe that they can complete tasks with a system effortlessly, their perception of ease increases, encouraging adoption. Several factors influence this perception, such as the system's user-friendly features, intuitive design, and even the perceived prestige or novelty of the technology. A system that aligns well with the user's skills and expectations tends to be perceived as easier to use, thus enhancing user acceptance.

In practice, the PEOU has been extensively studied across various technology domains. In mobile banking, for example, ease of use is often associated with how easily users can conduct transactions, learn the system, and improve their digital capabilities. While perceived usefulness (PU) is influenced by the belief that a system enhances efficiency and productivity, PEOU is considered a significant antecedent to PU. According to Davis et al. (1992), the PEOU indirectly influences technology acceptance by shaping the PU. In this context, ease of use can play a foundational role in building users' confidence and shaping positive attitudes toward a system.

Empirical evidence from multiple studies supports the importance of the PEOU in predicting technology usage. In Indonesia, PEOU has been linked directly and indirectly to mobile banking adoption, as demonstrated by Prastiawan et al. (2021), who reported that it impacts both usage behavior and attitudes. However, other studies, such as Chairina (2021), reported an insignificant relationship between PEOU and online service usage, highlighting contextual variability. Basuki et al. (2022) reported that the PEOU directly influenced customers' intention to continue using e-wallets and indirectly through customer satisfaction. Similarly, in Jakarta, increased e-banking usage was shown to be significantly influenced by perceived ease of use, reaffirming its pivotal role in shaping users' intention to adopt digital financial services.

2.4. Intention to Use

Intention to use refers to an individual's willingness to engage with a specific technology, often seen as a precursor to actual usage behavior. According to Ajzen and Fishbein (1980), intention serves as a reliable indicator of the likelihood that an individual will perform a desired behavior, such as adopting a technological system. This intention reflects not only the user's effort and readiness but also their level of engagement with the technology. For example, users with strong intentions may personalize their tools with add-ons or advocate for their use within their networks (Davis, 1989). In this way, intention plays a vital role in predicting sustained usage and deeper user involvement.

Behavioral intention to use (BIU) has been recognized in both the theory of reasoned action (TRA) and the technology acceptance model (TAM) as critical predictors of actual technology adoption. According to Fishbein and Ajzen (1975) and Davis (1989), an individual's intention is shaped both by their attitudes toward the behavior and by subjective norms — the social pressure to perform or avoid a specific action. These factors, in turn, stem from users' beliefs regarding the outcomes and perceived expectations of important stakeholders. Within the TAM, the beliefs of perceived usefulness (PU) and perceived ease of use (PEOU) strongly influence BIU, ultimately leading to actual technology use (Oyeleye et al., 2015; Hanafizadeh et al., 2014).

Numerous studies affirm that behavioral intention is a consistent and powerful predictor of actual technology use across various domains. Venkatesh et al. (2003) emphasized that behavioral intention plays a central role in forecasting technology adoption, where the stronger the intention is, the greater the likelihood of action. This relationship is foundational in the TAM, which applies Ajzen and Fishbein's (1980) logic of causality to explain how external variables influence internal beliefs, which then shape attitudes and intentions. As users form positive perceptions of a technology's usefulness and ease of use, they develop favorable attitudes and stronger intentions to adopt it, which in turn guide their actual behavior during the technology adoption process.

2.5. leadership styles

Researchers have studied adaptive organizational development in highly challenging leadership contexts and a variety of leadership styles and their relative significance for organizational and personnel effectiveness over the past few decades (Bonini et al., 2024). The passive avoidance style encompasses two elements: laissez-faire leadership and management by exception (passive) (Antonakis et al., 2003; Antonakis and House, 2014).

When the superior must actively participate in a problem, laissez-faire leadership is a nonresponsive and avoidant style of leadership whereby leaders fail to live up to the justifiable expectations of their subordinates, which are considered detrimental (Buch et al., 2015). Numerous studies have demonstrated the detrimental effects of laissez-faire leadership, such as increased role stress, interpersonal disputes, emotional weariness, decreased job satisfaction, and health issues, further supporting the destructive nature of this style of leadership. Therefore, being laissez-faire involves more than just not being a leader; it also involves not taking charge when necessary (Shal et al., 2024; Almeida et al., 2022).

The laissez-faire leadership style is characterized by a hands-off approach, in which leaders grant their followers autonomy and encourage independent decision-making. Leaders employing this style delegate authority, allowing for flexibility, but it also requires team members to be self-motivated and competent (Thanh et al., 2022). While laissez-faire leadership fosters autonomy, it is also characterized by disengagement, indifference, and a lack of guidance, as leaders become unavailable when needed and ignore both problems and successes (Bass & Riggio, 2006). This style can lead to minimal

oversight and may result in less effective team performance if followers lack direction or support (Ghamrawi, 2023).

2.6. Laisser-Faire Leadership

Technology's perceived usefulness and ease of use may be significantly impacted by a laissez-faire approach, which is defined by a detached, decentralized leadership style. Owing to its capacity to foster team member autonomy, laissez-faire leadership gives people the latitude to experiment with and explore technology at their own speed and in ways that suit their tastes. Because people can customize their interactions with the technology to fit their own working methods, this increased autonomy may help people see technology as being easy to use. Furthermore, as people can find new and uniquely relevant methods to incorporate technology into their workflow, having the freedom to independently investigate features and functionalities may further increase the perceived utility of technology (Shal et al., 2024).

Morisson (2007) defines laissez-faire as a leadership style characterized by minimal monitoring and interaction from the leader, who avoids setting goals for the group and exhibits little confidence in their leadership abilities. This style works effectively when group members are self-sufficient, as the leader steps back while followers make the most decisions. In environments such as research centers, where highly skilled individuals work autonomously, this approach is likely to be successful (Morrison, 2007).

Managers practicing laissez-faire leadership typically refrain from making decisions and become involved only when necessary (Skogstad et al., 2007). This leadership style can manifest as a neglect of duties, ignoring work-related issues, or failing to address employee needs (Robert et al., 2020). According to Yang (2015), laissez-faire leadership can also be viewed as a noninvolvement approach. In certain circumstances, this can benefit employees by reducing dependency on management and increasing their sense of autonomy and self-determination. However, the effectiveness of laissez-faire leadership depends heavily on context, particularly when staff members are highly competent and capable (Yang, 2015).

Employee expectations also play a key role in the perception of laissez-faire leadership. In a study of 150 manager–employee pairs, Wong and Giessner (2018) reported that while a manager may reduce engagement with the intention of empowering employees, this may not always be perceived as empowering by employees. If the lack of engagement is seen as avoidance rather than empowerment, employees may view laissez-faire leadership negatively (Wong and Giessner, 2018).

The effects of laissez-faire leadership influence attitudes, perceptions, and openness to change, fostering the acceptance of new ideas and technologies (Ghamrawi & Tamim, 2023). Laissez-faire leadership is particularly suitable in settings where team members are self-independent, such as research centers (Morrison, 2007).

This leadership style may uniquely impact perceptions of technology’s usefulness and ease of use by fostering autonomy, allowing team members to explore and experiment with technology at their own pace. This autonomy can enhance perceptions of technology usefulness, as individuals can tailor their interactions to suit their working styles. Additionally, the freedom to independently explore technology features can improve perceptions of ease of use, as individuals discover new and relevant ways to integrate it into their workflow (Shal et al., 2024).

2.7. AI in the banking sector

Digital innovations are becoming increasingly vital for financial institutions to navigate competitive markets and address evolving client expectations (Eren, 2021; Rajaobelina, 2021). As the driving force behind numerous new digital technologies, AI is revolutionizing banking services through innovative solutions facilitated by new communication and delivery channels. The traditional financial industry is entering a new era due to AI and other fintech advancements, which dramatically alter the operations of financial firms, particularly in sectors such as trading and insurance (Kuo, 2014).

AI is widely adopted in the banking sector, with implementation occurring at all levels of offices and departments. According to Digalaki (2022), banks saved $447 billion in 2023 through AI applications. Nearly 80% of banks in the USA recognize the potential advantages that AI could provide. However, the use of AI presents both opportunities and challenges. In the banking sector, AI has guided the development of efficient customer relationship management systems (Tarafdar et al., 2019). Historically, the focus was on automating internal systems and processes related to credit scoring, analytics, and lending (Caron, 2019). AI refers to systems that can think and behave rationally, similar to humans (Kok et al., 2009).

Empirical research has demonstrated that strategically applying AI and digital support enhances the customer experience by improving service response times, thus reducing contact center strain (Bhale, 2019). Moreover, employing e-channels for innovative marketing strategies represents one avenue for sustainable business practices driven by AI (Duan et al., 2019).

Despite the political and economic difficulties facing the Middle East, the Lebanese banking industry has been crucial to the region's stability and resiliency. Lebanese banks play a crucial role in the local economy by providing a variety of financial services and products to both domestic and foreign customers (Khalil, 2017). The banking sector has shown itself to be flexible over time, consistently adopting new technology to satisfy the changing demands of the market. Because of their flexibility, Lebanese banks provide an intriguing setting for researching the ways in which leadership philosophies and the Technology Acceptance Model (TAM) affect the uptake of new technologies (El-Khoury, 2019).

The leadership styles of Lebanese banks are influenced by the unique cultural, economic, and sociopolitical environment of the country. Personal relationships, trust, and hierarchy are central to the way business is conducted in Lebanon. These cultural nuances often shape the leadership approach in organizations, including banks (Harb & Abboud, 2018).

2.8. Conceptual framework and hypotheses

The conceptualization of variables in this study focuses on the relationship between the laissez-faire leadership style and technology acceptance within organizational settings. Laissez-Faire leadership is conceptualized as an independent variable that shapes leaders' behaviors toward technological change. Drawing from the Technology Acceptance Model (TAM), perceived usefulness and perceived ease of use are identified as key variables that influence users' intention to adopt technology. This framework positions leadership as a critical antecedent that can enhance or hinder technology acceptance by shaping leaders' perceptions, motivation, and readiness for change, thereby providing a basis for analyzing how leadership influences the adoption and implementation of new technologies.

The current research tests the relationship between laissez-faire leadership, a modern leadership style (Amanchukwu et al., 2015), and TAM attributes.

2.8.1. The relationship between laissez-faire leadership and perceived usefulness

Passive leadership is thought to have detrimental effects since it can result in misunderstandings, a lack of vision and direction, disengagement (Buch et al., 2015), and positive technostress (Boyer-Davis, 2014), resulting in less corporate dedication to technology (Donkor & Zhou, 2020).

Schepers J. et al. (2005) reported that, in service firms, the relationship between laisser-Faire leadership and perceived usefulness was not significant.

In his research that aims to understand how leadership plays a vital role in employee information systems security intention in the banking industry, Almeida et al. (2022) concluded that passive leadership harms employee intention toward information systems security.

In addition, a study by Shal et al. (2024) highlighted that the relationship between librarians' perceived usefulness (PU) of AI at universities and laissez-faire leadership is not significant. The study also noted differences in how laissez-faire leadership affects the perceived usefulness (PU) of AI. When laissez-faire leadership is overly passive, librarians may find AI accessible but not always immediately beneficial to their work.

On the basis of the literature, the following hypothesis is proposed:

H1: Laissez-faire leadership negatively influences the perceived usefulness of AI.

2.8.2. The relationship between laissez-faire leadership and perceived ease of use

Numerous studies have shown that passive leadership leads to technostress (Boyer-Davis, 2014), decreases companies' commitment toward adopting and using technology (Donkor & Zhou, 2020), and leads to detrimental behavior (Buch et al., 2015).

A study by Shal et al. (2024) highlighted that librarians' perceived ease of use (PEOU) of AI in university libraries is negatively influenced by laissez-faire leadership. This hands-off leadership style fosters a work culture that promotes the view of AI tools as simple to use, improving librarians' integration of AI into their daily tasks.

Schepers J. et al. (2005) reported that, in service firms, the relationship between laisser–Faire leadership and perceived ease of use was not significant.

Almeida et al. (2022) also concluded that passive leadership harms employee intention toward information systems security. The results are obtained after conducting research to understand how leadership plays a vital role in employee information systems security intention in the banking industry.

On the basis of the literature, the following hypothesis is proposed:

H2: Laissez-faire leadership negatively influences the perceived ease of use of AI.

2.8.3. The relationship between perceived usefulness (PU) and the intention to use AI

Perceived usefulness (PU), perceived ease of use (PEOU), and intention to use are the factors that make up the TAM model. This paradigm holds that an individual's intentions to utilize new technology are impacted by their opinions about its usefulness and ease of use, which are connected to their responses to its adoption (Tsai et al., 2019). Perceived usefulness, perceived ease of use, and intention to use have also been the subject of several studies conducted in a variety of organizations and fields. This is supported by earlier research on the use of technology in healthcare settings that employed PU, PEOU, and intention to use (Asua et al., 2012; Park et al., 2023).

According to the TAM, there is a relationship between PU, PEOU, and the intention to utilize technology. Perceptions of a technology's utility and usability impact a person's intention to embrace it, which in turn affects how they feel about the technology in general (Tsai et al., 2019). Additionally, the TAM proposes a reciprocal link between the PEOU and PU, according

to which a technology is considered more valuable the easier it is to use (Venkatesh et al., 2000).

According to several studies, PU and users' intentions to use mobile payments are positively correlated (de Luna et al., 2019, Lara-Rubio et al., 2021, Liébana-Cabanillas et al., 2020, Singh et al., 2020). For example, a study by Kitsios et al. (2021) on Greek banking employees examined their readiness to adopt digitalization based on the Technology Acceptance Model (TAM). The study confirmed that perceived usefulness (PU) and perceived ease of use (PEOU) positively influence the intention to use digital banking.

Further research supports the importance of PU in the uptake of technology. According to Mital et al. (2018), people are more likely to accept and utilize technology if they believe that it would help them perform better. Similarly, PU and the intention to utilize technology were found to be strongly positively correlated in a study by Gao and Bai (2014) on the adoption of Internet of Things (IoT) technologies. According to Karahoca et al. (2018), IoT devices that improve tangible performance, such as smart thermostats, are more likely to be adopted because of their high perceived utility.

According to Aziz F. et al. (2020), PU has a beneficial effect on the intention to adopt technology in Malaysia's oil and gas industry. According to previous studies, PU is crucial in predicting a person's propensity to utilize technology (Joo et al., 2018). In the end, PU plays a crucial role in determining how employees feel about technology since it has a direct effect on their desire to embrace and utilize it. In their study on AI adoption in Malaysia's banking industry, Rahman L. et al. (2023) concluded that PU has a major effect on the intention to implement AI in financial services.

Furthermore, PU has a positive effect on the intention to use digital banking, according to the results of a study by Viet T. et al. (2024) that examined the correlations between 262 responses and factors influencing users' acceptance of digital banking in Vietnam.

According to empirical research on e-payment acceptance, usage intention is influenced by perceived usefulness (Francisco et al., 2015; Wang et al., 2006). Francisco et al. (2015) reported that perceived utility has a direct effect on users' sentiment toward the payment mechanism. Cheng and Huang (2013) agreed that the perceived usefulness of mobile ticketing services has a direct and positive influence on mobile usage behavior.

Perceived usefulness and the behavioral desire to use mobile services are positively correlated, according to Wang et al. (2006). In conclusion, customers use mobile services more often when they find them useful for their transactions.

Malaysian students' intention to use an e-learning system is significantly influenced by perceived utility (Masrom, 2007). In Lebanon,

Koksal (2016) shows that customers with good intents are differentiated from others by the perceived usefulness and perceived ease of use of mobile banking. These results are consistent with those of previous studies (Wang et al., 2006; Luarn and Lin, 2005).

On the basis of the preceding literature, the following hypothesis is proposed:

H3: The perceived usefulness of AI positively influences the intention to use AI.

2.8.4. The relationship between perceived ease of use (PEOU) and the intention to use AI

The predictive ability of the TAM in evaluating users' perceptions of technology's usefulness, convenience of use, and intention to adopt it has been validated by several studies conducted in a variety of industries and organizational settings (Asua et al., 2012, Oso et al., 2025). In recognition of the complexity of human interactions with technical advancements, theories of technology acceptance have developed over time to incorporate a wider range of elements influencing adoption behavior. Notwithstanding these developments, the original TAM is still a fundamental paradigm that is regularly applied to comprehend the adoption of technology in domains such as information systems and human–computer interaction (Trang, 2024). Trang's study (2024) revealed that both PU and PEOU positively influence the intention to use technology.

Similarly, Koksal (2016) discovered that consumers' inclination to utilize mobile banking applications in Lebanese banks is significantly influenced by PU and PEOU. These results highlight the TAM's ongoing applicability in forecasting technology adoption in many settings.

According to Chocarro et al. (2023), chatbot acceptance in educational contexts is strongly influenced by both PEOU and PU. Additionally, the study showed that transformational leadership increases PU, whereas laissez-faire leadership has a favorable impact on PEOU, indicating that leadership styles are crucial in influencing how people view AI. Employee perceptions of AI value in their companies can be strongly influenced by leaders, who encourage and drive innovation (Shal et al., 2024).

PEOU is still a major issue in technology adoption, especially for users who are less acclimated to new technologies, even though it mainly pertains to the technical side of utilizing a system. Studies such as those by Venkatesh et al. (2003) and Thompson et al. (1991) show that PEOU is a crucial determinant of technology acceptance, particularly in workplace settings where performance depends on the quick adoption of new systems, despite some research suggesting that PEOU has a smaller impact on behavioral intention than PU does. Positive experiences and a greater chance of incorporating technology into everyday work routines are the results of employees' perceptions of how easy it is to utilize technology (Venkatesh et al., 2008).

When people are uncomfortable or unfamiliar with the technology, the PEOU is more important. According to research, a system is more likely to be adopted and integrated into routines if it requires less work to operate. For example, research has repeatedly demonstrated a favorable correlation between PEOU and the intention to use technology in the context of mobile

banking (Naruetharadhol et al., 2021). PEOU has a beneficial effect on the intention to employ technology in Malaysia's oil and gas industry, according to Aziz et al. (2020).

Additionally, the PEOU positively influences the intention to use mobile banking apps (Singh et al., 2018). According to Zhang et al. (2014), only one study out of seventy-two that used the TAM model failed to demonstrate how perceived usefulness influenced people's attitudes, behavioral intentions, and technology use. Accordingly, the current research indicates that perceived utility is a significant element influencing people' acceptance of technology.

After applying the TAM model to the educational system, Woody et al. (2019) and Yang et al. (2019) confirmed a positive relationship between users' intention to use PU and PEOU. Aziz et al. (2020) reported a strong correlation between PU and PEOU and users' intention to employ web-based data tracking and monitoring tools at work. The results of a study that examined the relationship between factors influencing users' acceptance of digital banking in Vietnam showed that the PEOU positively affects the intention to use digital banking (Viet et al., 2024).

Regardless of whether users are technically skilled, ease of use is crucial for M-wallet services (Dai & Palvi, 2009). Prior research has demonstrated a favorable correlation between the behavioral intention to use and perceived ease of use (Pousttchi & Wiedemann, 2007; Rigopoulos & Askounis, 2007; Jayasingh & Eze, 2009).

However, in their study on the adoption of AI in Malaysian banks, Rahman L. et al. (2023) concluded that the PEOU had no significant effect on the intention to utilize AI.

On the basis of the previous literature, the following hypothesis is proposed:

H4: The perceived ease of use of AI positively influences the intention to use AI.

2.8.5. The relationship between perceived ease of use (PEOU) and perceived usefulness (PU) of AI

Hsu (2016) conducted a study to explain the relationship between perceived usefulness and perceived ease of use. The study revealed that perceived usefulness is positively affected by perceived ease of use in small and medium manufacturers for manufacturing services of novel product development models. Furthermore, ease of use is seen as one of the primary variables influencing the term's perceived usefulness (Kitsios et al, 2021). The perceived usefulness of AI in academic libraries in higher education is positively influenced by perceived ease of use, according to Shal et al. (2024).

To assess the use of TAM in the e-learning system, a study was carried out on students in the Science Department at the College of Science and Technology, University Technology of Malaysia (UTM) City Campus. These findings indicate that the PEOU has a favorable effect on PU (Masrom, 2007). According to a study conducted by Almahamid et al. (2010) on e-government's perceived usefulness and ease of use for information collection and transactional purposes in Jordan, the findings showed that the PEOU significantly impacts the PU.

On the basis of the previous literature, the following hypothesis is proposed:

H5: The perceived ease of use of AI positively influences the perceived usefulness of AI (Figure 2).

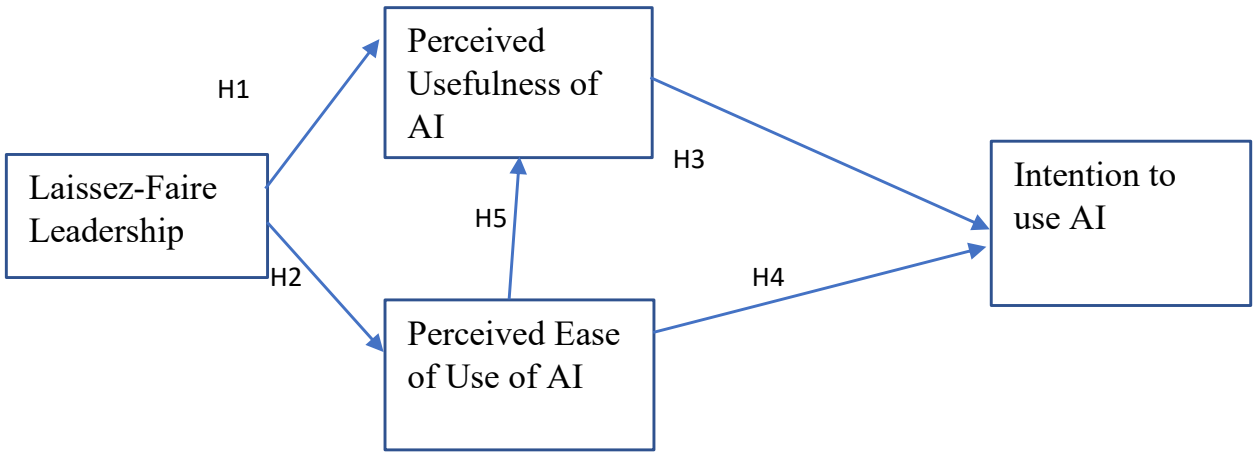

Figure 2 Research model.
Source: (Shal et al., 2024), adjusted by the researcher.

3. Methodology

3.1. Research Design

The purpose of this study was to investigate how Lebanese bank leaders view their intention to employ AI in connection with their leadership styles. The positivist paradigm served as the foundation for the study design, which emphasized scientific procedures and empirical observation as the means of understanding the world (Goertzen, 2017). As a result, a survey approach was used to gather information from 250 banking leaders in a systematic manner.

3.2. Research instrument

This study used the survey technique. A 5-point Likert scale was used for all the items. Laissez-Faire leadership was measured via the Multi Factor Leadership Questionnaire 5× developed by Bass and Avolio (1995), which includes 3 items; PU and PEOU were measured via 4 items each; and ITU was measured via 3 items. According to Davis (1989), the Cronbach's alpha for the LF scale is 0.690, that for the PU scale is 0.894, that for the PEOU is 0.822, and that for the ITU is 0.740. The questionnaire has already been validated (Shal et al., 2024).

3.3. Structural equation model

The researcher used SEM to test the relationship between the laissez-faire leadership style and the intention to use AI. Amos 24 was used to construct the SEM between the variables under investigation. The SEM image is presented in Figure 3.

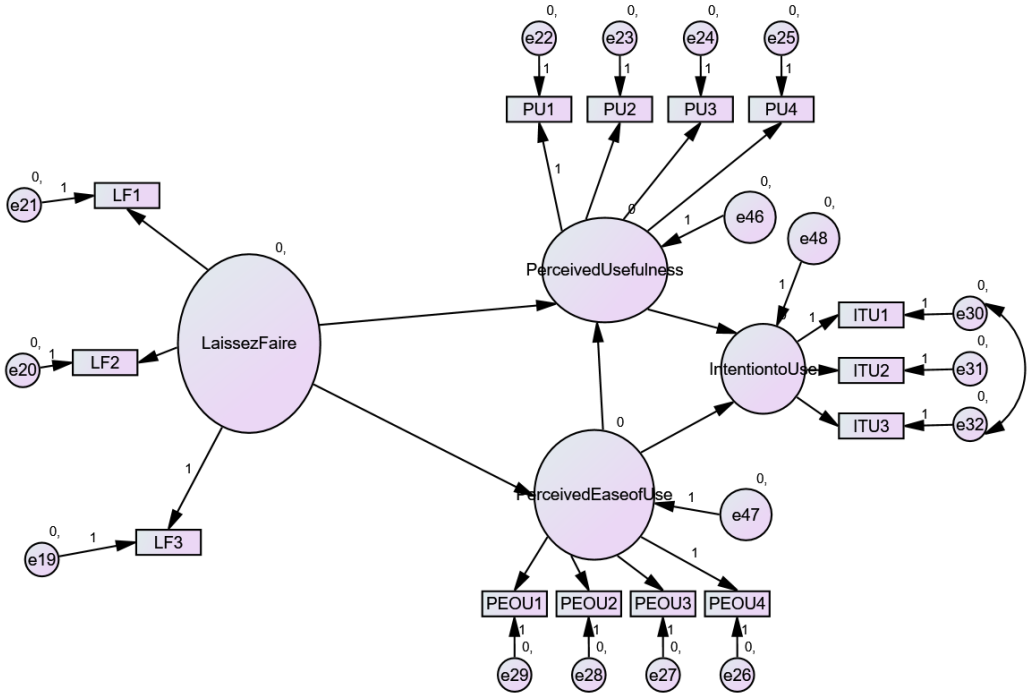

Figure 3 SEM.

3.4. Variables and measures

The following Table 1 summarizes the conceptual and operational definitions for each variable:

Table 1 Variable measurement.

Variable	Conceptual Definition	Operational Definition	No. of Items	Measurement:Likert-Scale
Laissez-Faire Leadership	A passive leadership style where leaders avoid decision-making and responsibility, and are characterized by hands-off approach (Bass and Riggio, 2006).	MLQ subscale assessing non-interventionist behaviors.	3	5-points
Perceived Ease of Use	The degree to which a person believes that using a system is simple (Davis, 1989).	Measured using TAM scale items.	4	5-points
Perceived Usefulness	The degree to which a person believes that using a system is benefical and enhances their job performance (Davis, 1989).	Measured using TAM scale items.	4	5-points
Intention to Use AI	A person's intention to continue using a specific technology (Davis, 1989).	Measured using adapted items from the TAM scale specific to AI adoption.	3	5-points

4. Results

The descriptive statistics presented in Table 2 present the means and standard deviations of the variables. Table 3 shows the maximum likelihood estimates of regression weights for various variables.

Table 2 Descriptive statistics.

Variable	Min	Max	Mean	Std. Dev.	Skewness	Kurtosis
Laissez-Faire Leadership	3.00	15.00	9.62	2.51	-0.051	-0.503
Perceived Ease of Use (PEOU)	4.00	20.00	14.92	2.90	-0.251	0.003
Perceived Usefulness (PU)	4.00	20.00	15.12	3.39	-0.438	-0.185
Intention to Use (ITU)	3.00	15.00	10.84	2.50	-0.514	0.213

Laissez-Faire Leadership: Mean = 9.62, minimal skew (-0.051), the distribution is nearly symmetrical. For negative kurtosis (-0.503), the distribution is somewhat flat. Perceived Ease of Use (PEOU): Mean = 14.92, with a slight negative skew (-0.251), respondents generally rated PEOU positively. Kurtosis is close to zero, indicating a relatively normal distribution.

Perceived usefulness (PU): Mean = 15.12, slightly higher than PEOU. With a negative skew (-0.438), respondents tend to rate PUs positively. The slight negative kurtosis (-0.185) suggests a slightly flatter distribution. Intention to Use (ITU): Mean = 10.84, moderate negative skew (-0.514); more respondents rated ITU high. Positive kurtosis (0.213) → Slightly peaked distribution.

Table 3 Reliability test.

Variables	No. of Items	Cronbach's Alpha (α)	Interpretation
Laissez-Faire leadership	3	.690	Acceptable
Perceived ease of use	4	.822	Good reliability
Perceived usefulness	4	.894	Excellent reliability
Intention to use	3	.740	Acceptable reliability

In summary, all the subscales have acceptable to excellent reliability (α > .70).

One subscale (α = .690) is slightly below the ideal threshold of .70, meaning that it could be improved with better item selection.

4.1. Confirmatory Factor Analysis:

CFA is conducted via SPSS: values show how much of the variance in each variable is accounted for by the extracted factors. A value closer to 1.000 means that more variance is explained by the factors (a better fit). There was no multicollinearity since there was no high value (>0.8).

KMO checks how suitable the data are for factor analysis. It evaluates the proportion of variance among variables that might be common variance. KMO >0.8 reflects very good sample adequacy, and the data are suitable for factor analysis.

Bartlett's test of sphericity is statistically significant, χ^2 (496) = 3936.00, p < .001, indicating that the correlation matrix is not an identity matrix. This result supports the factorability of the correlation matrix (Table 4).

Table 4 KMO and Bartlett's tests.

Kaiser-Meyer- Olkin Measure of Sampling Adequacy	0.872
Barlett's Test of Sphericity	Chi-Square 3936.401 Df 596 Sig.<0.001

4.1.1. Goodness of Fit

The goodness-of-fit indices are used to evaluate how well the proposed structural model fits the observed data.

CMIN/DF (chi-square/degrees of freedom) = 2.912

A value less than 3 is generally considered an acceptable model fit. P value = .000 suggests that the model is significantly different from the saturated model

CFI (comparative fit index) = 0.923, which compares the fit of the model with that of a null model (independence), and the value is excellent (> 0.90).

PCFI (parsimonious comparative fit index) = 0.720, which means that adjusting the model simplicity, the value is acceptable (>0.50).

RMSEA (root mean square error of approximation) = 0.089; values below 0.10 indicate a reasonable fit. It measures fit per degree of freedom.

A HOELTER = 108 suggests that the model can be improved by increasing the sample size, and a value >200 is considered adequate.

The Table 5 shows that H1, H3, H4 and H5 are supported, which aligns with most of the previous literature, whereas H2 is not supported, which does not align with most of the previous literature.

Laissez-Faire leadership has a weak but nonsignificant relationship with PEOU (β = 0.285, p = 0.009), implying that a passive leadership approach does not significantly shape leaders' perceptions of technology usability. Laissez-Faire leadership has a significant negative effect on PU (β = -0.257, p = 0.002), suggesting that an absence of leadership can decrease the perceived usefulness of new technology. PEOU has a strong and significant effect on PU (β = 0.842, p < 0.001), reinforcing the

Technology Acceptance Model (TAM) assertion that ease of use enhances perceived usefulness. PU has a strong positive effect on ITU (β = 0.684, p < 0.001), confirming that leaders are more likely to adopt technology when they perceive it as useful. PEOU also significantly influences ITU (β = 0.518, p < 0.001), indicating that ease of use directly increases leaders' intention to use new technology.

Table 5 Summary of the hypothesis testing results.

Hypothesis	Estimate	S.E.	C.R.	P_value	Result
H1: LF & PU	-0.257	0.082	-3.156	0.002	Supported
H2: LF & PEOU	0.285	0.109	2.616	0.009	Not Supported
H3: PU & ITU	0.684	0.126	5.413	***	Supported
H4: PEOU & ITU	0.518	0.118	4.386	***	Supported
H5: PEOU & PU	0.840	0.094	8.902	***	Supported

These findings support the TAM model (Davis, 1989), which posits that both ease of use and perceived usefulness drive technology adoption.

5. Discussion

5.1. Laissez-Faire leadership and technology adoption

The results indicate that laissez-faire leadership has the weakest impact on technology adoption. The lack of leadership involvement results in lower employee motivation and engagement with new technology. This finding is in line with prior studies (Schepers et al. 2005; Almeida et al. 2022; Shal et al., 2024), which argue that passive leadership styles are ineffective in driving change.

5.2. Relationships among the PEOU, ITU, and PU

The strong correlations between the PEOU, ITU, and PU reinforce the Technology Acceptance Model (TAM), confirming that ease of use and perceived usefulness are critical factors in technology adoption. This finding is consistent with those of Davis (1989), Kitsios et al. (2021), and Venkatesh et al. (2000), who proposed that users are more likely to adopt a system if they perceive it as both useful and easy to use.

5.3. Structural Equation Model (SEM)

A detailed interpretation of the findings derived from the structural equation modeling (SEM) analysis conducted in the previous chapter. The aim is to contextualize these results within the framework of the study's theoretical foundations and research objectives.

5.4. Laissez-Faire leadership

Laissez-Faire leadership negatively impacts PU and has no significant impact on PEOU, highlighting that a lack of leadership discourages employees from seeing the benefits of new technology. This aligns with previous studies' findings (Schepers et al., 2005, Almeida et a., 2022, Shal et al., 2024).

The finding that laissez-faire leadership negatively impacts perceived usefulness (PU) offers compelling insight into the critical role that leadership plays in technology adoption, particularly within the fragile and volatile environment of the Lebanese banking sector. Laissez-faire leadership, defined by the absence of active direction, decision-making, or involvement in employees' day-to-day challenges, appears to be especially detrimental in contexts where structural guidance and motivational support are urgently needed.

In Lebanon, where banks have faced ongoing systemic crises—including the collapse of financial confidence, regulatory instability, and rapid shifts toward digital services—employees are operating under intense pressure and uncertainty (Makdissi et al., 2023). In such a setting, the lack of visible and engaged leadership may exacerbate confusion, fear of change, and resistance to new technologies. Employees left without strategic direction or encouragement are less likely to invest cognitive and emotional energy into understanding and adopting new systems. This likely explains the observed decrease in PU under laissez-faire leadership.

More specifically, the absence of leadership involvement may lead to a lack of clarity on how digital tools align with job roles, poor communication about the purpose and advantages of technology, and minimal support in resolving technical or learning-related barriers. As a result, employees may perceive digital systems as complex, irrelevant, or even threatening to their job security—further diminishing their belief in the usefulness of technology (PU) and not affecting their confidence in using it (PEOU). In a country such as Lebanon, where technological literacy varies significantly across bank staff and where training resources may be inconsistently provided, the leader's active role in coaching, supporting, and guiding becomes even more crucial.

For Lebanese banks, this result underscores the importance of proactive, engaged leadership styles, particularly during periods of digital transformation. This further implies that leadership development programs and accountability mechanisms may be essential in ensuring that managers do not default to passivity during crucial phases of technological change. Without decisive and empowering leadership, the potential benefits of technology risk being overlooked or misunderstood by the very individuals expected to use them (Al Ahmad et al., 2019, Baba et al., 2023).

These findings also align with the Technology Acceptance Model (TAM), reinforcing the idea that the organizational context and leadership behavior significantly shape the cognitive antecedents of technology use. Laissez-faire leadership not only fails to enhance these cognitive perceptions but also appears to actively undermine them, suggesting that leadership voids create fertile ground for fear, misinformation, and disengagement—all of which hinder successful technology implementation. These findings are consistent with those of previous studies (Bass & Riggio, 2006; Boyer-Davis, 2014; Donkor and Zhou, 2020; Buch et al., 2015), which suggest that passive leadership hinders innovation.

5.4.1. Validation of the technology acceptance model (TAM)

Both the PEOU and PU significantly impact the ITU, indicating that these factors are essential drivers of technology adoption. These results align with those of Davis (1989), who established the TAM as a framework for understanding technology acceptance.

These findings also strongly align with the Technology Acceptance Model (TAM), which posits that individuals' behavioral intention to use technology is shaped primarily by their perceptions of its usefulness (PU) and ease of use (PEOU) (de Luna et al., 2019, Lara-Rubio et al., 2021, Liébana-Cabanillas et al., 2020, Singh et al., 2020, Kitsios et al., 2021). Within this framework, it becomes evident that organizational context and leadership behavior are critical external variables that influence these cognitive beliefs. In the case of laissez-faire leadership, the absence of active guidance, support, and involvement not only appears insufficient in fostering these perceptions but also may, in fact, actively erode them. The negative influence on both PU and PEOU suggests that when leaders disengage from the digital transformation process, employees are left without the clarity, reassurance, or motivation needed to form positive beliefs about technology.

In the Lebanese banking sector, where economic volatility, public mistrust, and institutional instability already heavily influence employee morale, such leadership voids can be particularly damaging. Laissez-faire behavior in this environment may lead to a vacuum of direction and communication, giving rise to misinformation, speculation, and fear—especially in regard to unfamiliar technologies. This fosters an atmosphere where technology is viewed not as a tool for empowerment or efficiency but rather as a source of risk, confusion, or even job insecurity. Consequently, leaders may become disengaged from innovation initiatives, perceiving technological systems as complex (lowering PEOU) and irrelevant or unhelpful (lowering PU).

Thus, the absence of leadership is not a neutral factor—it is a negative force in the adoption process. It undermines the organizational readiness for technology and highlights a crucial limitation of the TAM when applied in isolation: it does not fully account for the destructive impact of leadership inaction. These results emphasize that in contexts such as Lebanon, where socioeconomic challenges compound organizational change efforts, the role of leadership is not just to encourage adoption but also to prevent disengagement and cognitive resistance. Proactive leadership engagement is therefore indispensable for shaping positive technology perceptions and driving successful implementation.

Interpretation of Key Findings:

By examining the strength, direction, and significance of the hypothesized relationships among the constructs, this chapter seeks to elucidate the broader implications of the SEM outcomes. The discussion also contrasts these findings with literature, highlighting areas of alignment and divergence, and explores potential explanations for unexpected results. This interpretive process provides a critical foundation for understanding the theoretical, practical, and methodological contributions of the study.

5.5. Laissez-Faire Leadership and PEOU

Although the path coefficient between laissez-faire leadership and PEOU was positive ($\beta = 0.285$), it was not statistically significant ($p = 0.009$). This finding indicates that passive or absent leadership does little to foster employees' perceptions of ease of use. Laissez-faire leaders, who avoid decision-making and withdraw from responsibility, fail to provide the guidance necessary for employees to navigate new technologies effectively.

The nonsignificant result, however, should not be dismissed. The direction of the relationship may suggest variability in how laissez-faire leadership is perceived, possibly depending on team dynamics or organizational culture. Future research could explore whether certain conditions moderate this relationship.

This finding aligns with broader studies that conceptualize it as possessing destructive behavior (Buch et al., 2015), positively influencing technostress (Boyer-Davis, 2014), and leading to lowered organizational commitment around technology (Donkor & Zhou, 2020).

On the other hand, this finding contradicts the results of Shal et al. (2024), who reported a significant relationship between Laisser-Faire and PEOU in the context of academic librarians. This can be explained by the difference in context and

culture between academic librarians and the banking sector, without ignoring geographical differences between the two studies.

5.6. Laissez-Faire Leadership and PU

Laissez-faire leadership had a significant negative effect on PU (β = -0.257, p = 0.002). This result is particularly compelling, as it highlights the detrimental effects of absent leadership on employee engagement with technology. Without proper guidance, support, or feedback, employees may not fully understand the benefits of the system, leading to a diminished perception of its usefulness.

This finding aligns with those of previous studies suggesting that passive leadership can lead to destructive behavior (Buch et al., 2015), positively manipulate technostress (Boyer-Davis, 2014), and lower organizational commitment toward technology (Donkor & Zhou, 2020). This finding aligns with those of Schepers et al. (2005) and Almeida et al. (2022), who concluded that the relationship between laissez-faire leadership and perceived usefulness is not significant.

This result contradicts the findings of Shal et al. (2024) concerning the effect of Laisser-Faire leadership on the PU of AI among academic librarians.

In environments where leaders fail to advocate for technology or provide contextual meaning, employees may not see how the tool enhances their work, thus lowering their perception of its utility.

5.7. TAM Constructs and Intention to Use (ITU)

The two constructs of the TAM, PEOU and PU, are explained and compared with those of previous studies.

5.7.1. Perceived usefulness and the ITU

Perceived usefulness had the strongest influence on ITU (β = 0.684, p < 0.001), confirming the foundational principle of the TAM that usefulness is a primary driver of behavioral intention. This finding emphasizes the practical importance of demonstrating the value of a new system to potential users.

This finding aligns with those of broader studies (Venkatesh, 2000; Asua et al., 2012; Gao and Bai, 2014; Koksal, 2016; Kim et al., 2017; Karachoca et al., 2018; Tsai et al., 2019; de Luna et al., 2019; Lara-Rubio et al., 2020; Liebana-Cabanillas et al., 2020; Singh et al., 2020; Kitsios et al., 2021; Rahman et al., 2023), which revealed a positive and direct relationship between PU and the ITU of AI.

When users believe that a system enhances their job performance, increases productivity, or simplifies tasks, they are significantly more inclined to use it. Therefore, leaders and system developers should focus on clearly communicating these benefits during implementation.

5.7.2. Perceived ease of use and the ITU

PEOU also had a significant and substantial effect on ITU (β = 0.518, p < 0.001). This result suggests that ease of use not only contributes to perceived usefulness but also independently influences users' willingness to adopt technology. When a system is perceived as user-friendly and intuitive, it reduces the cognitive load and resistance associated with change.

This finding aligns with those of broader studies (Venkatesh et al., 2000; Asua et al., 2012; Oso et al., 2025; Koksal, 2016; Naruetharadhol et al., 2021; Karachoca et al., 2018; Trang, 2024; Shal et al., 2024; Viet et al., 2024; Singh et al., 2018), which revealed a positive and direct relationship between the PEOU and the ITU of AI.

The dual role of the PEOU, as both a predictor of the PU and the ITU, highlights its centrality in technology adoption frameworks. This further affirms the need for user-centered design and comprehensive training initiatives during system rollout.

5.7.3. Perceived Ease of Use and Perceived Usefulness:

The relationship between perceived ease of use (PEOU) and perceived usefulness (PU) was found to be both strong and significant within the context of Lebanese banks, aligning closely with the foundational assumption of the technology acceptance model (TAM). The correlation analysis revealed a robust positive association between PEOU and PU (β = .840, p < .001), indicating that employees who perceive banking technologies as easy to use are more likely to view them as useful in enhancing their job performance. These findings suggest that in the Lebanese banking sector, ease of use is a critical driver of perceived technological value. Given the sector's increasing reliance on digital tools and platforms, ensuring that systems are user friendly may directly enhance employees' perceptions of their practical benefits, ultimately facilitating broader acceptance and more effective utilization of technological innovations.

These findings align with previous studies and the literature (Hsu, 2016; Shal et al., 2024; Kitsios et al., 2021; Masrom, 2007; Almahamid et al., 2010) (Figure 4).

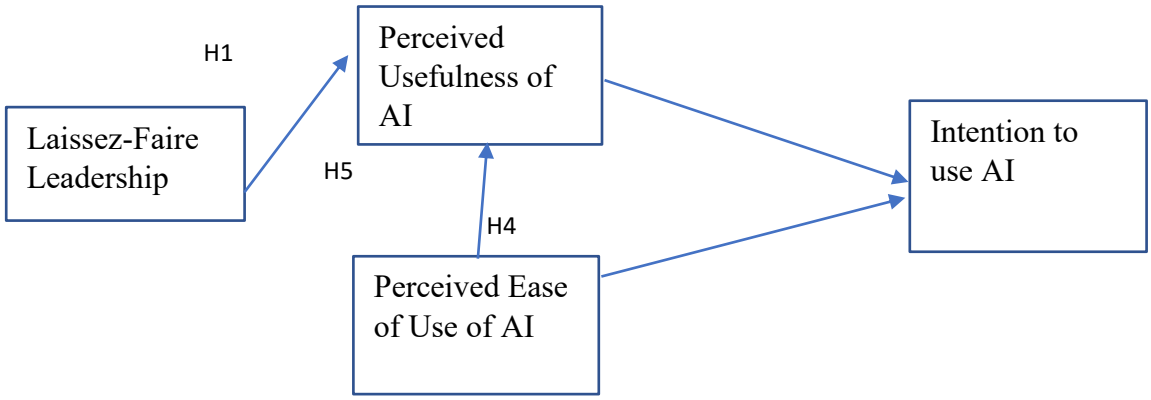

Figure 4 Conceptual model of the research.

6. Conclusions

The findings highlight the critical role of leadership styles in shaping leaders' perceptions and adoption of technology in organizations. The results suggest that organizations seeking to implement digital transformation should prioritize an adequate leadership style to create a positive technology adoption culture.

The findings suggest that laissez-faire leadership negatively affects perceived usefulness and does not affect PEOU, potentially hindering adoption. This study validates the technology acceptance model (TAM) by demonstrating that the PEOU and PU are critical determinants of the ITU.

The study's confirmation that perceived ease of use (PEOU) and perceived usefulness (PU) are significant predictors of intention to use (ITU) aligns with the core assumption of the Technology Acceptance Model (TAM) and provides valuable insights when examined within the specific realities of the Lebanese banking sector. In a sector marked by high regulatory pressure, economic volatility, and rapid digitalization needs, employees' acceptance of new technologies hinges on their ability to perceive these tools as both beneficial to their work and manageable in terms of usability.

In the Lebanese banking environment, where operational disruptions, customer dissatisfaction, and institutional distrust have escalated following years of financial turmoil, the successful adoption of digital platforms and artificial intelligence is crucial to restoring efficiency and public confidence. However, for such adoption to occur, bank leaders must be convinced not only of the necessity of these technologies but also of their reliability, accessibility, and value in enhancing task performance.

The significance of PU in this context reflects employees' desire for practical solutions that can directly address the sector's challenges, such as improving service speed, reducing manual workload, minimizing errors, and meeting customer expectations more effectively. If employees believe that the system will enhance their job outcomes, they are more likely to accept and use it, even amid broader organizational uncertainties.

Moreover, the PEOU becomes particularly salient in a context where technological training may be inconsistent and where digital literacy levels vary across generations and job roles. Many Lebanese banks are undergoing restructuring and digital integration with limited resources, meaning that if systems are perceived as complicated or unsupported, they are likely to encounter resistance. The finding that the PEOU is a significant driver of the ITU suggests that user-friendly system design, intuitive interfaces, and adequate training/support infrastructure are nonnegotiable for effective implementation.

Crucially, the joint impact of PEOU and PU on ITU in this context also reinforces the importance of a holistic adoption strategy that addresses both the functional benefits of technology (usefulness) and the psychological readiness of employees to engage with it (ease of use). Lebanese banks cannot afford to treat technology adoption as a top-down mandate or a purely technical upgrade; it must be experienced at the user level as empowering, purposeful, and manageable.

In summary, this finding validates the TAM in a uniquely complex and constrained organizational environment. This highlights the need for Lebanese banks to adopt a user-centric and leadership-supported approach to digital transformation that ensures that employees not only see the value of technology but also feel confident and competent in its use.

Future research could build upon this study by conducting longitudinal studies to capture evolving user perceptions, explore other leadership styles and contextual variables, and use objective measures of system usage and performance outcomes; such studies would enhance our understanding of the dynamic interplay between leadership, perception, and technology use.

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Ethical considerations

Before the study was conducted, ethical approval was obtained from the Institutional Review Board at Beirut Arab University, ensuring compliance with academic and professional research standards. The participants provided written informed consent.

Conflict of Interest

The authors declare no conflicts of interest.

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